



# Alcatel-Lucent 5620

SERVICE AWARE MANAGER | RELEASE 9.0 R7  
LTE ePC USER GUIDE

3HE 06503 AAAG TQZZA Edition 01

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- 8.5 Alcatel-Lucent shall have the right, at its own expense and upon reasonable written notice to Customer, to periodically inspect Customer's premises and such documents as it may reasonably require, for the exclusive purpose of verifying Customer's compliance with its obligations under this Agreement.
- 8.6 All notices shall be sent to the parties at the addresses listed above, or to any such address as may be specified from time to time. Notices shall be deemed to have been received five days after deposit with a post office when sent by registered or certified mail, postage prepaid and receipt requested.
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- 8.8 Customer shall comply with all export regulations pertaining to the Licensed Program in effect from time to time. Without limiting the generality of the foregoing, Customer expressly warrants that it will not directly or indirectly export, reexport, or transship the Licensed Program in violation of any export laws, rules or regulations of Canada, the United States or the United Kingdom.

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- 8.9 No term or provision of this Agreement shall be deemed waived and no breach excused unless such waiver or consent is in writing and signed by the party claimed to have waived or consented. The waiver by either party of any right hereunder, or of the failure to perform or of a breach by the other party, shall not be deemed to be a waiver of any other right hereunder or of any other breach or failure by such other party, whether of a similar nature or otherwise.
- 8.10 This Agreement shall be governed by and construed in accordance with the laws of the Province of Ontario. The application of the United Nations Convention on Contracts for the International Sale of Goods is hereby expressly excluded.

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# Preface

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The Preface provides general information about the 5620 Service Aware Manager documentation suite, including this guide.

## Prerequisites

Readers of the 5620 SAM documentation suite are assumed to be familiar with the following:

- 5620 SAM software structure and components
- 5620 SAM GUI operations and tools
- typical 5620 SAM management tasks and procedures
- device and network management concepts

## 5620 SAM documentation suite

The 5620 SAM documentation suite describes the 5620 SAM and the associated network management of its supported devices. Contact your Alcatel-Lucent support representative for information about specific network or facility considerations.

Table 1 lists the documents in the 5620 SAM customer documentation suite.

**Table 1 5620 SAM customer documentation suite**

Guide	Description
<b>5620 SAM core documentation</b>	
<i>5620 SAM Release Description</i>	The <i>5620 SAM Release Description</i> provides information about the new features associated with a 5620 SAM software release.

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Guide	Description
<i>5620 SAM Planning Guide</i>	The <i>5620 SAM Planning Guide</i> provides information about 5620 SAM scalability and recommended hardware configurations.
<i>5620 SAM System Architecture Guide</i>	The <i>5620 SAM System Architecture Guide</i> is intended for technology officers and network planners to increase their knowledge of the 5620 SAM software structure and components. It describes the system structure, software components, and interfaces of the 5620 SAM. In addition, 5620 SAM fault tolerance, security, and network management capabilities are discussed from an architectural perspective.
<i>5620 SAM   5650 CPAM Installation and Upgrade Guide</i>	The <i>5620 SAM   5650 CPAM Installation and Upgrade Guide</i> provides OS considerations, configuration information, and procedures for the following: <ul style="list-style-type: none"> <li>installing, upgrading, and uninstalling 5620 SAM and 5650 CPAM software in standalone and redundant deployments</li> <li>5620 SAM system migration to a different system</li> <li>conversion from a standalone to a redundant 5620 SAM system</li> </ul>
<i>5620 SAM User Guide</i>	The <i>5620 SAM User Guide</i> provides information about using the 5620 SAM to manage the service-aware IP/MPLS network, including GUI basics, commissioning, service configuration, and policy management. The <i>5620 SAM User Guide</i> uses a task-based format. Each chapter contains: <ul style="list-style-type: none"> <li>a workflow that describes the steps for configuring and using the functions</li> <li>detailed procedures that list the configurable parameters on the associated forms</li> </ul> 5620 SAM management information specific to LTE network elements is covered in the <i>5620 SAM LTE ePC User Guide</i> and <i>5620 SAM LTE RAN User Guide</i> . 5620 SAM management information specific to 1830 PSS network elements is covered in the <i>5620 SAM Optical User Guide</i> .
<i>5620 SAM Integration Guide</i>	The <i>5620 SAM Integration Guide</i> provides procedures to allow the 5620 SAM to integrate with additional components.
<i>5620 SAM Supervision Module User Guide</i>	The <i>5620 SAM Supervision Module User Guide</i> provides information about how to configure and use the web-based 5620 SAM Supervision Module for fault management and at-a-glance network element monitoring.
<i>5620 SAM Scripts and Templates Developer Guide</i>	The <i>5620 SAM Scripts and Templates Developer Guide</i> provides information that allows you to develop, manage, and execute CLI-based or XML-based scripts or templates. The guide is intended for developers, skilled administrators, and operators who are expected to be familiar with the following: <ul style="list-style-type: none"> <li>CLI scripting, XML, and the Velocity engine</li> <li>basic scripting or programming</li> <li>5620 SAM functions</li> </ul>
<i>5620 SAM Parameter Guide</i>	The <i>5620 SAM Parameter Guide</i> provides: <ul style="list-style-type: none"> <li>parameter descriptions that include value ranges and default values</li> <li>parameter options and option descriptions</li> <li>parameter and option dependencies</li> <li>parameter mappings to the 5620 SAM-O XML equivalent property names</li> </ul> There are dynamic links between the procedures in the <i>5620 SAM User Guide</i> and the parameter descriptions in the <i>5620 SAM Parameter Guide</i> . Parameters specific to LTE network elements are covered in the <i>5620 SAM LTE Parameter Reference</i> . Parameters specific to 1830 PSS network elements are covered in the <i>5620 SAM Optical Parameter Reference</i> .
<i>5620 SAM Statistics Management Guide</i>	The <i>5620 SAM Statistics Management Guide</i> provides information about how to configure performance and accounting statistics collection and how to view counters using the 5620 SAM. Network examples are included.

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Guide	Description
<i>5620 SAM Maintenance Guide</i>	The <i>5620 SAM Maintenance Guide</i> provides procedures for: <ul style="list-style-type: none"> <li>generating baseline information for 5620 SAM applications</li> <li>performing daily, weekly, monthly, and as-required maintenance activities for 5620 SAM-managed networks</li> </ul>
<i>5620 SAM Troubleshooting Guide</i>	The <i>5620 SAM Troubleshooting Guide</i> provides task-based procedures and user documentation to: <ul style="list-style-type: none"> <li>help resolve issues in the managed and management networks</li> <li>identify the root cause and plan corrective action for: <ul style="list-style-type: none"> <li>alarm conditions on a network object or customer service</li> <li>problems on customer services with no associated alarms</li> </ul> </li> <li>list problem scenarios, possible solutions, and tools to help check: <ul style="list-style-type: none"> <li>network management LANs</li> <li>network management platforms and operating systems</li> <li>5620 SAM client GUIs and client OSS applications</li> <li>5620 SAM servers</li> <li>5620 SAM databases</li> </ul> </li> </ul>
<i>5620 SAM Alarm Reference</i>	The <i>5620 SAM Alarm Reference</i> provides a list of all alarms that the 5620 SAM can raise. The reference is organized by network element type.
<i>5620 SAM Glossary</i>	The <i>5620 SAM Glossary</i> defines terms and acronyms used in all of the 5620 SAM documentation, including 5620 SAM LTE documentation.
<i>5620 SAM Network Element Compatibility Guide</i>	The <i>5620 SAM Network Element Compatibility Guide</i> provides release-specific information about the compatibility of managed device features in 5620 SAM releases.
<b>5620 SAM LTE documentation</b>	
<i>5620 SAM LTE RAN Release Description</i>	The <i>5620 SAM LTE RAN Release Description</i> provides information about the LTE RAN features associated with the release.
<i>5620 SAM LTE ePC User Guide</i>	The <i>5620 SAM LTE ePC User Guide</i> describes how to discover, configure, and manage LTE ePC devices using the 5620 SAM. The guide is intended for LTE ePC network planners, administrators, and operators. Alcatel-Lucent recommends that you review the entire <i>5620 SAM LTE ePC User Guide</i> before you attempt to use the 5620 SAM in your LTE network.
<i>5620 SAM LTE RAN User Guide</i>	The <i>5620 SAM LTE RAN User Guide</i> describes how to discover, configure, and manage the Evolved NodeB, or eNodeB, using the 5620 SAM. The guide is intended for LTE RAN network planners, administrators, and operators. Alcatel-Lucent recommends that you review the entire <i>5620 SAM LTE RAN User Guide</i> before you attempt to use the 5620 SAM in your LTE network.
<i>5620 SAM LTE Parameter Reference</i>	The <i>5620 SAM LTE Parameter Reference</i> provides a list of all LTE ePC and LTE RAN parameters supported in the 5620 SAM.
<b>5620 SAM-O documentation</b>	
<i>5620 SAM XML OSS Interface Developer Guide</i>	The <i>5620 SAM XML OSS Interface Developer Guide</i> provides information that allows you to: <ul style="list-style-type: none"> <li>use the 5620 SAM XML OSS interface to access network management information</li> <li>learn about the information model associated with the managed network</li> <li>develop OSS applications using the packaged methods, classes, data types, and objects necessary to manage 5620 SAM functions</li> </ul>
<i>5620 SAM 3GPP OSS Interface Developer Guide</i>	The <i>5620 SAM 3GPP OSS Interface Developer Guide</i> describes the components and architecture of the 3GPP OSS interface to the 5620 SAM. It includes procedures and samples to assist OSS application developers to use the 3GPP interface to manage LTE devices.

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Guide	Description
<i>5620 SAM 3GPP OSS Interface Compliance Statements</i>	The <i>5620 SAM 3GPP OSS Interface Compliance Statements</i> document describes the compliance of the 5620 SAM 3GPP OSS interface with the 3GPP standard.
<b>5620 SAM optical documentation</b>	
<i>5620 SAM Optical User Guide</i>	The <i>5620 SAM Optical User Guide</i> describes how to discover, configure, and manage optical devices using the 5620 SAM. The guide is intended for optical network planners, administrators, and operators. Alcatel-Lucent recommends that you review the entire <i>5620 SAM Optical User Guide</i> before you attempt to use the 5620 SAM in your network.
<i>5620 SAM Optical Parameter Reference</i>	The <i>5620 SAM Optical Parameter Reference</i> provides a list of all optical device parameters supported in the 5620 SAM.

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## Obtaining customer documentation

You can obtain 5620 SAM customer documentation:

- from the product
- on the web

### On-product documentation

The 5620 SAM on-product customer documentation is delivered in HTML and PDF. Choose Help→User Documentation from the 5620 SAM client GUI to open the help system in a web browser.

The help system opens to the User Documentation Index, which provides a summary of and links to all 5620 SAM customer documents.

Click on the Using the help system tab on the User Documentation Index page to find usage tips for navigating and searching within the on-product customer documentation.

You can return to the User Documentation Index at any time by clicking on the Home icon, shown in Figure 1.

Figure 1 Home icon



### Documentation on the web

The 5620 SAM customer documentation is available for download in PDF format from the Alcatel-Lucent Customer Support Center: <http://www.alcatel-lucent.com/myaccess>. If you are a new user and require access to this service, please contact your Alcatel-Lucent support representative.

In addition to the guides listed in Table 1, Release Notices and other documents not delivered on-product are posted to this site.

## Working with PDFs

You can download PDFs of individual guides from the Alcatel-Lucent Customer Support Center, or you can choose to download a zip of all PDFs for a particular release.

You can use the Search function of Acrobat Reader (File→Search) to find a term in a PDF of any 5620 SAM document. To refine your search, use appropriate search options (for example, search for whole words only or enable case-sensitive searching). You can also search for a term in multiple PDFs at once, provided that they are located in the same directory. For more information, see the Help for Acrobat Reader.

Cross-book hotlinks, for example, from a parameter name in the *5620 SAM User Guide* to a description of that parameter in the *5620 SAM Parameter Guide*, work only if both PDF files are in the same directory.



**Note** — Users of Mozilla browsers may receive an error message when opening the PDF files in the 5620 SAM documentation suite. The offline storage and default cache values used by the browsers are the cause of the error message.

Alcatel-Lucent recommends changing the Mozilla Firefox offline storage or Mozilla 1.7 cache value to 100 Mbytes to eliminate the error message.

## Documentation conventions

Table 2 lists the conventions that are used throughout the documentation.

**Table 2 Documentation conventions**

Convention	Description	Example
Key name	Press a keyboard key	Delete
Italics	Identifies a variable	<i>hostname</i>
Key+Key	Type the appropriate consecutive keystroke sequence	CTRL+G
Key-Key	Type the appropriate simultaneous keystroke sequence	CTRL-G
*	An asterisk is a wildcard character, which means “any character” in a search argument.	log_file*.txt
↵	Press the Return key	↵
—	An em dash indicates there is no information.	—
→	Indicates that a cascading submenu results from selecting a menu item	Policies→Alarm Policies

## Procedures with options or substeps

When there are options in a procedure, they are identified by letters. When there are substeps in a procedure, they are identified by Roman numerals.

### Example of options in a procedure

At step 1, you can choose option a or b. At step 2, you must do what the step indicates.

- 1 This step offers two options. You must choose one of the following.
  - a This is one option.
  - b This is another option.
- 2 You must perform this step.

### Example of substeps in a procedure

At step 1, you must perform a series of substeps within a step. At step 2, you must do what the step indicates.

- 1 This step has a series of substeps that you must perform to complete the step. You must perform the following substeps.
  - i This is the first substep.
  - ii This is the second substep.
  - iii This is the third substep.
- 2 You must perform this step.

## Measurement conventions

Measurements in this document are expressed in metric units and follow the *Système international d'unités* (SI) standard for abbreviation of metric units. If imperial measurements are included, they appear in brackets following the metric unit.

Table 3 lists the measurement symbols used in this document.

**Table 3 Bits and bytes conventions**

Measurement	Symbol
bit	b
byte	byte
kilobits per second	kb/s

## Important information

The following conventions are used to indicate important information:



**Warning** — Warning indicates that the described activity or situation may, or will, cause equipment damage or serious performance problems.



**Caution** — Caution indicates that the described activity or situation may, or will, cause service interruption.



**Note** — Notes provide information that is, or may be, of special interest.



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# *Getting started*

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- 1 – 5620 SAM LTE ePC workflows
- 2 – LTE ePC management using the 5620 SAM
- 3 – 5620 SAM LTE ePC features and functionality



# **1 — 5620 SAM LTE ePC workflows**

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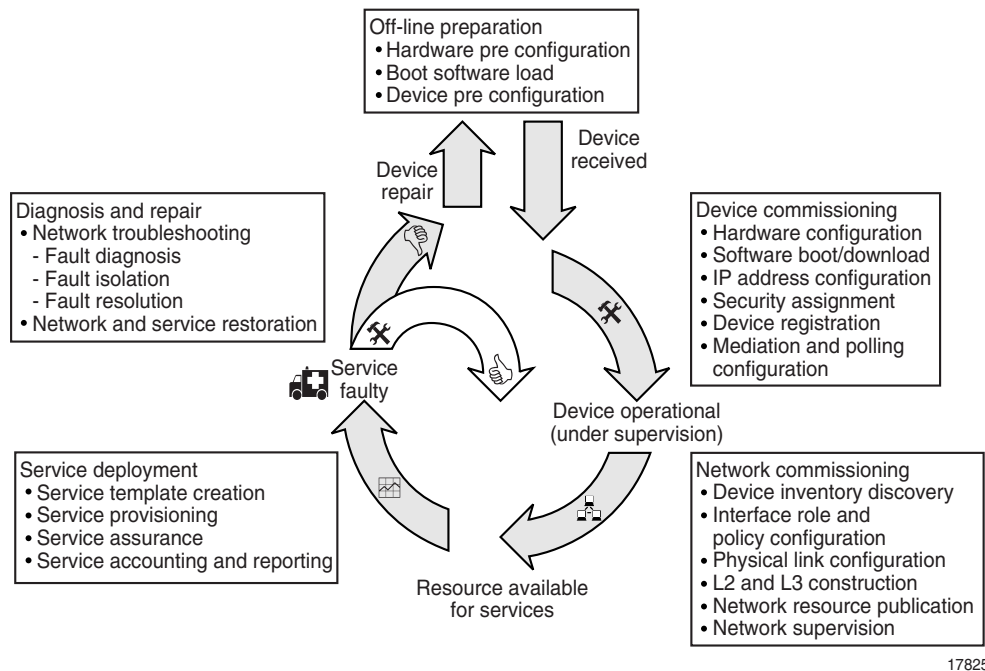
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## 1.1 5620 SAM LTE ePC workflow overview

The 5620 SAM LTE ePC workflow comprises general and LTE-specific 5620 SAM network, network element, and service management tasks.

The general workflow includes the high-level tasks that can be performed using the 5620 SAM, as described in the *5620 SAM User Guide*. Figure 1-1 shows the high-level workflow. Section 1.2 describes the general tasks that are required to commission, configure, deploy, and manage services.

Figure 1-1 General network workflow for life-cycle management



The LTE network life-cycle management follows the general workflow, but includes tasks that pertain specifically to the management of the LTE mobile core. LTE-specific tasks, such as how to configure, manage, and troubleshoot LTE ePC NEs, EPS paths, and LTE mobile services are described in the workflow in section 1.3.



## 1.2 Workflow for general management tasks

- 1 Install the 5620 SAM software, as described in the *5620 SAM | 5650 CPAM Installation and Upgrade Guide*.
- 2 See the workflow in the *5620 SAM User Guide* for guidance about general management tasks, such as how to:
  - use basic 5620 SAM applications that are included in the 5620 SAM GUI
  - perform basic administrative tasks for the security, database management, and redundancy of the 5620 SAM system
  - configure and manage non-LTE specific NEs in your network
  - configure and manage the physical topology and routing for your network
  - configure and distribute policies using 5620 SAM policy management engine
  - use the alarm table to manage faults
- 3 For the LTE-specific tasks that are discussed in this guide, see section 1.3.

## 1.3 Workflow for LTE ePC-specific management tasks

- 1 Review the 5620 SAM LTE features and functions.
- 2 Perform commissioning, mediation, and discovery for the 7750 MG, 9471 MME, and 5780 DSC. See section 4.3 for more information.
- 3 Perform the following 7750 MG equipment configuration tasks:
  - i Configure an ISM mobile card. See Procedure 5-2 for more information.
  - ii Create mobile regions. See Procedure 9-1 for more information.
  - iii Configure LTE profiles and policies. See section 15.3 for more information.
  - iv Configure the SGW and PGW instances, including the following:
    - Mobile region selection. See Procedure 9-2 for more information.
    - Signaling, including interfaces and profiles. See Procedures 6-1 and 6-6 for more information about configuring SGW and PGW signaling, respectively.
    - Reference points, including interfaces and profiles. See Procedures 6-2 and 6-7 for more information about configuring SGW and PGW reference points, respectively.
  - v Set the Administrative State parameter for the SGW and PGW instances to Up. See Procedure 5-3 for more information.
  - vi Configure the ISA-MG groups. See Procedure 5-4 for more information.
- 4 Configure 5780 DSC equipment:
  - i Configure the 5780 DSC. See the 5780 DSC documentation suite.
  - ii Start the 5780 DSC GUI from the 5620 SAM. See Procedure 5-8 for more information.

- 5 Perform 9471 MME configuration management tasks:
  - i Provision the 9471 MME application. See section 7.3.
  - ii Provision interfaces for the 9471 MME. See section 7.4.
  - iii Provision functionality for the 9471 MME. See section 7.5.
  - iv Configure objects and parameters for the 9471 MME, as required. See section 7.6.
  - v Perform load balancing for the 9471 MME, as required. 7.7.
- 6 Configure physical links from eNodeBs to other NEs. See section 12.1 for more information.
- 7 Create a mobile service. See section 14.4 for more information.
- 8 Configure correlation between the EPS paths and the underlying transport layer using drill-down hints. See Procedure 13-1 for more information.
- 9 Monitor the LTE equipment and services:
  - a View the NE properties forms such as:
    - SGW instance, application, and interface properties forms. See section 6.3 for more information.
    - PGW instance, application, and interface properties forms. See section 6.4 for more information.
    - 9471 MME instance, application, and interface properties forms and the equipment navigation tree. See chapter 7 for more information.
    - 5780 DSC instance, application, and interface properties forms and the equipment navigation tree. See chapter 8 for more information.
  - b Monitor the EPS peers and paths using the properties forms for each type of supported peer or path. See section 12.2 for more information.
  - c Monitor profiles and policies. See section 15.3 for more information.
  - d Use the EPS path topology map to monitor the health of EPS paths. See Procedure 11-2 for more information.
- 10 Track network performance and equipment usage using performance statistics counters for the following NEs:
  - SGW and PGW. See Procedure 19-1 for more information.
  - 9471 MME. See Procedure 19-2 for more information.
- 11 Troubleshoot LTE equipment and services:
  - a Use the alarms table to identify and troubleshoot EPC NEs, EPS paths, and mobile services. See chapter 18 for more information.
  - b Use the Faults tab in the EPC NEs, EPS paths, and mobile services properties forms to identify errored components and to navigate to alarm information.

- c Use the drill-down operation to access the alarm and state information about the transport layer that underlies an EPS path. See Procedure [13-3](#) for more information.
- d Troubleshoot mobile service or EPS path connectivity problems using the STM. See Procedure [20-1](#) for more information.
- e Troubleshoot connectivity on a mobile service or an EPS path using ICMP ping and ICMP trace. See Procedures [20-2](#) and [20-3](#) for more information about ICMP ping and ICMP trace, respectively.



## **2 — *LTE ePC management using the 5620 SAM***

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- 2.1 5620 SAM LTE NE management solution overview    2-2**
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## 2.1 5620 SAM LTE NE management solution overview

The 5620 SAM LTE NE management solution focuses on the equipment, configuration, fault, and state management of the ePC NEs, LTE interfaces, and mobile services that are used for mobile backhaul.

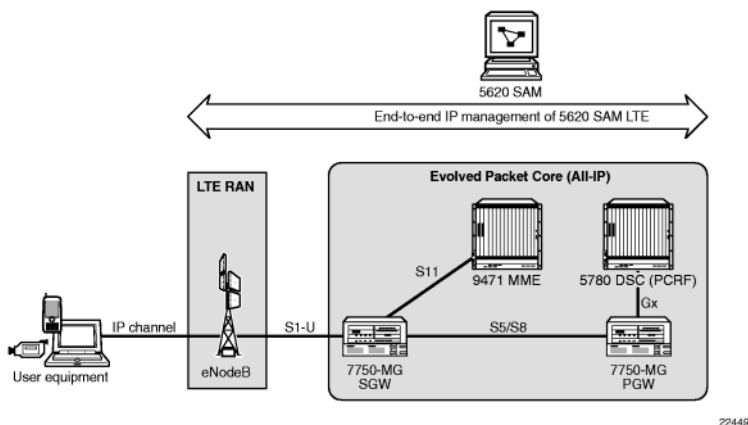
The 5620 SAM LTE NE management solution also supports the correlation of the LTE interfaces and mobile services with the underlying network transport layer to provide enhanced multi-layer monitoring and troubleshooting capabilities.

The 5620 SAM LTE NE management solution is comprised of the following components:

- 5620 SAM
- 5620 SAM LTE ePC
  - 7750 MG SGW
  - 7750 MG PGW
  - 9471 MME
  - 5780 DSC
- 5620 SAM LTE RAN (also known as the eUTRAN)
  - eNodeB

Figure 2-1 shows the 5620 SAM LTE NEs components and EPS interfaces that are managed in a typical LTE network.

Figure 2-1 5620 SAM LTE NE components and EPS interfaces



### 5620 SAM

The Alcatel-Lucent 5620 SAM enables integrated element, network and service-aware management of the products not only within the evolved packet core, but it also extends out to the radio access network (eNodeB), providing operators with an end-to-end IP management within the eUTRAN, backhaul and core networks. The 5620 SAM manages both the mobile layer (bearers, QoS of traffic flows, GTP/PMIP tunnels) and the underlying transport layer attributes (bandwidth, pseudowires, LSPs) to provide cross-layer coordination and correlation.

The 5620 SAM also features enhanced advanced monitoring and service assurance capabilities to simplify the management of IP/MPLS-based networks. In particular, its automated troubleshooting functionality integrates physical, network routing and service topologies to simplify the process of fault isolation, minimizing service interruptions and reducing the possibility of human error.

Through a powerful, standards-based OSS interface, the 5620 SAM provides open, standards-based interfaces that easily adapt to their existing OSS environments for faster and more cost-effective integration.

To further enhance their service assurance capabilities, mobile operators can deploy the 5620 SAM along with the Alcatel-Lucent 5650 Control Plane Assurance Manager, which enables operators to proactively assure network and service availability against control plane misconfigurations, malfunctions and undetected routing updates. The 5650 CPAM offers real-time control plane visualization, proactive control plane surveillance, configuration validation and control plane diagnosis. In addition, by seamlessly integrating with the 5620 SAM, the Alcatel-Lucent 5650 CPAM gives carriers unprecedented manageability by unifying service, routing, MPLS and physical infrastructure management.

## **5620 SAM LTE ePC**

The 5620 SAM LTE ePC is an all-IP mobile core network for the LTE, and is a converged framework for packet-based real-time and non-real-time services. LTE is end-to-end all-IP: from mobile handsets and other terminal devices with embedded IP capabilities, over IP-based eNodeB, across the ePC and throughout the application domain.

The 5620 SAM LTE ePC is comprised of the following four components, each of which is defined by 3GPP standards.

### **7750 MG SGW**

The 7750 MG SGW is a data plane element in the LTE network whose primary function is to manage user-plane mobility, and act as a demarcation point between the 5620 SAM RAN and the core network.

### **7750 MG PGW**

The 7750 MG PGW is the termination point of the packet data interface towards the PDN. The 7750 MG PGW, which is the anchor point for sessions towards the external PDN, supports:

- policy enforcement, such as operator-defined rules for resource allocation and usage
- packet filtering, such as deep packet inspection for application type detection
- charging support, such as per-URL charging

### **9471 MME**

The 9471 MME performs the signaling and control functions to manage the UE access to network connections, the assignment of network resources, and the management of the mobility states to support tracking, paging, roaming, and handovers. The 9471 MME controls all control-plane functions that are related to subscriber and session management. The 9471 MME supports the following functions:

- security procedures—end-user authentication as well as initiation and negotiation of ciphering and integrity protection algorithms
- terminal-to-network session handling—signaling procedures that are used to set up packet data context and negotiate associated parameters such as QoS
- idle terminal location management—tracking the area update process that is used to allow the network to join terminals for incoming sessions

### **5780 DSC**

The Alcatel-Lucent 5780 DSC is a carrier-grade platform that provides the Policy and Charging Rules Function for 3G packet core and 4G evolved packet core networks according to the 3GPP Release 7 and 8 specifications.

The 5780 DSC allows service providers to manage and control network behavior based on their business rules, application requirements, network status, and subscriber entitlement and preferences. After these decisions are implemented, they are instantiated and enforced in the network as a set of network policies.

The 5780 DSC supports the following functions:

- provides the dynamic link between the data and user layer, and the application and subscriber layer
- authorizes the network connections and flow, and determines charging information
- determines and binds the required QoS policy
- determines the flow and charging rules during UE connections, including detection and policy control
- accepts AF requests for media components and charging
- notifies the AF about network events
- provides roaming support of the ePC solution
- allows operator control of subscription support, service assurance, and charging

### **5620 SAM LTE RAN**

The 5620 SAM LTE RAN focuses on the discovery, configuration, and management of RAN devices such as the eNodeB. The 5620 SAM provides an end-to-end management solution of the all-IP LTE domain by managing RAN UE access points in addition to the ePC mobile backhaul.

The 5620 SAM LTE RAN eNodeB, which reside outside of the ePC in the RAN, provides the user plane and control plane protocol terminations for user equipment. The eNodeB use the S1-MME interface to connect to the 9471 MME and the S1-U interface to connect to the 7750 MG SGW.



See the *5620 SAM LTE RAN User Guide* for all functionality supported by the 5620 SAM.

## 5620 SAM LTE 3GPP reference points

LTE reference points, as shown in Figure 2-1, are based on the 3GPP standards and are created automatically when LTE peer devices are signaled. The following peers and reference points are supported by the 5620 SAM.

- eNodeB to 7750 MG SGW (S1-U)
- 7750 MG SGW to 7750 MG PGW (S5 and S8)
- 7750 MG SGW to 9471 MME (S11)
- 7750 MG PGW to 5780 DSC (Gx)
- 7750 MG PGW or 7750 MG SGW to CCF (Rf)
- 7750 MG SGW to OfCS (Ga)
- 7750 MG PGW to OfCS (Ga)
- 7750 MG PGW to OnCS (Gy)
- 7750 MG PGW to HSGW (S2a)

In addition, the 5620 SAM supports the following 9471 MME-specific reference points and EPS peers that do not interact with other ePC components:

- Sm and M3 reference points for multimedia broadcast/multicast service
- SLs and SLg reference points for location-based services
- SBc reference point for warning message delivery
- X1\_1 and X2 reference points for enhanced CALEA functionality

## 2.2 Supported 5620 SAM LTE NE management functions

The Alcatel-Lucent 5620 SAM, along with the 5650 CPAM, provides comprehensive element and end-to-end IP management for the Alcatel-Lucent ePC NEs, LTE interfaces, and mobile services that are used for mobile backhaul.

Table 2-1 lists the 5620 SAM LTE NE management functions that are supported by the 5620 SAM.

**Table 2-1 LTE management functions supported by the 5620 SAM**

LTE NE management support	Discovery and mediation	Equipment	Configuration	Performance	State	Fault and alarm
<b>5620 SAM LTE ePC</b>						
7750 MG SGW	✓	✓	✓	✓	✓	✓
7750 MG PGW	✓	✓	✓	✓	✓	✓
9471 MME	✓	✓	✓	✓	✓	✓
5780 DSC	✓	✓			✓	✓

(1 of 2)

LTE NE management support	Discovery and mediation	Equipment	Configuration	Performance	State	Fault and alarm
5620 SAM LTE RAN (see the <i>5620 SAM LTE RAN User Guide</i> )						
eNodeB	✓	✓	✓	✓	✓	✓

(2 of 2)

## Supported 5620 SAM LTE ePC management functionality

This section outlines the capabilities of service-aware network management in the context of the four components that comprise the 5620 SAM LTE ePC.

These include:

### Alcatel-Lucent 7750 MG SGW and 7750 MG PGW

The 5620 SAM supports the discovery and management of the 7- or 12-slot 7750 MG. The 7750 MG can be configured as an SGW or a PGW in the LTE network. You can use the 5620 SAM to configure, view, and manage the following:

- chassis and shelf
- card slots, cards, and MDAs
- ISA-MG groups
- mobility regions
- one SGW or PGW instance per 7750 MG
- control bearer reference points, such as S1-U, S11, S5, S8, Ga, and Gx
- gateway interface and application functions
- diameter, diameter peer, and GTP profiles
- QCI policies
- status, statistics, and state management of faults associated with bearer paths and peers
- alarms and fault management
- performance management data

### 9471 MME

The 5620 SAM supports the discovery and management of single-shelf and multi-shelf configurations on the 9471 MME chassis. You can configure 9471 MME device parameters by using the 5620 SAM GUI or by starting the 9471 MME Provisioning Web Interface. You can use the 5620 SAM to view the following:

- chassis and shelf
- card slots and cards, including OAM, MME Interface Function, MME Application Function, shelf management, and hub cards
- MME Interface Function and MME Application Function hosts and services
- card redundancy
- alarms and fault management
- performance management data and statistics

## 5780 DSC

The 5620 SAM supports the discovery and management of the 5780 DSC. Configuration management for the 5780 DSC is performed from the 5780 DSC GUI that runs on the 5780 DSC platforms. You can start the 5780 DSC GUI from the 5620 SAM.

You can use the 5620 SAM to view the following:

- chassis and shelf
- card slots and cards
- card redundancy
- alarms and fault management
- geo-redundant nodes

## Supported 5620 SAM LTE RAN management functionality

The 5620 SAM LTE RAN focuses on the discovery, configuration, and management of RAN devices such as the eNodeB. eNodeB management by the 5620 SAM is significantly different in terms of functionality and the management paradigm. Traditionally, the 5620 SAM takes what can be considered a passive role in device management. That is, the device takes a dominant role and the 5620 SAM serves to monitor and assist the functionality of the network.

In relation to the eNodeB, the 5620 SAM management paradigm is reversed. The device takes a passive role to the 5620 SAM, which is fully capable of configuring and overriding device settings and configuration.

See the *5620 SAM LTE RAN User Guide* for all functionality supported by the 5620 SAM.

## 2.3 5620 SAM LTE path and mobile service management overview

The 5620 SAM LTE solution introduces the following concepts and tools for the management of LTE ePC NEs, interfaces, and services.

### EPS paths

The nodes in the ePC and the eNodeB are connected by interfaces that correspond topologically to the LTE reference points. The 5620 SAM-managed point-to-point connections between EPS peers are known as EPS paths.

The 5620 SAM allows you to view the peers, perform the drill-down operation, and view the faults that are associated with each instance of an EPS path. You can use the Manage→Mobile Core command from the 5620 SAM main menu or the EPS path topology map to view the properties of EPS paths.

## EPS paths topology map

The EPS path topology map is a management tool that displays an aggregated representation of the mobile network objects and EPS paths that the 5620 SAM supports. The topology map provides the following:

- real-time alarm status for all of the EPS paths that the 5620 SAM monitors
- quick access to the properties forms for EPS paths and the 9471 MME, 7750 MG, and the 5780 DSC. The properties forms, in turn, provide access to the configuration, state, performance data, and fault information associated with each managed logical or physical component.

## Mobile service

A mobile service represents the connectivity between LTE network components and is comprised of the eNodeB, 7750 MG SGW, 7750 MG PGW, and other supporting NEs. The NEs are joined by S1-U, S5, and S8 EPS paths.

The 5620 SAM uses a mobile service to provide a view of the individual service paths that are available from an eNodeB to the 7750 MG SGW and 7750 MG PGW. You can view information about each service path from the eNodeB to the 7750 MG PGW and get information about the configuration, state, performance, and faults associated with each path.

The EPS paths and peer sites associated with a mobile service have been integrated into the 5620 SAM Service Test Manager to provide ping and trace tools to monitor the paths from an eNodeB to a 7750 MG PGW. These tools can also be used for on-demand testing of an EPS path when you need to debug an eNodeB connectivity problem.

## Transport layer correlation

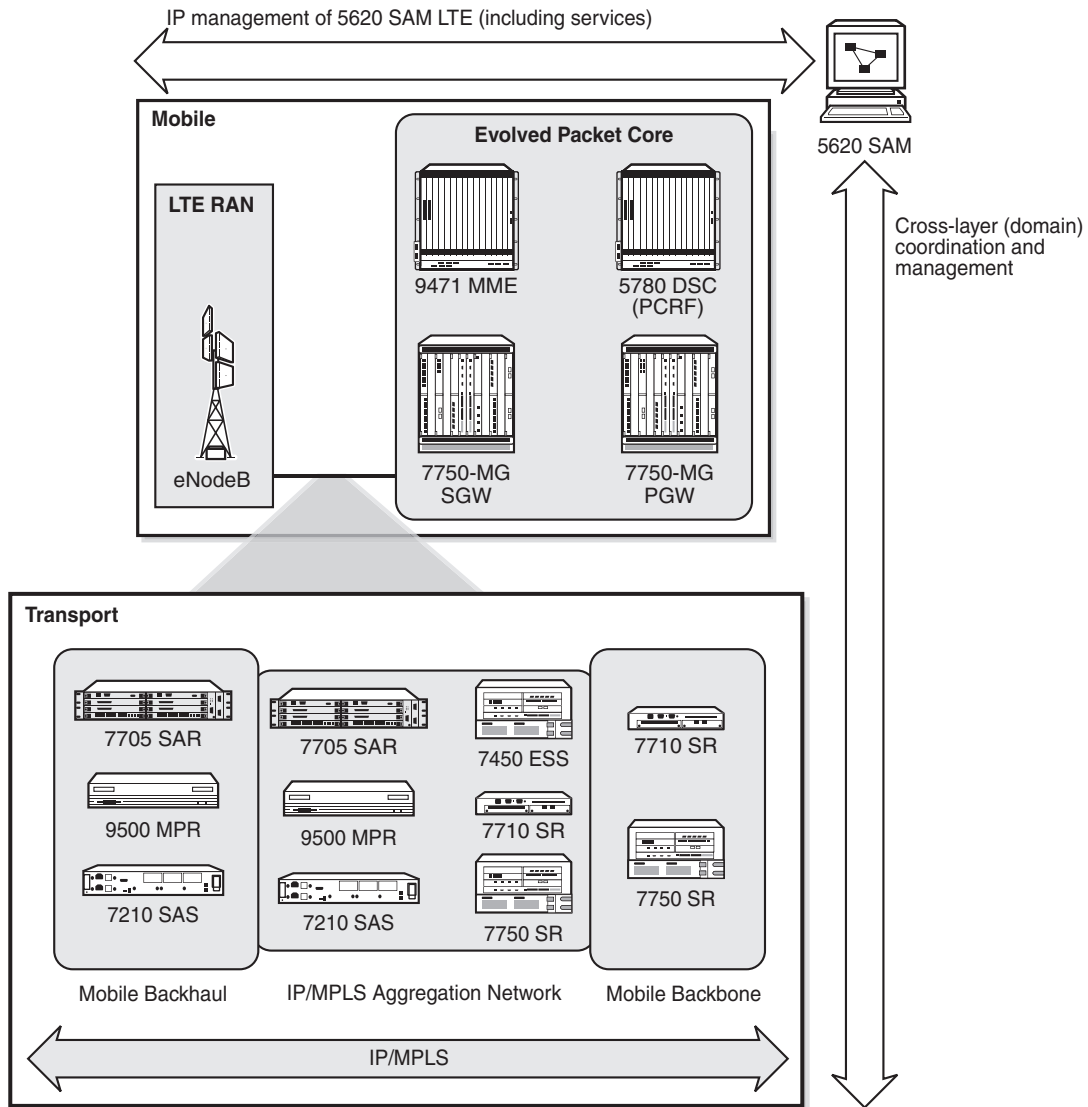
The 5620 SAM can automatically correlate the underlying transport path between NEs with the overlying EPS path. The correlation mechanism is based on information that you configure about the network transport topology. The correlation mechanism is referred to as the drill-down operation; the transport layer information that you configure for an EPS path is referred to as a drill-down hint.

This drill-down operation provides you with the alarm and state information about the transport path and simplifies the root cause analysis for problems that may occur on an EPS path.

## 5620 SAM LTE end-to-end IP management

The 5620 SAM LTE, Release 8.0 management solution provides end-to-end IP management of the mobile and transport layers of the LTE network. Figure 2-2 shows the LTE and transport components that can be managed by the 5620 SAM.

Figure 2-2 LTE mobile core and transport components managed by the 5620 SAM



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## **3 — 5620 SAM LTE ePC features and functionality**

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### **3.1 LTE ePC features for 5620 SAM Release 9.0 3-2**

### 3.1 LTE ePC features for 5620 SAM Release 9.0

Table 3-1 lists the features and functions added in the 5620 SAM Release 9.0 for LTE ePC support. See the *5620 SAM LTE RAN User Guide* for more information about features and functions for LTE RAN support. See the *5620 SAM User Guide* for more information about non-LTE features and functions.

**Table 3-1 5620 SAM Release 9.0 LTE ePC functionality**

Feature or function	Description	Reference for more information
<b>Release 9.0 R7 LTE ePC features</b>		
No LTE features have been added for the 5620 SAM Release 9.0 R7.		
<b>Release 9.0 R6 LTE ePC features</b>		
No LTE features have been added for the 5620 SAM Release 9.0 R6.		
<b>Release 9.0 R5 LTE ePC features</b>		
7750 MG support	<b>Configuration management</b> The 5620 SAM supports the configuration of RADIUS authentication and authorization policies. The 5620 SAM supports the GTP profile, which can be used to configure the GTP control plane and user plane between the SGW and PGW over the S8 interface. The 5620 SAM supports the S6b peer, an application type of the diameter peer profile. The 5620 SAM supports the Gy reference point on the PGW, and DCCA profile that supports Gy. The 5620 SAM supports the S2a reference point on the PGW, and the PMIPv6 protocol that supports S2a. The 5620 SAM supports the configuration of ISA-AA groups on ISA Mobile daughter cards. The 5620 SAM supports the association of application assurance policies with PGWs and PDN APNs. The 5620 SAM supports threshold groups, which can be used to monitor statistics on an SGW or a PGW.	See chapter 16.  See chapter 2.  See Procedure 12-1.  See Procedures 6-7 and 15-9.  See Procedures 6-7 and 15-26.  See the 5620 SAM User Guide. See Procedures 5-5 and 5-6.  See section 6.7.
9471 MME	<b>Equipment management</b> The 5620 SAM allows you to perform load balancing by redistributing the UE between 9471 MMEs or in a 9471 MME. The 5620 SAM supports MME bulk provisioning, which can be used to perform complex operations. The 5620 SAM allows you to create MME profiles to configure SCTP and GTP.	See Procedure 7-81  See chapter 10.  See chapter 15.
<b>Release 9.0 R4 LTE ePC features</b>		
No LTE features have been added for the 5620 SAM Release 9.0 R4.		
<b>Release 9.0 R3 LTE ePC features</b>		

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Feature or function	Description	Reference for more information
7750 MG support	<p><b>Statistics</b></p> <p>The 5620 SAM allows you to view the statistics of a 7750 MG SGW Ga or a 7750 MG PGW Ga peer using the Statistics Record form.</p> <p>The 5620 SAM allows you to filter the 7750 MG SGW or PGW based on the APN parameter for a user statistics query.</p> <p>The 5620 SAM supports multiple user statistics query results in the same window.</p> <p><b>Configuration management</b></p> <p>The 5620 SAM supports the trusted peer list policy.</p>	<p>See Procedure <a href="#">19-1</a>.</p> <p>See Procedure <a href="#">19-3</a>.</p> <p>See Procedure <a href="#">19-4</a>.</p> <p>See section <a href="#">15.1</a> and Procedures <a href="#">15-20</a> and <a href="#">15-21</a>.</p>
9471 MME support	<p><b>Equipment management</b></p> <p>The 5620 SAM equipment tree and physical topology map include the Molene 2 OAM blade.</p> <p>The 5620 SAM allows you to view the following 9471 MME s: Sm, M3, SLs, SLg, SBc, X1_1, and X2</p> <p><b>Configuration management</b></p> <p>The 5620 SAM allows you to configure 9471 MME device parameters by using the 5620 SAM GUI or by starting the 9471 MME Provisioning Web Interface.</p>	<p>See section <a href="#">5.4</a> for more information.</p> <p>See section <a href="#">2.1</a> for more information.</p> <p>See Procedure <a href="#">5-7</a>.</p>
IPsec IKE policy	The 5620 SAM supports version 2 of the IKE policy.	See the 5620 SAM User Guide for more information.
<b>Release 9.0 R2 LTE ePC features</b>		
No LTE features have been added for the 5620 SAM, Release 9.0 R2.		
<b>Release 9.0 R1 LTE ePC features</b>		
7750 MG support	<p><b>Equipment management</b></p> <p>The 5620 SAM supports the 7750 MG, Release 3.0 or later.</p> <p>The 5620 SAM supports IPv6 addresses on IP packet reassembly interfaces.</p> <p><b>Security</b></p> <p>The 5620 SAM supports a new scope of command role, the EPC Operator. The new role has read and write permission on all EPC classes.</p> <p><b>Statistics</b></p> <p>The 5620 SAM supports aggregated MG card peer statistics. The aggregated statistics are identified in the statistics table listing with a card slot value of 0. The non-aggregated peer statistics for each card are identified by a card slot value between 1 and 12. Realtime statistics collection is not supported for the aggregated statistics records. Aggregated statistics provide a global view of session counts, throughput, and other performance data across the MG SGW and PGW peers.</p> <p>The 5620 SAM supports the application of user-created filters to define the scope of user statistics queries.</p> <p><b>Lawful intercept</b></p> <p>The 5620 SAM supports LI on an LTE ePC gateway.</p>	<p>—</p> <p>See the 5620 SAM User Security chapter in the <i>5620 SAM User Guide</i>.</p> <p>—</p> <p>See Procedure <a href="#">19-3</a> for information about collecting user statistics.</p> <p>See section <a href="#">15.1</a>, and Procedures <a href="#">15-22</a> and for information about configuring LI policies.</p>

(2 of 3)

Feature or function	Description	Reference for more information
5780 DSC support	<b>Equipment management</b> The 5620 SAM provides read-only capability for viewing 5780 DSC parameters for Release 3.0 or later.	See Procedure <a href="#">5-8</a> .

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# ***LTE ePC device discovery***

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## **4 — 5620 SAM management configuration**



## **4 — 5620 SAM management configuration**

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- 4.1 5620 SAM management configuration overview 4-2**
- 4.2 Workflow for 5620 SAM management configuration 4-3**
- 4.3 5620 SAM management procedures 4-4**

## 4.1 5620 SAM management configuration overview

The 5620 SAM can manage LTE NEs after the NEs have been configured and the 5620 SAM mediation and discovery rules have been applied. Table 4-1 lists where to find more information about how to configure NEs for discovery and management by the 5620 SAM.

**Table 4-1 5620 SAM NE configuration and discovery information**

For more information about	See
Installation and upgrade	<i>5620 SAM   5650 CPAM Installation and Upgrade Guide</i>
System architecture	<i>5620 SAM System Architecture Guide</i>
Using the CLI from the 5620 SAM	<i>5620 SAM User Guide</i>
System and NE commissioning	
Discovery management	
In-band and out-of-band management	

### Firewalls and file transfers

The 5620 SAM can use FTP or SCP to transfer data to and from managed NEs. Ports between 5620 SAM components and managed NEs, such as between a 5620 SAM main server and a managed 7750 MG, must be open through firewalls in order to allow communication between the managed NEs and the 5620 SAM.

The 7750 MG supports secure file transfers using SSH2. When SSH2 is correctly configured and the secure file transfer type is configured in the SSH2 mediation policy for the NE, SFTP, not FTP, is used to perform file transfers to and from the managed NEs. Table 4-2 lists where to find more information.

**Table 4-2 Firewall and file transfer information**

For more information about	See
Firewalls and open ports	<i>5620 SAM Planning Guide</i>
FTP, SCP, and SSH2	<i>5620 SAM User Guide</i>

## 4.2 Workflow for 5620 SAM management configuration

This workflow lists the high-level steps required to prepare an NE for discovery and to configure the 5620 SAM to discover the NE.

- 1 Using the CLI, configure each NE that you need to discover and manage. The parameters that you must configure on each NE include:

- system IP address
- interfaces
- Telnet and FTP servers
- security
- SNMP packet MTU size

See the appropriate NE documentation for more information about using the CLI.

- 2 Configure mediation policies on the 5620 SAM for the following NEs:

- 7750 MG. See Procedure 4-3 for more information.
- 9471 MME. See Procedure 4-6 for more information.
- 5780 DSC. See Procedure 4-9 for more information.

- 3 Discover the NEs.

- i Create discovery rules on the 5620 SAM for the following NEs:

- 7750 MG. See Procedure 4-3 for more information.
- 9471 MME. See Procedure 4-6 for more information.
- 5780 DSC. See Procedure 4-9 for more information.

- ii Scan the network according to the discovery rules.

- iii Check the discovery, management, and synchronization status of the NEs. See chapter 5 for more information.

- 4 Create event notification policies, if required. See the *5620 SAM User Guide* for more information.

- 5 Assign event notification policies to NEs, if required. See the *5620 SAM User Guide* for more information.

- 6 Manage the NE discovery. See the *5620 SAM User Guide* for more information.

- Modify discovery rules.
- Add or modify rule elements.
- Enable or disable discovery rules.
- Remove discovery rules.
- Rescan the network according to a discovery rule.
- Manage or unmanage NEs.
- Synchronize NEs with the 5620 SAM database.

## 4.3 5620 SAM management procedures

The following procedures describe how to configure LTE NEs and the 5620 SAM to enable the 5620 SAM to discover and manage the NEs.

### 7750 MG management by the 5620 SAM

Perform the following procedures to discover and manage a 7750 MG with the 5620 SAM.

#### Procedure 4-1 To configure a 7750 MG for management by the 5620 SAM

---

See the appropriate NE documentation for more information about using the CLI.

- 1 Open a console window on the NE.
- 2 Type the following command at the prompt to configure the system address of the NE:

```
configure router interface system address xxx.xxx.xxx.xxx/mask ↵
```

where

*xxx.xxx.xxx.xxx* is the system IP address

*mask* is the bitmask

- 3 Choose the method of file transfer. Perform the following steps, as required:
  - a Type the following command at the prompt to enable Telnet:

```
configure system security telnet-server ↵
```
  - b Type the following command at the prompt to enable FTP:

```
configure system security ftp-server ↵
```
  - c Type the following command at the prompt to enable SSH2:

```
configure system security ssh version 2 ↵
```
- 4 If required, type the following command at the prompt to enable console, FTP, and SNMP access for the appropriate user account on the NE:

```
configure system security user user_account access console ftp snmp ↵
```

where *user\_account* is the appropriate user account for Telnet, FTP, and SNMP access; for example, admin



- 5 If required, type the following command at the prompt to enable hash encryption for passwords and authentication keys during NE configuration save or list operations:

```
configure system security hash-control read-version read-version  
write-version write-version ↵
```

where

*read-version* is the version of encryption accepted during read operations; for example, 1, 2, or all to indicate that both versions are accepted

*write-version* is the version of encryption used during write operations; for example, 1 or 2

Version 1 encryption uses a simple key algorithm that generates the same character string each time a specific password or authentication key is hashed.

Version 2 encryption uses a more complex key algorithm that generates a different character string each time it hashes a specific password or authentication key.

- 6 Type the following commands in sequence at the prompt to set the time zone and time:

```
configure system time zone time_zone -offset_from_UTC ↵
```

```
admin set-time YYYY/MM/DD hh:mm:ss ↵
```

where

*time\_zone* is the appropriate time zone; for example, EST

*offset\_from\_UTC* is the offset, in hours, from the UTC

*YYYY/MM/DD hh:mm:ss* is the current local time

- 7 If required, perform one of the following to enable a time protocol.

- a Type the following command at the prompt to enable NTP:

```
configure system time ntp server-address server_IP_address ↵
```

where *server\_IP\_address* is the IP address of the NTP server

- b Type the following command at the prompt to enable SNTP:

```
configure system time sntp server-address server_IP_address ↵
```

where *server\_IP\_address* is the IP address of the SNTP server

- 8 Perform one of the following:

- a To enable the SNMPv2, go to step 9.
- b To configure SNMPv3 management on the NE, perform Procedure 4-2, and then go to step 10.

- 9 Type the following commands at the prompt to enable the SNMPv2 engine and to configure an SNMP community:

```
configure system snmp no shutdown ↵  
configure system snmp packet-size 9216 ↵  
configure system security snmp community community_name rwa  
version both ↵
```

where *community\_name* is the SNMPv2 community name



**Note 1** – The command is used for the 5620 SAM write mediation policy. When you use SNMPv2, you must also use this mediation policy for read access, or create another mediation policy that is also configured for rwa.

**Note 2** – The SNMPv2 community string name rwa attributes must be enabled for the 5620 SAM to correctly manage a node, even when the 5620 SAM is only used to monitor a network.

- 10 Type the following commands in sequence at the prompt to ensure that the NE uses persistent SNMP indexes:

```
bof persist on ↵  
bof save ↵
```

- 11 Type the following commands at the prompt to save the configuration changes and reboot the NE:

```
admin save ↵  
admin synchronize boot-env ↵  
admin reboot now ↵
```

The NE initializes with SNMP communication enabled.

- 12 Type the following commands in sequence at the prompt to ensure that the SNMP trap configuration is correct:

```
configure log ↵  
info ↵
```

The output should be similar to the following:

```
snmp-trap-group 98  
description "5620sam"  
trap-target "xxx.xxx.xxx.xxx:162" address  
xxx.xxx.xxx.xxx snmpv2c notify-community "privatetraps98"  
trap-target "yyy.yyy.yyy.yyy:162" address  
yyy.yyy.yyy.yyy snmpv2c notify-community "privatetraps98"
```

```
exit

log-id 98

    from main security

    to snmp 1024

exit
```

where

xxx.xxx.xxx.xxx is the IP address of the 5620 SAM main server in a standalone 5620 SAM configuration, or one of the two main servers in a redundant configuration

yyy.yyy.yyy.yyy is the IP address of the other 5620 SAM main server in a redundant 5620 SAM configuration

- 13 Use a 5620 SAM client to discover the NE and to verify that the NE configuration allows the management of the NE. See Procedure 4-3 to configure a mediation and discovery policy for the NE on the 5620 SAM.
- 

## Procedure 4-2 To configure a 7750 MG for management by the 5620 SAM using SNMPv3

---

SNMPv3 security is designed for user-based security and comprises secure authentication and communication. The access granted is restricted to the scope of the configured users and groups.

- 1 Open a CLI session on the managed NE if it is not already open.
- 2 Type the following commands to create a read-write-notify group for general SNMP mediation on the managed NE:

```
configure system security snmp ↵
```

```
access group snmpv3_groupname security-model usm security-level
privacy read iso write iso notify iso ↵
```

where

*snmpv3\_groupname* is the name that is being assigned to the SNMP group

- 3 If mediation of VPRN objects is required, type the following command to create a read-write-notify group on the managed NE:

```
access group snmpv3_groupname security-model usm security-level
privacy context vprn prefix read "vprn-view" write "vprn-view"
notify "iso" ↵
```

where

*snmpv3\_groupname* is the name that is being assigned to the SNMP group

- 4 Type the following command to exit SNMP group configuration:

```
exit ↵
```

- 5 Type the following command to display the SNMP engine ID of the NE:

```
show system info ↵
```

The SNMP engine ID is displayed as SNMP Engine ID.

- 6 Generate an MD5 or SHA authentication key and DES privacy keys using the password2key utility on a 5620 SAM client or server station.
- MD5 and SHA authentication keys are used to create an encrypted authentication password for users. MD5 keys are 32-character strings. SHA keys are 40-character strings.
  - DES privacy keys are used to encrypt the entire SNMP packet, for additional security.
- i Log in to the 5620 SAM client or server station.



**Note 1** — If you are using the password2key utility on a 5620 SAM server station, you must log in as the samadmin user.

**Note 2** — If you are using the password2key utility on a 5620 SAM client station, you must log in as a local administrator, or as the user that installed the client.

- ii Open a console window.
- iii Navigate to the *install\_directory*/nms/bin directory.

where *install\_directory* is the 5620 SAM installation location, typically /opt/5620sam/server or /opt/5620sam/client on Solaris, and C:\5620sam\client on Windows

- iv Run the password2key.bat or .bash utility to create an MD5 or SHA authentication key by typing:

```
nmsclient.bat password2key method password engine_ID ↵
```

where

*method* is the type of encryption algorithm used to generate the authentication key, MD5 or SHA

*password* is the ASCII password used to generate the authentication key for the SNMPv3 user; for example, yoga

*engine\_ID* is the SNMP engine ID obtained in step 5

The SHA authentication key generated from this example is  
60210e3d2bfa7e02682262df9c5de400b9c3322b.

- v Run the password2key.bat or .bash utility to create an MD5 or SHA DES privacy key by typing:

```
nmsclient.bat password2key method password engine_ID ↵
```

where

*method* is the type of encryption algorithm used to generate the DES privacy key, MD5 or SHA

*password* is the ASCII password used to generate the DES privacy key; for example, happy

*engine\_ID* is the SNMP engine ID obtained in step 5

The DES privacy key generated from this example is  
4088f4ef966b8d1ebe54b8d841a5f76806c374ec.

- vi If your security model requires unique keys for each managed NE, repeat steps 6iv and 6v for each set of keys to be generated.
  - vii Store the generated keys.
- 7 Use the keys generated in step 6 to create an SNMPv3 user on the managed NE.

- i Type the following sequence of commands at the prompt:

```
configure system security user snmpv3_username ↵  
access snmp ↵  
snmp ↵  
  
authentication method authentication_key privacy des-key  
DES_privacy_key ↵  
  
group snmpv3_groupname ↵  
  
exit all ↵
```

where

*snmpv3\_username* is the name being assigned to the SNMPv3 user

*method* is sha or md5, depending on the authentication method used

*authentication\_key* is the SHA or MD5 authentication key generated in step 6

*DES\_privacy\_key* is the DES privacy key generated in step 6

*snmpv3\_groupname* is the name of the new SNMP user group



**Note —** A DES privacy key is 32 characters. If SHA encryption, which produces a 40-character key is used to generate the DES privacy key in step 6, you must provide only the first 32 characters of the key, as shown in the following example that uses the key values from step 6:

```
authentication sha  
60210e3d2bfa7e02682262df9c5de400b9c3322b privacy des  
4088f4ef966b8d1ebe54b8d841a5f768 ↵
```

- ii Type the following command at the prompt to save the configuration changes.

```
admin save ↵
```

---

### Procedure 4-3 To configure the 5620 SAM to discover and manage a 7750 MG

---

The 5620 SAM uses SNMPv2c or SNMPv3 to manage the 7750 MG. The following procedure describes the configuration of the mediation policy and discovery rule that can be used by the 5620 SAM to discover a 7750 MG. For information about configuring additional parameters in a mediation policy or discovery rule, see the *5620 SAM User Guide*.

- 1 Perform one of the following:
  - a To use SNMPv2 to manage the 7750 MG, go to step 2. For SNMPv2 configurations, the 5620 SAM uses the default SNMPv2c mediation security policy to discover the 7750 MG.
  - b To use SNMPv3 to manage the 7750 MG, go to step 3.
- 2 Create a discovery rule for the 7750 MG on the 5620 SAM:
  - i Choose Administration→Discovery Manager from the 5620 SAM main menu. The Discovery Manager (Edit) form opens with the Discovery Rules tab displayed.
  - ii Click on the Create button. The Create Discovery Rule wizard opens.
  - iii In step 1 of the wizard, enter a name in the Description field to identify the discovery rule. Click on the Next button.
  - iv In step 2 of the wizard (Add Rule Elements), click on the Create button. The Topology Discovery Rule Element (Create) form opens.
  - v Enter the 7750 MG management IP address as the rule element for the discovery rule and click on the OK button. A warning dialog appears.
  - vi Click on the OK button to acknowledge the warning message.
  - vii Click on the Finish button to save to close the Create Discovery Rule wizard. A warning message appears.
  - viii Click on the OK button to acknowledge the warning message. The Discovery Manager (Edit) form appears displaying the new discovery rule.
  - ix Click on the OK button.
  - x Go to step 6.
- 3 Create an SNMPv3 user on the 5620 SAM.
  - i Choose Administration→Security→NE User Configuration from the 5620 SAM main menu. The NE User Configuration form opens.
  - ii Click on the Create button. The NE User, Global Policy (Create) form opens with the General tab displayed.

- iii Configure the parameters:
    - User Name—Enter the user name that was created using the CLI (snmpv3\_username).
    - Description
    - Access—Choose the snmp option. The SNMPv3 tab appears in the NE User, Global Policy (Create) form.
  - iv Click on the SNMPv3 tab button.
  - v When a user has SNMPv3 permissions, you can configure the authentication parameters. Ensure that the SNMPv3 user and user group have been created on the managed NE. If MD5 or SHA authentication and DES privacy is used, ensure the keys have been created and associated with the managed NE and the SNMPv3 user group, as described in the *5620 SAM User Guide*. Configure the parameters:
    - Authentication Protocol—Choose SHA as the authentication protocol
    - Privacy Protocol—Choose DES as the privacy protocol
    - New Authentication Password
    - Confirm New Auth Password
    - New Privacy Password
    - Confirm New Privacy Password
  - vi Click on the OK button to save the change and close the NE User, Global Policy (Create) form.
  - vii Click on the Search button on the NE User Configuration form to confirm the creation of the new SNMPv3 user.
- 4 Configure an SNMPv3 mediation security policy for the SNMPv3 user created in Step 3:
- i Choose Administration→Mediation from the 5620 SAM main menu. The Mediation (Edit) form opens with the General tab displayed.
  - ii Click on the Mediation Security tab button.
  - iii Click on the Create button to create a mediation security policy. The Mediation Policy (Create) form opens.
  - iv Configure the Display Name parameter to identify the policy.
  - v Set the Security Model parameter to SNMP v3 (USM).
  - vi In the SNMP panel, set the Port parameter to 161.
  - vii In the SNMPv3 panel, click on the Select button. The Select User Mediation Policy form opens.
  - viii Select the SNMPv3 user created in step 3 and click on the Ok button. The user is added to the SNMPv3 panel on the Mediation Policy (Create) form.
  - ix Click on the Ok button to save the changes. A warning dialog appears.

- x Click on the OK button to acknowledge the warning message.
  - xi Click on the OK button to save the mediation security policy and close the Mediation (Edit) form.
- 5 Create a discovery rule for the 7750 MG on the 5620 SAM.
- i Perform steps 2 i to 2 vi in this procedure to initiate the creation of the discovery rule.
  - ii In step 4 of the wizard (the Configure Mediation Security step), click on the Select button and choose the mediation security policy that you created in step 4 for the Read Policy ID, Write Policy ID, and Trap Policy ID parameters.
  - iii Perform steps 2 vii to 2 x in this procedure to complete the creation of the discovery rule.
- 6 Use the 5620 SAM client to discover the NE and to verify that the NE configuration allows management of the NE, as described in the *5620 SAM User Guide*.
- 

#### Procedure 4-4 To change from SNMPv2c management of a 7750 MG to SNMPv3 management

---



**Warning** — This procedure requires you to delete a managed device. Deleting a managed device results in the loss of management data and completely removes the device from the managed network.

- 1 Unmanage and delete the device.
- i Choose Administration→Discovery Manager from the 5620 SAM main menu. The Discovery Manager (Edit) form appears.
  - ii Click on the Managed State tab button.
  - iii Select the device from the list that you want to manage by using SNMPv3 and click on the Unmanage button. A confirmation dialog opens.
  - iv Click on the Yes button to confirm the action. The 5620 SAM attempts to unmanage the device.
  - v Verify that the device shows a Site State of Not Managed.
  - vi Reselect the unmanaged device from the list, if required, and click on the Delete button. A confirmation dialog opens.
  - vii Click on the Yes button to confirm the action. The device is deleted from the 5620 SAM network.
  - viii Close the Discovery Manager (Edit) form.



- 2 Perform the following steps:
  - i Perform Procedure 4-2 to create SNMPv3 groups and users on the device.
  - ii Perform Procedure 4-3 to create a discovery rule with an SNMPv3 mediation security policy.



**Note** — You can modify the existing discovery rule with an SNMPv3 mediation security policy. However, you must create a new discovery rule for the deleted device if not all devices discovered by the same rule are changed to SNMPv3 management.

- 3 Rediscover the device.
    - i Choose Administration→Discovery Manager from the 5620 SAM main menu. The Discovery Manager (Edit) form appears.
    - ii Click on the Discovery Rules tab button.
    - iii Select the discovery rule that was created in step 2 ii to discover the deleted device.
    - iv Click on the Rescan button. A confirmation dialog opens.
    - v Click on the Yes button to confirm the action.
    - vi Click on the Managed State tab button.
    - vii Verify that the device is discovered and managed by using SNMPv3.
    - viii Click on the OK button to close the Discovery Manager (Edit) form.
- 

## 9471 MME management by the 5620 SAM

Perform the following procedures to discover and manage a 9471 MME with the 5620 SAM.

### Procedure 4-5 To create a 5620 SAM for 9471 MME CLI and NETCONF mediation

---

Perform this procedure to create a 5620 SAM user that has the correct permissions that are required to perform all NETCONF mediation and CLI interactions on the 9471 MME.



**Note** — You must activate the CPM agent functionality on the 9471 MME and modify the CPM parameters after activation, as described in the *9471 MME Software Installation and Integration guide*, before you perform this procedure.

- 1 Create a 5620 SAM user to manage the 9471 MME.
  - i Using CLI, Telnet into the 9471 MME as root user using the management IP address of the device. Enter the default password: newsys.
  - ii Create the 5620 SAM user by typing:

```
/opt/cso/server/bin/import_data  
/opt/cso/server/tools/import_sam5620.xml ↵
```
- 2 Configure the 5620 SAM user password to access the 9471 MME.
  - i Using CLI, SSH into the 9471 MME as a sam5620 user using the floating CNFG server IP address of the device. Enter the default password: Sam12356.
  - ii Change the password for the 5620 SAM user by typing:

```
ssh -l sam5620 -s 9471 MME IP_address -p 830 netconf ↵
```
  - iii When prompted, change the password for the sam5620 user and CLI user and respond to all other on-screen prompts. Record the information from the prompt which is required when you create the mediation policy, as described in Procedure 4-6.



**Note** — Passwords must contain at least eight characters and cannot contain any special characters.

---

### Procedure 4-6 To configure the 5620 SAM to discover and manage a 9471 MME

---

The 5620 SAM uses SNMPv2c or SNMPv3 and NETCONF to discover and manage a 9471 MME. See the 9471 MME documentation suite for information about the SNMPv2c or SNMPv3 user.

The following procedure describes how to configure a basic mediation policy and discovery rule that can be used to discover a 9471 MME. For information about configuring additional parameters in a mediation policy or discovery rule, see the *5620 SAM User Guide*.

- 1 Configure an SNMPv2c or SNMPv3 and NETCONF mediation security policy on the 5620 SAM.
  - i Choose Administration→Mediation from the 5620 SAM main menu. The Mediation (Edit) form opens with the General tab displayed.
  - ii Click on the Mediation Security tab button.
  - iii Click on the Create button to create a mediation security policy. The Mediation Policy (Create) form opens.
  - iv Configure the Displayed Name parameter to identify the policy.
  - v Set the Security Model parameter to SNMP v2c or SNMPv3 (USM).
  - vi In the SNMP panel, set the Port parameter to 8001.
  - vii If you specified SNMPv3 (USM) for the Security Model parameter, click on the Select button in the SNMPv3 (USM) panel, and choose a user. See the *5620 SAM User Guide* for more information about creating an SNMPv3 user in the 5620 SAM.
  - viii Click on the OK button.
  - ix In the CLI panel, configure the username as sam5620, and configure the password, so that both match the values that were configured on the 9471 MME using CLI. You must select ssh2 as the communications protocol. See the 9471 MME documentation suite for more information about creating the sam5620 username and password on the 9471 MME.
  - x In the NETCONF panel, configure the username as sam5620, and configure the password, so that both match the values that were configured on the 9471 MME using CLI. See the 9471 MME documentation suite for more information about creating the sam5620 username and password on the 9471 MME.
  - xi Click on the OK button to save the mediation security policy.
- 2 Create a discovery rule for the 9471 MME on the 5620 SAM.
  - i Choose Administration→Discovery Manager from the 5620 SAM main menu. The Discovery Manager (Edit) form opens with the Discovery Rules tab displayed.
  - ii Click on the Create button. The Create Discovery Rule wizard opens.
  - iii In step 1 of the wizard, enter a name in the Description field to identify the discovery rule. Click on the Next button.
  - iv In step 2 of the wizard (Add Rule Elements), click on the Create button. The Topology Discover Rule Element (Create) form opens.

- v Enter the 9471 MME management IP address as the rule element for the discovery rule and click on the OK button. A warning message appears.
  - vi Click on the OK button to acknowledge the warning message. Click on the Next button to proceed to step 3 in the wizard. No configuration is required for this step. Click on the Next button to proceed to step 4 in the wizard.
  - vii In step 4 of the of the wizard (Configure Mediation Security, click on the Select button associated with the Read Policy ID, Write Policy ID and Trap Policy ID parameters, and choose the mediation security policy that you created in step 1.
  - viii Click on the Finish button to save to close the Create Discovery Rule wizard. A warning message appears.
  - ix Click on the OK button to acknowledge the warning. The Discovery Manager (Edit) form appears displaying the new discovery rule.
  - x Click on the OK button.
- 3 Use a 5620 SAM client to discover the NE and to verify that the NE configuration allows the management of the NE, as described in the *5620 SAM User Guide*.
- 

## 5780 DSC management by the 5620 SAM

Perform the following procedures to discover and manage a 5780 DSC with the 5620 SAM.

You must add the IP address of the 5620 SAM to the 5780 DSC firewall rules in order to manage the 5780 DSC. The firewall configuration can be performed:

- as part of the initial 5780 DSC software installation. See the *5780 DSC Installation and Upgrade Guide* for the installation prompts associated with configuring the 5780 DSC to work with the 5620 SAM.
- as a post-installation task. See Procedure 4-7.

If you change the 5620 SAM IP address, you need to shut down the existing 5780 DSC firewall settings and reload the new settings to allow the changes to take effect. See Procedure 4-8.

## Procedure 4-7 To configure the 5780 DSC firewall rules for management by the 5620 SAM

Perform this procedure to configure the firewall rules on the 5780 DSC if you need to add a new 5620 SAM, or you are swapping out an existing 5620 SAM that has a different IP address.



**Note 1** — You can only configure the 5620 SAM to communicate with the 5780 DSC using a IPv4 address.

**Note 2** — If you deploy the 5780 DSC as an HA cluster, you must perform this procedure on each 5780 DSC CSB component in the HA cluster.

- 1 Open a console window and log in to the 5780 DSC CSB as the root user.
- 2 Navigate to the `/etc/ipf/` directory.
- 3 Use a text editor to open the `ipf.conf` file
- 4 Perform one of the following:



**Note** — The firewall rules file must contain entries for each 5620 SAM server in redundant 5620 SAM servers.

- a If an existing 5620 SAM is currently configured to work with the 5780 DSC, go to step 5.
  - b If a 5620 SAM was not configured to work with the 5780 DSC when the 5780 DSC was first installed, go to step 6.
- 5 In the `ipf.conf` file:

- i Locate the following comment line.

```
# Give element manager SNMP access to this system.
```

- ii Change the following strings located directly below the above comment line:

```
pass in quick proto 6 from 5620 SAM IP to 5780 DSC IP port =
161
```

```
pass in quick proto 17 from 5620 SAM IP to 5780 DSC IP port =
161
```

where

5620 SAM IP is the IP address of the new 5620 SAM server

5780 DSC IP is the external floating OAM IP address of the 5780 DSC CSB component

Code 4-1 shows the location of the comment line and strings in the `ipf.conf` file.

### Code 4-1: Sample code for 5780 DSC firewall rules in the `ipf.conf` file

```
# Give element manager SNMP access to this system.
```

```
pass in quick proto 6 from 123.456.789.100 to 123.456.789.50 port =  
161  
pass in quick proto 17 from 123.456.789.100 to 123.456.789.50 port =  
161
```

- 6 If a 5620 SAM was not configured to work with the 5780 DSC when the 5780 DSC was installed:



**Note** — You can only configure the 5620 SAM to communicate with the 5780 DSC using IPv4.

- i Locate the following comment line in the ipf.conf file.

```
#===.tpafirewallrules Ends===
```

- ii Add the appropriate IPv4 comment line and strings as detailed in step 5 directly below the above comment line in the ipf.conf file.

- 7 Save and close the ipf.conf file.
  - 8 Perform Procedure 4-8 to remove the old firewall rules and load the new firewall rules.
  - 9 Perform Procedure 4-9 to discover the 5780 DSC.
- 

#### Procedure 4-8 To remove the old firewall rules and load the new firewall rules

---

After the 5780 DSC firewall rules are changed, you must restart the firewall. The TPA\_reflushFirewallRules script allows a tpaadmin user to flush the old firewall rules and load the new firewall rules without shutting down the firewall.

- 1 Open a console window and log in to the 5780 DSC as tpaadmin.
- 2 Navigate to the /opt/tpa/bin directory.
- 3 To remove the old firewall rules and load the new firewall rules, type;

```
./TPA_reflushFirewallRules .J
```

---

## Procedure 4-9 To configure the 5620 SAM to discover and manage the 5780 DSC

The 5620 SAM uses SNMPv2c to manage the 5780 DSC. The following procedure describes the configuration of a basic SNMPv2c mediation policy and discovery rule that can be used to discover a 5780 DSC. For information about configuring additional parameters in a mediation policy or discovery rule, see the *5620 SAM User Guide*.

- 1 Configure an SNMPv2c mediation security policy on the 5620 SAM.
  - i Choose Administration→Mediation from the 5620 SAM main menu. The Mediation (Edit) form opens with the General tab displayed.
  - ii Click on the Mediation Security tab button.
  - iii Click on the Create button to create an mediation security policy. The Mediation Policy (Create) form opens.
  - iv Configure the Displayed Name parameter.
  - v Set the Security Model parameter to SNMP v2c.
  - vi In the SNMP panel, set the Port parameter to 161.
  - vii Specify the Community String parameter configured on the 5780 DSC. See the 5780 DSC documentation for more information about configuring the SNMP community string.
  - viii Click on the OK button to save the mediation security policy.



**Note** — The CLI and FTP functions are not supported for the 5780 DSC. Do not change the default values that are in the CLI and FTP panels.

- 2 Create a discovery rule for the 5780 DSC on the 5620 SAM:
  - i Choose Administration→Discovery Manager from the 5620 SAM main menu. The Discovery Manager (Edit) form opens with the Discovery Rules tab displayed.
  - ii Click on the Create button. The Create Discovery Rule wizard opens. The wizard divides the configuration procedure into steps.
  - iii In step 1 of the wizard (Specify General Attributes), configure the parameters.
    - ID or Auto-Assign ID
    - Description
    - Administrative State
    - OLC State
    - Group Name
    - Management Protocol

Click on the Next button.

- iv In step 2 of the wizard (Add Rule Elements), click on the Create button. The Topology Discover Rule Element (Create) form opens.
  - v Enter the following IP addresses:
    - 5780 DSC management IP address as the rule element for the discovery rule
    - floating IP address of the CSB in the 5780 DSC cluster
    - floating IP address of each PCRF in the 5780 DSC cluster
  - vi Click on the OK button to save the IP addresses. A warning message appears.
  - vii Click on the OK button to acknowledge the warning message. Click on the Next button.
  - viii In step 3 of the wizard (Configure Mediation Security), click on the Select button and choose the mediation security policy that you created in step 1 for the Read Policy ID, Write Policy ID, and Trap Policy ID parameters.
  - ix Click on the Finish button to save to close the Create Discovery Rule wizard. A warning message appears.
  - x Click on the OK button to acknowledge the warning message. The Discovery Manager (Edit) form appears displaying the new discovery rule.
  - xi Click on the OK button to save the discovery rule and close the form.
  - xii Go to step 3.
- 3 Use a 5620 SAM client to discover the NE and to verify that the NE configuration allows management of the NE, as described in the *5620 SAM User Guide*.
-



# ***Mobile core configuration and management***

---

- 5 – Configuring and managing LTE ePC equipment
- 6 – Configuring LTE ePC gateways
- 7 – 9471 MME configuration management
- 8 – Viewing 5780 DSC properties
- 9 – Configuring LTE ePC mobile regions
- 10 – 9471 MME complex operations



## **5 — *Configuring and managing LTE ePC equipment***

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## 5.1 LTE ePC equipment configuration and management overview

You can use the 5620 SAM to create, configure, and manage LTE ePC equipment. After an NE is discovered, you can use the properties forms to configure and view specific parameters for the equipment. You can open the properties forms from the contextual menus.

The 5620 SAM supports the following LTE NEs:

- 7750 MG
- 9471 MME
- 5780 DSC
- managed eNodeB
- unmanaged network elements - eNodeB and serving GPRS support nodes
- unmanaged gateway - PDN gateway

### 7750 MG

The Alcatel-Lucent 7750 MG can be configured as an SGW or a PGW.

#### SGW

The SGW routes and forwards user data packets. The SGW is the mobility anchor for the user plane during inter-eNodeB handovers, and is the anchor for mobility between LTE and other 3GPP technologies.

#### PGW

The PGW provides connectivity from the UE to external packet data networks. The PGW is the exit and entry point for traffic to and from the UE.

### 9471 MME

The 9471 MME allows the UE to access network services by performing authorization and authentication functions.

#### 9471 MME hardware

The 9471 MME cards must be installed in specific slots, as listed in Table 5-1. Slots 9 to 14 are not used. Redundancy is supported for all card types. Multi-shelf 9471 MME configurations are supported.

Table 5-1 9471 MME card types and functions

Card type	Slot	Function
OAM	1 and 2	OAM

(1 of 2)

Card type	Slot	Function
MIF, MAF, or combined MIF/MAF	Any available slot (except slots 1, 2, 7, 8, and 15)	Terminate and manage all interface links with the 9471 MME Provide session and bearer management for user sessions and procedures
ATCA hub	7 and 8	Provide external connectivity to the platform using GE interfaces
Shelf management	15	Monitor the health of the system and provide feedback to the OAM service

(2 of 2)

### Configuring a 9471 MME

The 5620 SAM provides the ability to configure 9471 MME device parameters on the 5620 SAM GUI or by providing a launch point for starting the 9471 MME Provisioning Web Interface. You can also start the 9471 MME element management GUI from the 5620 SAM. See Procedure 5-7 for information about configuring 9471 MME parameters.

You can perform load balancing on the 9471 MME by redistributing UEs in a 9471 MME or to another 9471 MME, in order to optimize network performance. See section 7.7 for more information.

## 5780 DSC

The 5780 DSC is deployed on the following platforms:

- ATCA
- Solaris

### ATCA v2 platform

The 5780 DSC cabinet can be configured with up to two shelves. Each ATCA shelf has 14 slots. The ATCA cards must be installed in specific slots in the ATCA shelf, as listed in Table 5-2.

**Table 5-2 5780 DSC card types and functions**

Card type	Slot	Function
Common Services	1 and 2	Provide internal communication between the processing blades and are installed in a 1+1 redundancy side-by-side configuration
PCRF Services	3 to 6 and 9 to 14	Provide OAM service, DPA service, and PCRF service. The PCRF services blades are installed using a 1+1 redundancy in a side-by-side configuration.
ATCA switching hub	7 and 8	Provide external connectivity to the platform using GE interfaces

(1 of 2)

Card type	Slot	Function
Shelf management card	15	Monitor the health of the system and provide feedback to the OAM service

(2 of 2)

### Solaris platform

The 5780 DSC is supported on Solaris stations that meet the following minimum requirements:

- 64-bit AMD-based station or rack-mount chassis
- dual-core CPU
- 8-Gbyte RAM
- 73-Gbyte hard disk

An HA deployment requires multiple stations of the same type. See the *5780 DSC Installation and Upgrade Guide* for more information.

### Monitoring the 5780 DSC

The 5620 SAM provides read-only capability for the 5780 DSC. See chapter 8 for information about how to monitor the 5780 DSC.

### Configuring and managing and PCRF

Configuration and management tasks are performed from the 5780 DSC client GUI. You can open the 5780 DSC client GUI from the 5620 SAM. See Procedure 5-8 for information about starting the 5780 DSC client GUI.

## Unmanaged mobile NEs and gateways

The 5620 SAM uses EPS path information to create unmanaged mobile NEs and gateways to represent LTE network components that it does not manage. You can use the 5620 SAM to list and view the properties of all discovered unmanaged mobile NEs and gateways.

### eNodeB

The 5620 SAM can discover, manage, and configure the eNodeB. Managed eNodeBs exist in the network and topology map as a standard NE. The 5620 SAM can also use S1-U path information retrieved from the SGW to automatically discover eNodeBs as unmanaged mobile NEs. The 5620 SAM can then manage the eNodeB-based mobile services and use the eNodeB as a starting point in the analysis of the different segments that comprise a selected S1-U path. The eNodeB appears on the physical topology map as an unmanaged NE after a physical link has been created from it to another NE.

## PGW

The 5620 SAM uses S5 and S8 path information retrieved from the SGW to automatically discover peer PGWs that the 5620 SAM does not manage. The unmanaged PGW allows the 5620 SAM to include PGWs as part of a mobile service. The unmanaged PGW appears on the physical topology map after a physical link has been created from it the PGW to a managed SGW.

## Serving GPRS support node

The 5620 SAM uses Gn peer information retrieved from the PGW to automatically create unmanaged SGSNs. The unmanaged SGSNs appear on the EPS path topology map.

## 5620 SAM LTE ePC licensing

The 5620 SAM license specifies the number of 7750 MG, 9471 MME, and 5780 DSC cards that can be in the network. When the 5620 SAM attempts to discover a node, the license is checked and if the licensed quantity of cards remaining for the node type is greater than zero, the node can be discovered. If the licensed quantity of cards remaining is less than or equal to zero, the discovery process is blocked. Table 5-3 lists the number of licenses decremented by each card type.

**Table 5-3 5620 SAM LTE license decrement values for NE cards**

Network element	Licenses decremented
<b>7750 MG</b>	
ISM mobile card	1
<b>5780 DSC</b>	
OAM card	1
PCRF card	1
<b>9471 MME</b>	
MIF, MAF, or combined MIF/MAF card	1

Contact your Alcatel-Lucent technical support representative for more information about how to acquire licenses.

## Additional information

Table 5-4 lists where to find more information about using the 5620 SAM to manage LTE ePC equipment. See the appropriate NE user guide for more information.

**Table 5-4 Equipment management resources**

For more information about	See
5620 SAM equipment management	Equipment Management Overview in the <i>5620 SAM User Guide</i>

(1 of 2)

For more information about	See
5620 SAM equipment management using the navigation tree	Equipment Management Using the Navigation Tree in the <i>5620 SAM User Guide</i>

(2 of 2)

## 5.2 NE properties form

The Network Element properties form contains several tabs. The General tab displays information such as the name, management IP address, chassis type, software version, descriptor version, and resource group ID. The Polling, Physical Links, Spans, and Faults tabs are common with other NE objects.

The General tab for an SGW and a PGW displays a Serving and PDN Gateway Instances dashboard area that lists the SGW and PGW instance that is available on the chassis. When you choose an instance, you can view the properties of an SGW or a PGW under the following tabs:

- General
- Components
- Charging
- EPS Peers
- EPS Paths
- Signaling
- Reference Points
- APN
- MG Groups
- Statistics
- Faults

The General tab for the 9471 MME has an MME Service Dashboard area that lists the 9471 MME instances. When you choose an instance, you can view the 9471 MME instance properties in the MME Instance (Edit) form under the following tabs:

- General
- Service Components
- EPS Peers
- MME Interface Function
- Reference Points
- MME Application Function
- Load Balancing
- MME Packet Handler
- Faults

The General tab for the 5780 DSC has a dashboard area that lists the 5780 DSC instances. When you choose an instance, you can view the 5780 DSC instance properties in the DSC Instance (Edit) form under the following tabs:

- General
- Components
- Diameter Peers
- ISU State
- Faults



## 5.3 Shelf properties

The shelf properties forms for the 7750 MG and the 7750 SR have the following tabs:

- General
- Fan Trays
- Multicast
- Power Supply Trays
- LED Panels
- Card Slots
- Hardware Environment
- Timing
- Statistics
- Faults

The shelf properties forms for the 9471 MME and the 5780 DSC have the following tabs:

- General—includes an equipment dashboard area that lists the equipped card slots in the shelf
- Fan Trays—lists the fan trays in the shelf
- Power Supply—lists the power supplies in the shelf (the Power Supply tab is not available on the 9471 MME shelf properties form).
- Card Slots—lists the card slots in the chassis
- Ports—summarizes all of the physical ports that are available on the hub cards
- Faults—lists the alarms associated with the shelf

The shelf PDU properties form for the 9471 MME has the following tabs:

- General—includes information about the slot PDU, RALARM, and RALARM host
- Faults—lists the alarms associated with the shelf PDU

### 5780 DSC shelves in the equipment navigation view

For the 5780 DSC ATCA deployment, a shelf appears in the 5620 SAM equipment navigation tree as 5780 DSC - ATCA. For a Solaris deployment, a shelf appears in the 5620 SAM equipment navigation tree as 5780 DSC - Non-ATCA.

## 5.4 Card slots and cards

You can use the 5620 SAM to configure card slots and cards for the 7750 MG. The 7750 MG is based on the 7750 SR chassis, and supports several cards and MDAs that are used to provide network connectivity. When you click on the plus sign beside a shelf object, all of the card slots in the shelf are displayed in the navigation tree. The card slots are empty when cards are not provisioned for the slot.

The 7750 MG supports ISM Mobile cards that provide SGW and PGW functionality. The cards fit in the IOM slots on the 7750 MG. You can also configure a second ISM card per ISM Mobile group to provide redundancy inside the group. When the card is managed by the 5620 SAM, the equipment navigation tree displays a preconfigured ISA Mobile daughter card with an associated virtual port. You can right-click on any of the objects and use the contextual menu to view the object properties.

The card slots for the 9471 MME OAM, hub, and shelf management cards are preassigned and cannot be changed. The MIF, MAF, and combined MIF/MAF cards can be placed in any unused card slot. See Table 5-1 for more information about 9471 MME cards. The 9471 MME card properties form includes a Hosts tab that displays the internal IP address assignment of the individual cards, software version, and any associated faults. The internal IP address is assigned by the 9471 MME during the initial configuration.

For the 5780 DSC ATCA-based deployment, the card slots for the Common Services and the PCRF Services cards are preassigned and cannot be changed in the ATCA frame. See Table 5-2 for more information about 5780 DSC card types in the ATCA frame. The 5780 DSC card properties form includes information about the services that are running on the card, the status, and any associated faults.

### 9471 MME card slots and cards in the equipment navigation view

For an ATCA-based deployment, the 5620 SAM designates provisioned card slots by ATCA, followed by the type of blade; for example, ATCA Molene Blade. Cards are designated by the ATCA blade type.

### 5780 DSC card slots and cards in the Equipment view

The 5620 SAM equipment navigation tree displays the 5780 DSC card slots and cards according to the type of platform and deployment.

- For a standalone deployment, the 5620 SAM designates card slot 1 as Workstation. The common services card appears in card slot 1.
- For a multi-station deployment, the 5620 SAM designates provisioned card slots as Workstation. Cards are designated as Workstation (Common Services) or Workstation (PCRF Services).
- For an ATCA-based deployment, the 5620 SAM designates provisioned card slots by ATCA, followed by the type of blade; for example, ATCA Molene Blade. Cards are designated by the ATCA blade type, followed by (Common Services) or (PCRF Services).

## 5.5 Daughter cards

After a card is configured in a 7750 MG card slot, you can use the 5620 SAM to create and configure MDAs.

The 9471 MME and 5780 DSC do not support daughter cards.

## 5.6 Ports

The types of available ports depend on the cards that are configured in a chassis. You can use the 5620 SAM to:

- view and configure physical ports on the 7750 MG
- view the properties of 9471 MME hub card ports
- view the properties of 5780 DSC ports on the common services card

## 5.7 Physical links

The 5620 SAM allows you to create and manage links at the Layer 1 level. The physical links represent the physical configuration of the network connections between the ports. If the device supports LLDP for Ethernet interfaces, the 5620 SAM uses that information to automatically draw the physical links on the network map. Otherwise, you must use the 5620 SAM to create the links.

The 9471 MME and 5780 DSC do not support LLDP. You can view and manage physical links from the physical topology map, and the manage equipment list form.

## 5.8 ISA-MG groups

The ISA-MG groups are logical containers that combine multiple ISA-MG cards in a logical group for load balancing in an SGW or a PGW. You must configure the following parameters in the ISA-MG groups configuration form:

- general properties such as Group ID, Description, and SGW or PGW instance ID
- ISA-MG Group members

See Procedure [5-4](#) for information about configuring ISA-MG groups.

## 5.9 ISA-AA groups

The ISA-AA groups are created to provide redundancy for application assurance capabilities when multiple ISA-AA MDAs are installed on an NE. The ISA-AA redundancy protects against card failure and minimizes service interruption during maintenance or protocol signature upgrades. The ISA-AA groups are supported on PGWs that are configured on 7750 MG ISA Mobile daughter cards. You must configure the following on the ISA-AA groups configuration form:

- General properties, such as Group Number, Description, Operation Upon Failure, and Administrative State
- ISA-AA Group members
- ISA-AA Group diverted forwarding classes

Additionally, to configure ISA-AA groups on the ISA Mobile daughter card, you must configure the Subscriber Scale parameter on the ISA-AA groups configuration form as Mobile Gateway. You can the associate ISA policies with the PGW.

See the *5620 SAM User Guide* for information about creating and configuring ISA-AA groups and for information about application assurance. See Procedure [5-5](#) for information about associating ISA policies with PGWs. See Procedure [5-6](#) for information about associating ISA policies with PDN APNs.

## 5.10 Workflow to configure LTE ePC equipment

- 1 As required, configure the card slots and cards for the 7750 MG. The 7750 MG can be configured as an SGW or a PGW.
  - i Configure the chassis mode for the 7750 MG. See Procedure 5-1 for more information.
  - ii Configure the ISM mobile card type for the 7750 MG. See Procedure 5-2 for more information.
  - iii Create an SGW or a PGW instance for the 7750 MG. See Procedure 5-3 for more information.
  - iv Create an ISA-MG group, and assign an SGW or a PGW instance to the group. See Procedure 5-4 for more information.
  - v Create an ISA-AA group, and associate ISA policies with PGWs and PDN APNs. See Procedures 5-5 and 5-6 for more information.
- 2 As required, configure the 9471 MME MI GUI parameters.
  - i Create a 5620 SAM user to manage 9471 MME devices See Procedure 4-5 for more information.
  - ii Configure the required discovery and mediation policy procedures. See Procedure 4-6 for more information.
  - iii Configure the 9471 MME device parameters on the 5620 SAM or using the 9471 MME Provisioning Web Interface. You can also start the 9471 MME element management GUI from the 5620 SAM. See Procedure 5-7 for more information.
  - iv Perform load balancing. See Procedure 7-81 for more information.
- 3 As required, start the 5780 DSC GUI to access the 5780 DSC read-only parameters.
  - i Configure the required discovery and mediation policy procedures. See Procedures 4-7 and 4-9 for more information.
  - ii Start the 5780 DSC from the 5620 SAM to view the 5780 DSC read-only parameters. See Procedure 5-8 for more information.
- 4 As required, view unmanaged mobile NE and gateway properties. See Procedure 5-9 for more information.

## 5.11 Configuring LTE ePC equipment procedures

The following procedures describe how to configure LTE ePC equipment.

### Procedure 5-1 To configure the chassis mode for the 7750 MG

---

Perform this procedure to configure the chassis mode for the 7750 MG.

- 1 Choose Equipment from the view selector in the navigation tree. The navigation tree displays the Equipment view.
- 2 Right-click on a shelf object in the equipment view and choose Properties from the contextual menu. The Shelf (Edit) form opens with the General tab displayed.
- 3 Set the Administrative Mode parameter to D.



**Note** — Chassis mode D is the only chassis mode that is supported.

- 4 Configure the Force parameter.  
  
Forcing a chassis mode change does not change the operational chassis mode unless there is a compatible card type equipped on the device.
  - 5 Click on the OK button. The Shelf (Edit) form closes.
- 

### Procedure 5-2 To configure a 7750 MG ISM Mobile card type

---

- 1 Choose Equipment from the view selector in the navigation tree. The navigation tree displays the Equipment view.
- 2 Right-click on an empty 7750 MG Card Slot object and choose Configure Card from the contextual menu. The Card Slot (Create) form opens. The number of slots depends on the number of configured cards and slots on the managed device. Empty slots and configured slots are listed.
- 3 Set the Assigned Card Type parameter to ISM Mobile.
- 4 Click on the OK button. The Card Slot (Create) form closes. The card and slot appear in the navigation tree. When the ISM Mobile card is configured in card slot 1, the card is represented by a daughter card and a virtual port 1/1/1.



**Note** — Ensure that the correct chassis mode is configured for the assigned card types. The chassis mode determines the behavior of the card and establishes the scaling limits and available features. See Procedure [5-1](#) for more information.

---

### Procedure 5-3 To create an SGW or a PGW instance

---

- 1 Choose Equipment from the view selector in the navigation tree. The navigation tree displays the Equipment view.
- 2 Right-click on a 7750 MG NE in the equipment view and choose Properties. The Network Element (edit) form opens with the General tab displayed.
- 3 Perform one of the following:
  - a If you need to create an SGW, go to step 4.
  - b If you need to create a PGW, go to step 12.
- 4 Click on the Create SGW button. The Serving Gateway (Create) form opens with the General tab displayed.
- 5 Configure the parameters:
  - EPC ID
  - Dynamic PCC

The Dynamic PCC parameter applies only to the PGW.
- 6 Click on the Select button in the Mobile Node Region panel to choose a mobile node region. The Select Mobile Node Region form opens.
- 7 Configure the filter criteria, if required, and click on the Search button to generate a list of mobile node regions.
- 8 Choose a region and click on the OK button. The Select Mobile Node Region form closes and the selected profile name appears in the Mobile Node Region panel.
- 9 Configure the parameters in the Mobile Node ID panel:
  - Group ID
  - Node ID
- 10 Configure the Administrative State parameter.
- 11 Go to step 14.
- 12 Click on the Create PGW button. The PDN Gateway (Create) form opens with the General tab displayed.
- 13 Perform steps 5 to 10 and then go to step 14.
- 14 Click on the OK button. The SGW or PGW appears in the list of SGW or PGW instances.

See the *5620 SAM User Guide* for information about how to configure the NE parameters that are associated with the other tab buttons. See chapter 6 for information about how to configure an SGW or a PGW.

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**Procedure 5-4 To create and configure an ISA-MG group**

---

- 1 Choose Equipment from the view selector in the navigation tree. The equipment navigation tree appears.
  - 2 Locate and expand the device on which you need to create an ISA-MG group.
  - 3 Right-click on the ISA-MG Group icon and choose Create ISA-MG Group. The ISA-MG Group (Create) form opens.
  - 4 Configure the parameters:
    - Group ID
    - Redundancy Type
    - Description
  - 5 Click on the Select button in the Gateway Association panel. The Select Gateway Association - ISA-MG Group form opens.
  - 6 Choose an SGW or a PGW from the list and click on the OK button. The Select Gateway Association - ISA-MG Group form closes and the ISA-MG Group (Create) form opens.
  - 7 Click on the Apply button.
  - 8 Click on the ISA-MG Group Members tab button.
  - 9 Click on the Create button. The ISA-MG Group Member (Create) form opens.
  - 10 Click on the Select button in the Base Card panel. The Select Base Card - ISA-MG Group Member form opens with a list of available ISM Mobile cards.
  - 11 Choose the ISM Mobile card to add to this ISA-MG Group and click the OK button. The Select Base Card - ISA-MG Group Member form closes and the ISA-MG Group Member (Create) form reappears.
  - 12 Click on the OK button. A dialog box appears.
  - 13 Click on the OK button. The selected ISM Mobile card appears in the ISA-MG Group Members list.
  - 14 Click on the OK button. A dialog box appears.
  - 15 Click on the Yes button.
- 

**Procedure 5-5 To associate an ISA policy with a PGW**

---

- 1 Choose Equipment from the view selector in the navigation tree. The navigation tree displays the Equipment view.
- 2 Right-click on a 7750 MG NE in the Equipment view and choose Properties. The Network Element (Edit) form opens with the General tab displayed.

- 3 In the Serving and PDN Gateway Instances dashboard, choose a PGW instance and click on the Properties tab button. The Serving Gateway (Edit) form or the PDN Gateway (Edit) form opens with the General tab displayed.
  - 4 Click on the Select button in the Application Assurance Group panel to choose an AA group policy. The Select Application Assurance Policy form opens.
  - 5 Configure the filter criteria, if required, and click on the Search button to generate a list of application assurance policies.
  - 6 Choose a policy and click on the OK button. The Select Application Assurance Policy form closes and the selected profile name appears in the Select Application Assurance Group panel.
  - 7 Click on the Select button in the Application Assurance Profile panel to choose an application assurance profile. The Select Application Assurance Profile form opens.
  - 8 Configure the filter criteria, if required, and click on the Search button to generate a list of application assurance profiles.
  - 9 Choose a profile and click on the OK button. The Select Application Assurance Profile form closes and the selected profile name appears in the Select Application Assurance Profile panel.
  - 10 Click on the OK button. The PDN Gateway (Edit) form closes.
- 

#### **Procedure 5-6 To associate an ISA policy with a PDN APN**

---

- 1 Choose Equipment from the view selector in the navigation tree. The navigation tree displays the Equipment view.
- 2 Right-click on a 7750 MG NE in the Equipment view and choose Properties. The Network Element (Edit) form opens with the General tab displayed.
- 3 In the Serving and PDN Gateway Instances dashboard, choose a PGW instance and click on the Properties tab button. The Serving Gateway (Edit) form or the PDN Gateway (Edit) form opens with the General tab displayed.
- 4 Click on the PDN APN tab button.
- 5 Choose an item from the list and click on the Properties button. The PDN APN (Edit) form opens with the General tab displayed.
- 6 Click on the Select button in the Application Assurance Group panel to choose an AA group policy. The Select Application Assurance Policy form opens.
- 7 Configure the filter criteria, if required, and click on the Search button to generate a list of application assurance policies.
- 8 Choose a policy and click on the OK button. The Select Application Assurance Policy form closes and the selected profile name appears in the Select Application Assurance Group panel.



- 9 Click on the Select button in the Application Assurance Profile panel to choose an application assurance profile. The Select Application Assurance Profile form opens.
  - 10 Configure the filter criteria, if required, and click on the Search button to generate a list of application assurance profiles.
  - 11 Choose a profile and click on the OK button. The Select Application Assurance Profile form closes and the selected profile name appears in the Select Application Assurance Profile panel.
  - 12 Click on the OK button. The PDN APN (Edit) form closes.
- 

### **Procedure 5-7 To configure 9471 MME device parameters**

---

Perform this procedure to configure 9471 MME device parameters on the 5620 SAM, or using the 9471 MME Provisioning Web Interface. You can also start the 9471 MME element management GUI from the 5620 SAM.



**Note 1** — A `netw.NetworkElement.method_GUICrossLaunch` scope of command permission is required to view the 9471 MME MI GUI. See the *5620 SAM User Guide* for more information about scope of command roles, profiles, and permissions.

**Note 2** — For Solaris-based clients, the 9471 MME Provisioning Web Interface requires the Mozilla browser, version 3.6.0 or later.

Before you perform this procedure, you must create a 5620 SAM user to:

- manage 9471 MME devices, as described in Procedure 4-5
- configure the required discovery and mediation policy procedure to discover the 9471 MME, as described in Procedure 4-6

1 Perform one of the following:

- a Right-click on a 9471 MME NE icon in the equipment navigation tree or physical topology map and choose Properties. The Network Element *[IP address of the selected 9471 MME]* (Edit) window opens. Perform one of the following:
  - To configure 9471 MME device parameters using the 5620 SAM, select the MME Instance and double-click on it. The MME Instance *[IP address of the selected 9471 MME]* (Edit) window opens. Go to step 4.
  - To configure 9471 MME device parameters using the 9471 MME Provisioning Web Interface, click on the Launch Provisioning GUI button. Go to step 2.
  - To start the 9471 MME element management GUI from the 5620 SAM, click on the Launch MI GUI button. The 9471 MME Start Web Client window opens. Go to step 3.
- b Right-click on the 9471 MME icon in the equipment navigation tree or physical topology map and perform one of the following:
  - To configure 9471 MME device parameters using the 9471 MME Provisioning Web Interface, choose NE Sessions→Launch Provisioning GUI. Go to step 2.
  - To start the 9471 MME element management GUI, choose NE Sessions→Launch MI GUI. The 9471 MME Start Web Client window opens. Go to step 3.

2 Enter the login name and the password for the 9471 MME Provisioning Web Interface. The 9471 MME Provisioning Web Interface opens. Go to step 5.

3 Click on the Web Start Client button and when prompted, enter the login name and the password for the 9471 MME element management GUI. Click on the Connect button. The 9471 MME element management GUI opens. See the *9471 MME Operations, Administration and Maintenance and Configuration Management* guides for information about configuring and using the 9471 MME element manager.



**Note** — By default, the entire MME Instance is in an unlocked state on the 5620 SAM. Some 9471 MME device parameters require that the MME Instance be in a locked state before they can be configured. You can determine the current state of the MME Instance by viewing the Administrative State parameter on the MME Instance *[IP address of the selected 9471 MME]* (Edit) window.

- 4 Click on the More Actions button and choose Lock MME on the MME Instance window to lock the MME instance. After configuring the 9471 MME device parameters, click on the More Actions button and choose Unlock MME on the MME Instance window to return the MME Instance to an unlocked state.



**Note** — You must have an administrator scope of command role to be able to lock or unlock an MME. See the *5620 SAM User Guide* for more information about scope of command roles, profiles, and permissions.

- 5 Configure the 9471 MME device parameters as required.



**Note** — The organization of how 9471 MME parameter classes are displayed on the 5620 SAM is not exactly the same as they are displayed on the 9471 MME Provisioning Web Interface. If you use the 5620 SAM to configure 9471 MME device parameters, see the parameter descriptions contained in the *5620 SAM LTE Parameter Reference*. If you use the 9471 MME Provisioning Web Interface to configure parameters, see the parameter descriptions contained in the *9471 MME Parameters Guide*.

---

### Procedure 5-8 To start the 5780 DSC GUI from the 5620 SAM

---

The 5620 SAM provides read-only capability for viewing 5780 DSC parameters for Release 3.0 or later. You must use 5780 DSC GUI or CLI to configure 5780 DSC functions. You can, however, use the 5620 SAM to start the 5780 DSC GUI from the following:

- 5780 DSC NE in the equipment navigation tree
- 5780 DSC NE properties form



**Note 1** — In order to run the 5780 DSC in a browser, Alcatel-Lucent requires that you have Adobe Flash Player Version 10.0 or later installed. You can download Adobe Flash Player from the following URL:

<http://www.adobe.com/>

**Note 2** — A `netw.NetworkElement.method_GUICrossLaunch` scope of command permission is required to view 5780 DSC GUI menu items. See the *5620 SAM User Guide* for more information about scope of command roles, profiles, and permissions.

You must configure the required discovery and mediation policy procedures, as described in Procedures 4-7 and 4-9, to discover the 5780 DSC before you perform this procedure.

- 1 Perform one of the following:
  - a Right-click on the 5780 DSC icon in the physical network map and choose NE Sessions→Launch 5780 DSC Client.
  - b Right-click on the 5780 DSC NE in the equipment navigation tree and choose NE Sessions→Launch 5780 DSC Client.
  - c Open the Network Element (Edit) form by right-clicking on the 5780 DSC NE in the physical network map or in the equipment navigation tree and choose Properties. The Network Element (Edit) form opens. Click on the Launch 5780 DSC Client button.

The 5780 DSC client login page opens in a web browser.

- 2 Enter the login name and the password for the 5780 DSC GUI.
- 3 Click on the Login button. The 5780 DSC GUI opens.
- 4 Configure the 5780 DSC, as required.

See the *5780 DSC User Guide* for information about how to configure and use the 5780 DSC GUI.

---

### Procedure 5-9 To view unmanaged mobile NE and gateway properties

---

- 1 Choose Manage→Mobile Core→Unmanaged Mobile NEs and Gateways from the 5620 SAM main menu. The Browse Unmanaged Mobile NEs and Gateways form opens.
- 2 Perform one of the following:
  - a View unmanaged mobile NE properties.
    - i Choose Unmanaged Network Element (LTE) from the Select Object Type drop-down menu
    - ii Go to step 3.
  - b View unmanaged PDN gateway properties.
    - i Choose Unmanaged Gateway (LTE) from the Select Object Type drop-down menu.
    - ii Go to step 7.
- 3 Configure the filter criteria, if required, and click on the Search button.

- 4 Perform one of the following:
    - a View unmanaged eNodeB properties.
      - i Choose an unmanaged eNodeB from the list and click on the Properties button.
      - ii The Unmanaged Network Element (Edit) form opens. View the properties under the following tabs:
        - General
        - Supporting S1u Peers
        - Mobile Services
        - Faults
    - b View unmanaged serving GPRS support node properties.
      - i Choose a serving GPRS support node from the list and click on the Properties button.
      - ii The Unmanaged Network Element (Edit) form opens. View the properties under the following tabs:
        - General
        - Supporting Gn Peers
        - Faults
  - 5 Close the Unmanaged Network Element (Edit) form.
  - 6 Go to step 11.
  - 7 Configure the filter criteria, if required, and click on the Search button.
  - 8 Choose an unmanaged PDN gateway from the results list and click on the Properties button.
  - 9 The Unmanaged Gateway (Edit) form opens. View the properties under the following tabs:
    - General
    - Supporting S5 Peers
    - Supporting S8 Peers
    - Mobile Services
    - Faults
  - 10 Close the Unmanaged Gateway (Edit) form.
  - 11 Close the Browse Unmanaged Mobile NEs and Gateways form.
-



## **6 — *Configuring LTE ePC gateways***

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## 6.1 LTE ePC gateway configuration management overview

A 7750 MG supports a single instance of an SGW or a PGW. The 5620 SAM allows you to configure and view the properties of a gateway instance. A gateway instance is created with default settings that allow each gateway to establish peering sessions with other LTE NEs. You can change the default signaling, reference point, and interface settings of the gateway instance if required.

### Interfaces

Any reference point may be terminated on an IPv4 or IPv6 interface based on a port or on top of a loopback interface. The loopback interface for the node's main routing instance is also known as the node's system interface. An undefined reference point interface defaults to the gateway signaling interface, and an undefined gateway signaling interface defaults to the node's system interface.

### Signaling

Signaling defines the default profiles and signaling interface for a gateway instance.

### Gateway GPRS Support Node

A main component of the GPRS is the GGSN. The GGSN performs the interworking between the GPRS network and external packet-switched networks, such as the Internet and X.25 networks.

The GGSN converts the GPRS packets from the SGSN into the appropriate PDP format (for example, IP or X.25) and sends the packets out on the corresponding PDN. In the other direction, PDP addresses of incoming data packets are converted to the GSM address of the destination user. The readdressed packets are sent to the appropriate SGSN. The GGSN stores the current SGSN address of the user and the associated profile in its location register. The GGSN assigns the IP address and is the default router for the connected UE. The GGSN also performs authentication and charging functions.

### Reference points

Reference points are interfaces that are used by a gateway to communicate with other devices in the LTE network. After a gateway and other NEs are fully synchronized and recognize each other as neighbors, the reference points send out queries looking for other reference points of the same type. When a reference point discovers another reference point, they become peers and the 5620 SAM binds the peers together as an EPS path. You can modify the default settings of a reference point, if required, by changing the L3 interface, protocol profiles, and other parameters that are applied to the reference point.

### Additional information

Table 6-1 lists where to find more information about using the 5620 SAM to manage LTE NEs.



Table 6-1 Equipment management resources

For more information about	See
Creating and configuring interfaces	<i>5620 SAM User Guide</i>
Hardware	The appropriate NE user guide

## 6.2 Workflow to configure an LTE ePC gateway

This workflow assumes that you have:

- Configured the SGW and PGW, as described in chapter 5.
- Created the following profiles, as described in chapter 15:
  - diameter profile
  - diameter peer profile
  - GTP profile
  - QCI policy

- 1 Configure SGW signaling. See Procedure 6-1 for more information.
- 2 Configure the SGW reference points. See Procedure 6-2 for more information.
- 3 Configure SGW APN. See Procedure 6-3 for more information.
- 4 Configure PGW signaling. See Procedure 6-6 for more information.
- 5 Configure the PGW reference points. See Procedure 6-7 for more information.
- 6 Monitor the SGW or PGW, as required. See Procedures 6-5 for SGW and 6-11 for PGW, respectively.
- 7 As required, configure an SGW or PGW for IP packet reassembly. See section 6.5 for more information.
- 8 Configure a LAG on a 7750 MG, as required. See Procedure 6-15 for more information.
- 9 Configure threshold groups on a SGW or PGW, as required. See Procedure 6-16 for more information.

## 6.3 Configuring and viewing an SGW

This section describes how to configure and view signaling and reference points for the SGW.



**Note —** The administrative state of SGW instances must be set to Down before you can perform configuration changes. You must return the administrative state of the SGW instance to Up after you apply the configuration changes.

## Configuring SGW signaling

You must configure the following profiles and interfaces before you can configure signaling:

- Diameter profile, including origin realm and origin host
- GTP profile
- default signaling interface

### Procedure 6-1 To configure SGW signaling

---

- 1 Choose Manage→Mobile Core→SGW Instances from the 5620 SAM main menu. The SGW Instances form opens.
- 2 Configure the filter criteria, if required, and click on the Search button.
- 3 Choose an SGW instance from the results list and click on the Properties button. The Serving Gateway (Edit) form opens with the General tab displayed.
- 4 Click on the Signalling tab button.
- 5 Choose the Diameter profile:
  - i Click on the Select button for the Diameter Profile in the Diameter panel. The Select Diameter Profile - Serving Gateway Signalling form opens.
  - ii Configure the filter criteria, if required, and click on the Search button to generate a list of diameter profiles.
  - iii Choose a profile and click on the OK button. The Select Diameter Profile - Serving Gateway Signalling form closes and the selected profile is displayed in the Name field.
  - iv Configure the parameters:
    - Origin Realm
    - Origin Host
- 6 Choose a GTP profile for the GTP-C Profile parameter:
  - i Click on the Select button for the GTP-C Profile in the GTP-C/GTP-U panel. The Select GTP-C Profile - Serving Gateway Signalling form opens.
  - ii Configure the filter criteria, if required, and click on the Search button to generate a list of GTP-C profiles.
  - iii Choose a profile and click on the OK button. The Select GTP-C Profile - Serving Gateway Signalling form closes and the selected profile is displayed in the Name field.

- 7 Choose a GTP profile for the GTP-U Profile parameter:
    - i Click on the Select button for the GTP-U Profile in the GTP-C/GTP-U panel. The Select GTP-U Profile - Serving Gateway Signalling form opens.
    - ii Configure the filter criteria, if required, and click on the Search button to generate a list of GTP-U profiles.
    - iii Choose a profile and click on the OK button. The Select GTP-U Profile - Serving Gateway Signalling form closes and the selected profile is displayed in the Name field.
  - 8 Choose the signaling interface:
    - i Click on the Select button for the Default Signalling Interface in the Interface panel. The Select Default Signalling Interface - Serving Gateway Signalling form opens.
    - ii Choose an interface and click on the OK button. The Select Default Signalling Interface - Serving Gateway Signalling form closes, and the selected interface is displayed in the Name and ID fields.
  - 9 Click on the OK button to save the configuration. A dialog box opens.
  - 10 Click on the Yes button to save the configuration and close the window.
- 

## Configuring SGW reference points

The reference points and the associated policies and interfaces for the SGW are as follows:

- Ga
  - L3 interface
  - GTP profile for the GTP-C protocol
  - GTP prime server group profile
- S11
  - L3 interface
  - GTP profile
- S1-U
  - L3 interface
  - GTP profile to configure the GTP-U protocol
- S5
  - L3 interface
  - GTP profile to configure the GTP-C and GTP-U protocols
- S8
  - L3 interface
  - GTP profile to configure the GTP-C and GTP-U protocols
  - trusted peer list policy

- Rf
  - L3 interface
  - Diameter peer profile to configure the primary and secondary diameter peer protocols

## Procedure 6-2 To configure SGW reference points

---

- 1 Choose Manage→Mobile Core→SGW Instances from the 5620 SAM main menu. The SGW Instances form opens.
- 2 Configure the filter criteria, if required, and click on the Search button.
- 3 Choose an SGW instance from the results list and click on the Properties button. The Serving Gateway (Edit) form opens with the General tab displayed.
- 4 Click on the Reference Points tab button. A list of the SGW reference points is displayed.
- 5 To configure:
  - a Ga reference point, go to step [a](#)
  - an S1-u reference point, go step [b](#)
  - an S11 reference point, go to step [c](#)
  - an S5 reference point, go to step [d](#)
  - an S8 reference point, go to step [e](#)
  - an Rf reference point, go to step [f](#)
  - a To configure a Ga reference point:
    - i Choose the Ga reference point and click on the Properties button. The SGW Ga Reference Point (Edit) form opens with the General tab displayed.
    - ii Click on the Select button for the L3 interface in the Ga panel. The Select L3 Interface - SGW Ga Reference Point form opens.
    - iii Configure the filter criteria, if required, and click on the Search button.
    - iv Choose an L3 or system interface from the results list and click on the OK button. The Select L3 Interface - SGW Ga Reference Point form closes and the selected interface is displayed in the Name and ID fields.
    - v Click on the Select button for the GTP-C Profile in the Ga panel. The Select GTP-C Profile - SGW Ga Reference Point form opens.
    - vi Configure the filter criteria, if required, and click on the Search button.
    - vii Choose a profile from the results list and click on the OK button. The Select GTP-C Profile - SGW Ga Reference Point form closes and the selected profile is displayed in the Name field.
    - viii Click on the Select button for the Prime Group Profile in the Ga panel. The Select Prime Group Profile - SGW Ga Reference Point form opens.

- ix Configure the filter criteria, if required, and click on the Search button.
    - x Choose a profile from the results list and click on the OK button. The Select Prime Group Profile - SGW Ga Reference Point form closes and the selected profile is displayed in the Name field.
  - b To configure an S1-u reference point:
    - i Choose the S1-u reference point and click on the Properties button. The S1-u Reference Point (Edit) form opens with the General tab displayed.
    - ii Click on the Select button for the L3 interface in the GTP-U panel. The Select L3 Interface - S1-u Reference Point form opens.
    - iii Configure the filter criteria, if required, and click on the Search button.
    - iv Choose an L3 or a system interface from the results list and click on the OK button. The Select L3 Interface - S1-u Reference Point form closes and the selected interface is displayed in the Name and ID fields.
    - v Click on the Select button for the Profile in the GTP-U panel. The Select Profile - S1-u Reference Point form opens.
    - vi Configure the filter criteria, if required, and click on the Search button.
    - vii Choose a profile from the results list and click on the OK button. The Select Profile - S1-u Reference Point form closes and the selected profile is displayed in the Name field.
  - c To configure an S11 reference point:
    - i Choose the S11 reference point and click on the Properties button. The S11 Reference Point (Edit) form opens with the General tab displayed.
    - ii Click on the Select button for the L3 interface in the GTP-C panel. The Select L3 Interface - S11 Reference Point form opens.
    - iii Configure the filter criteria, if required, and click on the Search button.
    - iv Choose an L3 or a system interface from the results list and click on the OK button. The Select L3 Interface - S11 Reference Point form closes and the selected interface is displayed in the Name and ID fields.
    - v Click on the Select button for the Profile in the GTP-C panel. The Select Profile - S11 Reference Point form opens.
    - vi Configure the filter criteria, if required, and click on the Search button.
    - vii Choose a profile from the results list and click on the OK button. The Select Profile - S11 Reference Point form closes and the selected profile is displayed in the Name field.

- d To configure an S5 reference point:
  - i Choose the S5 reference point and click on the Properties button. The SGW S5 Reference Point (Edit) form opens with the General tab displayed.
  - ii Click on the Select button for the L3 interface in the GTP-C panel. The Select L3 Interface - SGW S5 Reference Point form opens.
  - iii Configure the filter criteria, if required, and click on the Search button.
  - iv Choose an L3 or a system interface from the results list and click on the OK button. The Select L3 Interface - SGW S5 Reference Point form closes and the selected interface is displayed in the Name and ID fields.
  - v Click on the Select button for the Profile in the GTP-C panel. The Select Profile - SGW S5 Reference Point form opens.
  - vi Configure the filter criteria, if required, and click on the Search button.
  - vii Choose a profile from the results list and click on the OK button. The Select Profile - SGW S5 Reference Point form closes and the selected profile is displayed in the Name field.
  - viii Click on the Select button for the L3 interface in the GTP-U panel. The Select L3 Interface - SGW S5 Reference Point form opens.
  - ix Configure the filter criteria, if required, and click on the Search button.
  - x Choose an L3 or a system interface from the results list and click on the OK button. The Select L3 Interface - SGW S5 Reference Point form closes and the selected interface is displayed in the Name and ID fields.
  - xi Click on the Select button for the Profile in the GTP-U panel. The Select Profile - SGW S5 Reference Point form opens.
  - xii Configure the filter criteria, if required, and click on the Search button.
  - xiii Choose a profile from the results list and click on the OK button. The Select Profile - SGW S5 Reference Point form closes and the selected profile is displayed in the Name field.
- e To configure an S8 reference point:
  - i Choose the S8 reference point and click on the Properties button. The SGW S8 Reference Point (Edit) form opens with the General tab displayed.
  - ii Configure the following parameters:
    - Dual Stack Preference Uplane
    - Dual Stack Preference Cplane
  - iii Click on the Select button for the L3 interface in the GTP-C panel. The Select L3 Interface - SGW S8 Reference Point form opens.
  - iv Configure the filter criteria, if required, and click on the Search button.

- v Choose an L3 or a system interface from the results list and click on the OK button. The Select L3 Interface - SGW S8 Reference Point form closes and the selected interface is displayed in the Name and ID fields.
  - vi Click on the Select button for the Profile in the GTP-C panel. The Select Profile - SGW S8 Reference Point form opens.
  - vii Configure the filter criteria, if required, and click on the Search button.
  - viii Choose a profile from the results list and click on the OK button. The Select Profile - SGW S8 Reference Point form closes and the selected profile is displayed in the Name field.
  - ix Click on the Select button for the L3 interface in the GTP-U panel. The Select L3 Interface - SGW S8 Reference Point form opens.
  - x Configure the filter criteria, if required, and click on the Search button.
  - xi Choose an L3 or a system interface from the results list and click on the OK button. The Select L3 Interface - SGW S8 Reference Point form closes and the selected interface is displayed in the Name and ID fields.
  - xii Click on the Select button for the Profile in the GTP-U panel. The Select Profile - SGW S8 Reference Point form opens.
  - xiii Configure the filter criteria, if required, and click on the Search button.
  - xiv Choose a profile from the results list and click on the OK button. The Select Profile - SGW S8 Reference Point form closes and the selected profile is displayed in the Name field.
  - xv Click on the Select button for the Profile in the Trusted Peer panel. The Select Profile - SGW S8 Reference Point form opens.
  - xvi Configure the filter criteria, if required, and click on the Search button.
  - xvii Choose a profile from the results list and click on the OK button. The Select Profile - SGW S8 Reference Point form closes and the selected profile is displayed in the Name field.
- f To configure an Rf reference point:
- i Choose the Rf reference point and click on the Properties button. The SGW Rf (Edit) form opens with the General tab displayed.
  - ii Configure the following parameters:
    - Accounting Interim Interval(s)
    - Accounting Level
    - Inclusion of Charging-Group-ID AVP in ACR
    - Operator-string AVP of an ACR Message
    - Retry Count for ACR Messages (s)
    - Application Transaction Timer (s)
    - Node ID
  - iii Click on the Select button for the L3 interface in the Interface panel. The Select L3 Interface - SGW Rf form opens.

- iv Configure the filter criteria, if required, and click on the Search button.
  - v Choose an L3 or a system interface from the results list and click on the OK button. The Select L3 Interface - SGW Rf form closes and the selected interface is displayed in the Name and ID fields.
  - vi Click on the Select button for the Primary Diameter Peer Profile in the Diameter Peer Profiles panel. The Select Primary Diameter Peer Profile - SGW Rf form opens.
  - vii Configure the filter criteria, if required, and click on the Search button.
  - viii Choose a diameter peer profile from the results list and click on the OK button. The Select Primary Diameter Peer Profile - SGW Rf form closes and the selected profile is displayed in the Name field.
  - ix Click on the Select button for the Secondary Diameter Peer Profile in the Diameter Peer Profiles panel. The Select Secondary Diameter Peer Profile - SGW Rf form opens.
  - x Configure the filter criteria, if required, and click on the Search button.
  - xi Choose a diameter peer profile from the results list and click on the OK button. The Select Secondary Diameter Peer Profile - SGW Rf form closes and the selected profile is displayed in the Name field.
  - xii Click on the Outage tab button.
  - xiii Configure the following Rf outage parameters:
    - Limit for the number of ACRs
    - Size Limit Before File Closure (Mbps)
    - Duration before File Closure (hours)
    - File Extension
    - Duration before File Deletion (days)
    - Private Info
    - Primary Compact Flash
  - xiv Configure the Configuration File Limit (Mbps) parameter in the ACR Storage on cf1 panel.
  - xv Configure the Configuration File Limit (Mbps) parameter in the ACR Storage on cf2 panel.
- 6 Click on the OK button to save the configuration. A dialog box opens.
- 7 Click on the Yes button to save the configuration and close the window.
-



**Procedure 6-3 To add an APN to an SGW**

---

- 1 Choose Manage→Mobile Core→SGW Instances from the 5620 SAM main menu. The SGW Instances form opens.
  - 2 Configure the filter criteria, if required, and click on the Search button.
  - 3 Choose an SGW instance from the results list and click on the Properties button. The Serving Gateway (Edit) form opens with the General tab displayed.
  - 4 Click on the APN tab button. A list of APNs is displayed.
  - 5 Click on the Create button. The Serving Gateway APN (Create) form opens.
  - 6 Configure the following parameters:
    - Name
    - Description
  - 7 Configure the QCI policies:
    - i Click on the Select button for the Uplink QoS Class Id in the QCI Policies panel. The Select Uplink QoS Class Id (QCI) - Serving Gateway form opens.
    - ii Configure the filter criteria, if required, and click on the Search button.
    - iii Choose a policy from the results list and click on the OK button. The Select Uplink QoS Class Id (QCI) - Serving Gateway form closes and the selected policy is displayed in the Name field.
    - iv Click on the Select button for the Downlink QoS Class Id in the QCI Policies panel. The Select Downlink QoS Class Id (QCI) - Serving Gateway form opens.
    - v Configure the filter criteria, if required, and click on the Search button.
    - vi Choose a policy from the results list and click on the OK button. The Select Downlink QoS Class Id (QCI) - Serving Gateway form closes and the selected policy is displayed in the Name field.
  - 8 Click on the OK button to save the configuration.
- 

**Adding charging profiles to an SGW**

You must configure an SGW charging profile before you can add the profile to an SGW. See Procedure [15-16](#) for information about creating SGW charging profiles.

**Procedure 6-4 To add charging profiles to an SGW**

---

- 1 Choose Manage→Mobile Core→SGW Instances from the 5620 SAM main menu. The SGW Instances form opens.
- 2 Configure the filter criteria, if required, and click on the Search button. The SGW instances are listed on the form.

- 3 Select an SGW instance in the list and click on the Properties button. The Serving Gateway (Edit) form opens with the General tab displayed.
  - 4 Click on the Charging tab button.
  - 5 Configure the parameters in the Settings from MME and HSS for Subscribers panel:
    - Ignore All
    - Ignore Home
    - Ignore Visiting
    - Ignore Roaming
    - Reject Charging
  - 6 Perform the following steps to configure the charging profiles.
    - i Click on the Select button for the Home Profile in the Profiles panel. The Select Home Profile - Serving Gateway form opens.
    - ii Select a profile in the list and click on the OK button. The Select Home Profile - Serving Gateway form closes and the profile ID is displayed in the Charging Profile ID field.
    - iii Click on the Select button for the Visiting Profile in the Profiles panel. The Select Visiting Profile - Serving Gateway form opens.
    - iv Select a profile in the list and click on the OK button. The Select Visiting Profile - Serving Gateway form closes and the profile ID is displayed in the Charging Profile ID field.
    - v Click on the Select button for the Roaming Profile in the Profiles panel. The Select Roaming Profile - Serving Gateway form opens.
    - vi Select a profile in the list and click on the OK button. The Select Roaming Profile - Serving Gateway form closes and the profile ID is displayed in the Charging Profile ID field.
  - 7 Click on the OK button. A dialog box appears.
  - 8 Click on the Yes button. The Serving Gateway (Edit) form closes.
  - 9 Close the SGW Instances form.
- 

## Viewing and changing SGW properties

The 5620 SAM supports an SGW instance properties form that you can use to monitor the status of the SGW and to change properties, as required.

### Procedure 6-5 To view and change SGW instance properties

---

- 1 Choose Manage→Mobile Core→SGW Instances from the 5620 SAM main menu. The SGW Instances form opens.
- 2 Configure the filter criteria, if required, and click on the Search button.

- 3 Choose an SGW instance from the results list and click on the Properties button. The Serving Gateway (Edit) form opens with the General tab displayed.
  - 4 Change the default settings for the QCI policies, if required. Configure the following in the QCI Policies panel:
    - i Click on the Select button for the Uplink QoS Class Id. The Select Uplink QoS Class Id (QCI) - Serving Gateway form opens.
    - ii Configure the filter criteria, if required, and click on the Search button.
    - iii Choose a policy from the results list and click on the OK button. The Select Uplink QoS Class Id (QCI) - Serving Gateway form closes and the selected policy is displayed in the Name field.
    - iv Click on the Select button for the Downlink QoS Class Id in the QCI Policies panel. The Select Downlink QoS Class Id (QCI) - Serving Gateway form opens.
    - v Configure the filter criteria, if required, and click on the Search button.
    - vi Choose a policy from the results list and click on the OK button. The Select Downlink QoS Class Id (QCI) - Serving Gateway form closes and the selected policy is displayed in the Name field.
  - 5 Change the following parameters that you configured in Procedure 5-3, if required:
    - Mobile Node Region
    - Group ID
    - Node ID
    - Administrative State
  - 6 View the properties of the SGW instance under the following tabs:
    - Components—provides a hierarchical view of the SGW application and the interface functions of the SGW
    - Charging
    - EPS Peers—lists the types of EPS peers, such as S11 and S5. You can choose an EPS peer and display the properties associated with the peer.
    - EPS Paths—lists the types of EPS peers for which there is path information. You can choose an EPS path and display the properties associated with the path.
    - Signalling
    - Reference Points
    - APN
    - MG Groups
    - Statistics
    - Faults
  - 7 Close the Serving Gateway (Edit) form.
  - 8 Close the SGW Instances form.
-

## 6.4 Configuring and viewing a PGW

This section describes how to configure signaling and reference points for the PGW.



**Note** – The administrative state of PGW instances must be set to Down before you can perform configuration changes. You must return the administrative state of the PGW instance to Up after you apply the configuration changes.

### Configuring PGW signaling

You must configure the following profiles and interfaces before you can configure signaling:

- Diameter profile, including origin realm and origin host
- GTP profile
- GTP prime server group profile
- default signaling interface

#### Procedure 6-6 To configure PGW signaling

---

- 1 Choose Manage→Mobile Core→PGW/GGSN Instances from the 5620 SAM main menu. The PGW/GGSN Instances form opens.
- 2 Configure the filter criteria, if required, and click on the Search button.
- 3 Choose a PGW instance from the results list and click on the Properties button. The PDN Gateway (Edit) form opens with the General tab displayed.
- 4 Click on the Signalling tab button.
- 5 Choose a Diameter Profile:
  - i Click on the Select button for the Diameter Profile in the Diameter panel. The Select Diameter Profile - PGW Signalling form opens.
  - ii Configure the filter criteria, if required, and click on the Search button to generate a list of Diameter profiles.
  - iii Choose a profile and click on the OK button. The Select Diameter Profile - PGW Signalling form closes and the selected profile is displayed in the Name field.
  - iv Configure the parameters:
    - Origin Realm
    - Origin Host

- 6 Choose a GTP profile for the GTP-C protocol:
    - i Click on the Select button for the GTP-C Profile in the GTP-C/GTP-U panel. The Select GTP-C Profile - PGW Signalling form opens.
    - ii Configure the filter criteria, if required, and click on the Search button to generate a list of GTP-C profiles.
    - iii Choose a profile and click on the OK button. The Select GTP-C Profile - PGW Signalling form closes and the selected profile is displayed in the Name field.
  - 7 Choose a GTP profile for the GTP-U protocol:
    - i Click on the Select button for the GTP-U Profile in the GTP-C/GTP-U panel. The Select GTP-U Profile - PGW Signalling form opens.
    - ii Configure the filter criteria, if required, and click on the Search button to generate a list of GTP-U profiles.
    - iii Choose a profile and click on the OK button. The Select GTP-U Profile - PGW Signalling form closes and the selected profile is displayed in the Name field.
  - 8 Choose a default signaling interface:
    - i Click on the Select button for the Default Signalling Interface in the Interface panel. The Select Default Signalling Interface - PGW Signalling form opens.
    - ii Choose an interface and click on the OK button. The Select Default Signalling Interface - PGW Signalling form closes, and the selected interface appears in the Name and ID fields.
  - 9 Click on the OK button to save the configuration. A dialog box opens.
  - 10 Click on the Yes button to save the configuration and close the window.
- 

## Configuring PGW reference points

The reference points and the associated policies and interfaces for the PGW are as follows:

- Ga
  - L3 interface
  - GTP profile for the GTP-C protocol
  - GTP prime server group profile
- Gn
  - L3 interface and GTP profile for the GTP-C protocol
  - L3 interface and GTP profile for the GTP-U protocol
- Gx
  - L3 interface
  - Diameter profile to configure the diameter peer protocol
  - PCRF selection, which requires the Diameter Peer profile to configure the primary and secondary diameter peers

- Gy
  - L3 interface
  - DCCA profile to configure the diameter peer protocol
- S2a
  - PMIP interface
  - PMIPv6 profile
- S5
  - L3 interface
  - GTP profile to configure the GTP-C and GTP-U protocols
- S8
  - L3 interface
  - GTP profile to configure the GTP-C and GTP-U protocols
  - trusted peer list policy

---

### Procedure 6-7 To configure PGW reference points

---

- 1 Choose Manage→Mobile Core→PGW/GGSN Instances from the 5620 SAM main menu. The PGW/GGSN Instances form opens.
  - 2 Configure the filter criteria, if required, and click on the Search button.
  - 3 Choose a PGW instance from the results list and click on the Properties button. The PDN Gateway (Edit) form opens with the General tab displayed.
  - 4 Click on the Reference Points tab button. A list of the PGW reference points is displayed.
  - 5 To configure:
    - a Ga reference point, go to step [a](#)
    - a Gn reference point, go to step [b](#)
    - a Gx reference point, go to step [c](#)
    - a Gy reference point, go to step [d](#)
    - an S2a reference point, go to step [e](#)
    - an S5 reference point, go to step [f](#)
    - an S8 reference point, go to step [g](#)
- a To configure a Ga reference point:**
- i Choose the Ga reference point and click on the Properties button. The PGW Ga Reference Point (Edit) form opens with the General tab displayed.
  - ii Click on the Select button for the L3 interface in the Ga panel. The Select L3 Interface - PGW Ga Reference Point form opens.
  - iii Configure the filter criteria, if required, and click on the Search button.
  - iv Choose an L3 or system interface from the results list and click on the OK button. The Select L3 Interface - PGW Ga Reference Point form closes and the selected interface is displayed in the Name and ID fields.

- v Click on the Select button for the GTP-C Profile in the Ga panel. The Select GTP-C Profile - PGW Ga Reference Point form opens.
  - vi Configure the filter criteria, if required, and click on the Search button.
  - vii Choose a profile from the results list and click on the OK button. The Select GTP-C Profile - PGW Ga Reference Point form closes and the selected profile is displayed in the Name field.
  - viii Click on the Select button for the Prime Group Profile in the Ga panel. The Select Prime Group Profile - PGW Ga Reference Point form opens.
  - ix Configure the filter criteria, if required, and click on the Search button.
  - x Choose a profile from the results list and click on the OK button. The Select Prime Group Profile - PGW Ga Reference Point form closes and the selected profile is displayed in the Name field.
- b** To configure a Gn reference point:
- i Choose the Gn reference point and click on the Properties button. The Gn Reference Point (Edit) form opens with the General tab displayed.
  - ii Click on the Select button for the L3 interface in the GTP-C panel. The Select L3 Interface - Gn Reference Point form opens.
  - iii Configure the filter criteria, if required, and click on the Search button.
  - iv Choose an L3 or system interface from the results list and click on the OK button. The Select L3 Interface - Gn Reference Point form closes and the selected interface is displayed in the Name and ID fields.
  - v Click on the Select button for the Profile in the GTP-C panel. The Select Profile - Gn Reference Point form opens.
  - vi Configure the filter criteria, if required, and click on the Search button.
  - vii Choose a profile from the results list and click on the OK button. The Select Profile - Gn Reference Point form closes and the selected profile is displayed in the Name field.
  - viii Click on the Select button for the L3 interface in the GTP-U panel. The Select L3 Interface - Gn Reference Point form opens.
  - ix Configure the filter criteria, if required, and click on the Search button.
  - x Choose an L3 or system interface from the results list and click on the OK button. The Select L3 Interface - Gn Reference Point form closes and the selected interface is displayed in the Name and ID fields.
  - xi Click on the Select button for the Profile in the GTP-U panel. The Select Profile - Gn Reference Point form opens.
  - xii Configure the filter criteria, if required, and click on the Search button.
  - xiii Choose a profile from the results list and click on the OK button. The Select Profile - Gn Reference Point form closes and the selected profile is displayed in the Name field.

- c To configure a Gx reference point:
  - i Choose the Gx reference point and click on the Properties button. The PDN Gx Reference Point (Edit) form opens with the General tab displayed.
  - ii Click on the Select button for the L3 interface in the Diameter panel. The Select L3 Interface - PDN Gx Reference Point form opens.
  - iii Configure the filter criteria, if required, and click on the Search button.
  - iv Choose an L3 or system interface from the results list and click on the OK button. The Select L3 Interface - PDN Gx Reference Point form closes and the selected interface is displayed in the Name and ID fields.
  - v Configure the parameters:
    - Transaction Timer (s)
    - Retry Count
  - vi Click on the Select button for the Primary Diameter Peer Profile in the PCRF Selection panel. The Select Primary Diameter Peer Profile - PDN Gx Reference Point form opens.
  - vii Configure the filter criteria, if required, and click on the Search button.
  - viii Choose a profile from the results list and click on the OK button. The Select Primary Diameter Peer Profile - PDN Gx Reference Point form closes and the selected profile is displayed in the Name field.
  - ix Click on the Select button for the Secondary Diameter Peer Profile in the PCRF Selection panel. The Select Secondary Diameter Peer Profile - PDN Gx Reference Point form opens.
  - x Configure the filter criteria, if required, and click on the Search button.
  - xi Choose a profile from the results list and click on the OK button. The Select Secondary Diameter Peer Profile - PDN Gx Reference Point form closes and the selected profile is displayed in the Name field.
- d To configure a Gy reference point:
  - i Choose the Gy reference point and click on the Properties button. The Gy Reference Point (Edit) form opens with the General tab displayed.
  - ii Click on the Select button for the interface in the Diameter panel. The Select Interface - Gy Reference Point form opens.
  - iii Configure the filter criteria, if required, and click on the Search button.
  - iv Choose an interface from the results list and click on the OK button. The Select Interface - Gy Reference Point form closes and the selected interface is displayed in the Name and ID fields.
  - v Click on the Select button for the diameter peer profile in the Primary Diameter Peer Profile panel. The Select Primary Diameter Peer Profile - Gy Reference Point form opens.



- vi Configure the filter criteria, if required, and click on the Search button.
- vii Choose a profile from the results list and click on the OK button. The Select Primary Diameter Peer Profile - Gy Reference Point form closes and the selected profile is displayed in the Name field.
- viii Click on the Select button for the DCCA Profile in the DCCA Profile panel. The Select Secondary Diameter Peer Profile - PDN Gy Reference Point form opens.
- ix Configure the filter criteria, if required, and click on the Search button.
- x Choose a profile from the results list and click on the OK button. The Select DCCA Profile - Gy Reference Point form closes and the selected profile is displayed in the Name field.
- xi Click on the Rating Groups tab button.
- xii Click on the Create button. The PdnGyRatingGroup (Create) form opens.
- xiii Configure the parameters:
  - Rating Group ID
  - Activity Threshold
- xiv Click on the OK button.
- e To configure an S2a reference point:
  - i Choose the S2a reference point and click on the Properties button. The S2a Reference Point (Edit) form opens with the General tab displayed.
  - ii Click on the Select button for the profile in the PMIPv6 Profile panel. The Select PMIPv6 Profile Interface - S2a Reference Point form opens.
  - iii Configure the filter criteria, if required, and click on the Search button.
  - iv Choose a profile from the results list and click on the OK button. The Select PMIPv6 Profile Interface - S2a Reference Point form closes and the selected profile is displayed in the Name field.
  - v Click on the Select button for the PMIP interface in the PMIP Interface panel. The Select PMIPv6 Interface - S2a Reference Point form opens.
  - vi Configure the filter criteria, if required, and click on the Search button.
  - vii Choose an interface from the results list and click on the OK button. The Select PMIPv6 Interface - S2a Reference Point form closes and the selected profile is displayed in the Name and ID fields.

- f** To configure an S5 reference point:
  - i** Choose the S5 reference point and click on the Properties button. The PDN S5 Reference Point (Edit) form opens with the General tab displayed.
  - ii** Click on the Select button for the L3 interface in the GTP-C panel. The Select L3 Interface - PDN S5 Reference Point form opens.
  - iii** Configure the filter criteria, if required, and click on the Search button.
  - iv** Choose an L3 or system interface from the results list and click on the OK button. The Select L3 Interface - PDN S5 Reference Point form closes and the selected interface is displayed in the Name and ID fields.
  - v** Click on the Select button for the Profile in the GTP-C panel. The Select Profile - PDN S5 Reference Point form opens.
  - vi** Configure the filter criteria, if required, and click on the Search button.
  - vii** Choose a profile from the results list and click on the OK button. The Select Profile - PDN S5 Reference Point form closes and the selected profile is displayed in the Name field.
  - viii** Click on the Select button for the L3 interface in the GTP-U panel. The Select L3 Interface - PDN S5 Reference Point form opens.
  - ix** Configure the filter criteria, if required, and click on the Search button.
  - x** Choose an L3 or system interface from the results list and click on the OK button. The Select L3 Interface - PDN S5 Reference Point form closes and the selected interface is displayed in the Name and ID fields.
  - xi** Click on the Select button for the Profile in the GTP-U panel. The Select Profile - PDN S5 Reference Point form opens.
  - xii** Configure the filter criteria, if required, and click on the Search button.
  - xiii** Choose a profile from the results list and click on the OK button. The Select Profile - PDN S5 Reference Point form closes and the selected profile is displayed in the Name field.
- g** To configure an S8 reference point:
  - i** Choose the S8 reference point and click on the Properties button. The SGW S8 Reference Point (Edit) form opens with the General tab displayed.
  - ii** Configure the following parameters:
    - Dual Stack Preference Uplane
  - iii** Click on the Select button for the L3 interface in the GTP-C panel. The Select L3 Interface - SGW S8 Reference Point form opens.
  - iv** Configure the filter criteria, if required, and click on the Search button.

- v Choose an L3 or a system interface from the results list and click on the OK button. The Select L3 Interface - SGW S8 Reference Point form closes and the selected interface is displayed in the Name and ID fields.
  - vi Click on the Select button for the Profile in the GTP-C panel. The Select Profile - SGW S8 Reference Point form opens.
  - vii Configure the filter criteria, if required, and click on the Search button.
  - viii Choose a profile from the results list and click on the OK button. The Select Profile - SGW S8 Reference Point form closes and the selected profile is displayed in the Name field.
  - ix Click on the Select button for the L3 interface in the GTP-U panel. The Select L3 Interface - SGW S8 Reference Point form opens.
  - x Configure the filter criteria, if required, and click on the Search button.
  - xi Choose an L3 or a system interface from the results list and click on the OK button. The Select L3 Interface - SGW S8 Reference Point form closes and the selected interface is displayed in the Name and ID fields.
  - xii Click on the Select button for the Profile in the GTP-U panel. The Select Profile - SGW S8 Reference Point form opens.
  - xiii Configure the filter criteria, if required, and click on the Search button.
  - xiv Choose a profile from the results list and click on the OK button. The Select Profile - SGW S8 Reference Point form closes and the selected profile is displayed in the Name field.
  - xv Click on the Select button for the Profile in the Trusted Peer panel. The Select Profile - SGW S8 Reference Point form opens.
  - xvi Configure the filter criteria, if required, and click on the Search button.
  - xvii Choose a profile from the results list and click on the OK button. The Select Profile - SGW S8 Reference Point form closes and the selected profile is displayed in the Name field.
- 6 Click on the OK button to save the configuration. A dialog box opens.
- 7 Click on the Yes button to save the configuration and close the window.
- 

## Configuring a PGW APN

You must configure the following profiles and policies before you can add an APN to a PGW:

- Diameter peer profiles; see Procedure [15-7](#) for configuration information
- QCI policies; see Procedure [15-11](#) for configuration information
- PGW charging profiles; see Procedure [15-14](#) for configuration information

You must also configure IP address pools to add to the APN. See Procedure [15-14](#) for configuration information.

### **Procedure 6-8 To add an APN to a PGW**

---

- 1 Choose Manage→Mobile Core→PGW/GGSN Instances from the 5620 SAM main menu. The PGW/GGSN Instances form opens.
- 2 Configure the filter criteria, if required, and click on the Search button.
- 3 Select a PGW instance in the list and click on the Properties button. The PDN Gateway (Edit) form opens with the General tab displayed.
- 4 Click on the PDN APN tab button.
- 5 Click on the Create button. The PDN APN (Create) form opens.
- 6 Configure the parameters:
  - Name
  - Description
  - Type
- 7 Click on the Select button in the Virtual Router panel. The Select Virtual Router - PDN APN form opens.
- 8 Select a virtual router in the list and click on the OK button. The Select Virtual Router - PDN APN form closes and the selected virtual router name is displayed in the Name field.
- 9 Configure the parameters:

• Restriction Type	• Aggregated Downlink Rate (kbps)
• Multiple PDNs allowed	• Administrative State
• Subscribed APN Selection Mode	• IPv4
• Mobile Station APN Selection Mode	• IPv6
• Network APN Selection Mode	• IP v4/v6
• PCRF Selection Dynamic PCC	• Local Pool
• Aggregated Uplink Rate (kbps)	• Home Subscriber Server Assigned
- 10 Click on the QCI/Diameter tab button.
- 11 Click on the Select button in the Uplink QCI Profile panel. The Select Uplink QCI Profile - PDN APN form opens.
- 12 Configure the filter criteria, if required, and click on the Search button. A list of QCI profiles is displayed.
- 13 Select a profile in the list and click on the OK button. The Select Uplink QCI Profile - PDN APN form closes and the profile name is displayed in the Name field.
- 14 Click on the Select button in the Downlink QCI Profile panel. The Select Downlink QCI Profile - PDN APN form opens.

- 15 Configure the filter criteria, if required, and click on the Search button. A list of QCI profiles is displayed.
- 16 Select a profile in the list and click on the OK button. The Select Downlink QCI Profile - PDN APN form closes and the profile name is displayed in the Name field.
- 17 Click on the Select button in the CDF Primary Diameter Peer Profile panel. The Select CDF Primary Diameter Peer Profile - PDN APN form opens.
- 18 Configure the filter criteria, if required, and click on the Search button. A list of diameter peer profiles is displayed.
- 19 Select a profile in the list and click on the OK button. The Select CDF Primary Diameter Peer Profile - PDN APN form closes and the profile name is displayed in the Name field.
- 20 Click on the Select button in the CDF Secondary Diameter Peer Profile panel. The Select CDF Secondary Diameter Peer Profile - PDN APN form opens.
- 21 Configure the filter criteria, if required, and click on the Search button. A list of diameter peer profiles is displayed.
- 22 Select a profile in the list and click on the OK button. The Select CDF Secondary Diameter Peer Profile - PDN APN form closes and the profile name is displayed in the Name field.
- 23 Click on the Connectivity tab button.
- 24 Configure the parameters in the PCO Domain Name System (DNS) panel.
  - IPV4 Primary Address
  - IPV4 Secondary Address
  - IPV6 Primary Address
  - IPV6 Secondary Address
- 25 Configure the parameters in the PCO Proxy Call Session Control Function (PCSCF) panel.
  - IPV4 Primary Address
  - IPV6 Primary Address
- 26 Configure the parameters in the PCO NetBIOS Name Service (NBNS) panel.
  - IPV4 Primary Address
  - IPV4 Secondary Address
- 27 Click on the Charging tab button.
- 28 In the Settings from MME and HSS for Subscribers panel, configure the parameters:
  - Ignore All
  - Ignore Home
  - Ignore Visiting
  - Ignore Roaming
  - Reject Charging

29 Configure the Inherit Home Profile From Gateway parameter.



**Note** — When the Inherit Home Profile From Gateway parameter is selected, you cannot manually select a charging profile in the following steps. To manually select a profile, you must first deselect the Inherit Home Profile From Gateway parameter.

- 30 If you want to manually select a profile, click on the Select button for the Home Profile when not inherited. The Select Home Profile when not inherited - PDN APN form opens.
- 31 Configure the filter criteria, if required, and click on the Search button. A list of charging profiles is displayed.
- 32 Select a profile in the list and click on the OK button. The Select Home Profile when not inherited - PDN APN form closes with the ID of the selected profile displayed in the Charging Profile ID field.
- 33 Configure the Inherit Visiting Profile From Gateway parameter.
- 34 If you want to manually select a profile, click on the Select button for the Visiting Profile when not inherited. The Select Visiting Profile when not inherited - PDN APN form opens.
- 35 Configure the filter criteria, if required, and click on the Search button. A list of charging profiles is displayed.
- 36 Select a profile and click on the OK button. The Select Visiting Profile when not inherited - PDN APN form closes with the ID of the selected profile displayed in the Charging Profile ID field.
- 37 Configure the Inherit Roaming Profile From Gateway parameter.
- 38 If you want to manually select a profile, click on the Select button for the Roaming Profile when not inherited. The Select Roaming Profile when not inherited - PDN APN form opens.
- 39 Configure the filter criteria, if required, and click on the Search button. A list of charging profiles is displayed.
- 40 Select a profile in the list and click on the OK button. The Select Roaming Profile when not inherited - PDN APN form closes with the ID of the selected profile displayed in the Charging Profile ID field.
- 41 Click on the IP Address Pool Binding tab button.
- 42 Click on the Create button. The IP Address Pool Binding (Create) form opens.
- 43 Click on the Select button. The Select IP Address Pool - IP Address Pool Binding form opens.
- 44 Configure the filter criteria, if required, and click on the Search button. A list of IP address pools is displayed.
- 45 Select an IP address pool and click on the OK button. The Select IP Address Pool - IP Address Pool Binding form closes and the selected IP address pool displays in the IP Pool Name field.

- 46 Click on the Apply button. A dialog box appears.
  - 47 Click on the OK button. The IP address pool is listed on the PDN APN (Create) form.
  - 48 To add another IP address pool, perform the following steps.
    - i Click on the Clear button.
    - ii Repeat steps 43 to 47.
  - 49 Close the IP Address Pool Binding (Create) form.
  - 50 Click on the OK button. The PDN APN form closes.
  - 51 Close the PDN Gateway (Edit) form.
- 

## IP address pools

The IP address pools are defined on PGW and SGW base routing instances and VPRN site instances. Each routing instance can have multiple IP address pools, and each IP address pool can have multiple IP pool entries. The IP pools are applied to the PGW APNs.

---

### Procedure 6-9 To configure IP address pools

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- 1 Perform one of the following.
  - a To add an IP address pool to a PGW or SGW routing instance, go to step 2.
  - b To add an IP address pool to a PGW or SGW VPRN site instance, go to step 6.
- 2 Choose Routing from the view selector in the navigation tree.
- 3 Navigate to a routing instance by choosing Network→ Router→ Routing Instance.
- 4 Right-click on the routing instance icon and choose Properties from the contextual menu. The Routing Instance (Edit) form opens with the General tab displayed.
- 5 Go to step 11.
- 6 Choose Manage→Service→Services from the 5620 SAM main menu. The Manage Services form opens.
- 7 Configure the filter criteria. A list of services is displayed.
- 8 Choose a VPRN service and click on the Properties button. The VPRN Service (Edit) form opens with the General tab displayed.
- 9 Click on the Sites tab button.
- 10 Choose a PGW or SGW VPRN site and click on the Properties button. The VPRN Site (Edit) form opens with the General tab displayed.
- 11 Click on the IP Address Pool tab button.

- 12 Click on the Create button. The IP Address Pool (Create) form opens with the General tab displayed.
  - 13 Configure the parameters:
    - Auto-Assign ID
    - IP Pool ID
    - IP Pool Name
    - Is Exclusive
    - IP Pool Address Hold Timer (minutes)
  - 14 Click on the IP Address Pool Entry tab button.
  - 15 Click on the Create button. The IP Address Pool Entry (Create) form opens with the General tab displayed.
  - 16 Configure the parameters:
    - Pool Address Type
    - Pool Ip Address
    - Prefix Length
    - Pool Address Block
  - 17 Click on the Apply button. A dialog box appears.
  - 18 Repeat steps 16 to 17 to create an additional IP address pool entry.
  - 19 Close the IP Address Pool Entry (Create) form. The IP Address Pool (Create) form reappears.
  - 20 Click on the OK button. A dialog box appears.
  - 21 Click on the OK button. The IP Address Pool (Create) form closes.
  - 22 Repeat steps 12 to 21 to create an additional IP address pool.
  - 23 Close the VPRN Site (Edit) or Routing Instance (Edit) form, as required.
- 

### **Adding charging profiles to a PGW**

You must configure PGW charging profiles before you can apply the profiles to a PGW. See Procedure 15-14 for information about configuring PGW charging profiles.

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#### **Procedure 6-10 To add charging profiles to a PGW**

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- 1 Choose Manage→Mobile Core→PGW/GGSN Instances from the 5620 SAM main menu. The PGW/GGSN Instances form opens.
- 2 Configure the filter criteria, if required, and click on the Search button.
- 3 Choose a PGW instance in the list and click on the Properties button. The PDN Gateway (Edit) form opens with the General tab displayed.



- 4 Click on the Charging tab button.
  - 5 Configure the parameters:
    - Ignore All
    - Ignore Home
    - Ignore Visiting
    - Ignore Roaming
    - Reject Charging
  - 6 Perform the following steps to configure the charging profiles.
    - i Click on the Select button for the Home Profile in the Profiles panel. The Select Home Profile - PDN Gateway form opens.
    - ii Select a profile in the list and click on the OK button. The Select Home Profile - PDN Gateway form closes and the profile ID is displayed in the Charging Profile ID field.
    - iii Click on the Select button for the Visiting Profile in the Profiles panel. The Select Visiting Profile - PDN Gateway form opens.
    - iv Select a profile in the list and click on the OK button. The Select Visiting Profile - PDN Gateway form closes and the profile ID is displayed in the Charging Profile ID field.
    - v Click on the Select button for the Roaming Profile in the Profiles panel. The Select Roaming Profile - PDN Gateway form opens.
    - vi Select a profile in the list and click on the OK button. The Select Roaming Profile - PDN Gateway form closes and the profile ID is displayed in the Charging Profile ID.
  - 7 Configure the Node Identifier parameter.
  - 8 Click on the OK button. A dialog box appears.
  - 9 Click on the Yes button. The PDN Gateway (Edit) form closes.
  - 10 Close the PGW/GGSN Instances form.
- 

## Viewing and changing PGW properties

The 5620 SAM supports a PGW instance properties form that you can use to monitor the status of the PGW and to change properties, as required.

### Procedure 6-11 To view and change PGW instance properties

---

- 1 Choose Manage→Mobile Core→PGW/GGSN Instances from the 5620 SAM main menu. The PGW/GGSN Instances form opens.
- 2 Configure the filter criteria, if required, and click on the Search button.

- 3 Choose a PGW instance from the results list and click on the Properties button. The PDN Gateway (Edit) form opens with the General tab displayed.
- 4 Configure the Dynamic PCC parameter, if required.
- 5 Change the default settings for the QCI policies, if required. Configure the following in the QCI Policies panel:
  - i Click on the Select button for the Uplink QoS Class Id (QCI). The Select Uplink QoS Class Id (QCI) - PDN Gateway form opens.
  - ii Configure the filter criteria, if required, and click on the Search button.
  - iii Choose a policy from the results list and click on the OK button. The Select Uplink QoS Class Id (QCI) - PDN Gateway form closes and the selected policy is displayed in the Name field.
  - iv Click on the Select button for the Downlink QoS Class Id (QCI). The Select Downlink QoS Class Id (QCI) - PDN Gateway form opens.
  - v Configure the filter criteria, if required, and click on the Search button.
  - vi Choose a policy from the results list and click on the OK button. The Select Downlink QoS Class Id (QCI) - PDN Gateway form closes and the selected policy is displayed in the Name field.
- 6 Change the following parameters that you configured in Procedure 5-3, if required:
  - Mobile Node Region
  - Group ID
  - Node ID
  - Administrative State
- 7 View the properties of the PGW instance under the following tabs:
  - Components—provides a hierarchical view of the PGW application and interface functions of the PGW
  - Charging
  - EPS peers—lists the types of EPS peers such as S5 and Gx. You can choose an EPS peer and display the peer properties. See Procedure 12-1 for more information about EPS peer parameters.
  - EPS paths—lists the types of EPS peers for which there is path information. You can choose an EPS path and display the path properties. See Procedure 12-2 for more information about EPS path parameters.
  - Signalling
  - Reference Points
  - PDN APN
  - MG Groups
  - Faults

- 8 Close the PDN Gateway (Edit) form.
  - 9 Close the PGW/GGSN Instances form.
- 

## 6.5 Configuring a 7750 MG for IP packet reassembly

IP packet fragmentation may occur due to MTU limitations in some networks. IP fragmentation occurs when an IP datagram travels through the network with a frame size larger than the MTU.

To facilitate IP packet reassembly on the 5620 SAM, you can configure an ISA IP Reassembly MDA on the second daughter card slot of an ISM mobile card. IP Packet reassembly can only be performed on 7750 MG devices.

An ISA IP Reassembly MDA has two ports. You cannot modify these ports. Port 1 is the Network port and port 2 is the Access port.

### **Procedure 6-12 To configure an IP packet reassembly daughter card on an ISM mobile card**

---

- 1 Choose Equipment from the navigation tree view selector. The navigation tree displays the Equipment view.
  - 2 Expand the Discovered NE objects in the navigation tree to display a 7750 MG device.
  - 3 Expand the 7750 MG device to display the shelf object associated with the device.
  - 4 Expand the shelf object to display the card slots associated with the shelf.
  - 5 Locate and expand an ISM mobile card to display the daughter cards associated with the card.
  - 6 Right-click on the second daughter card slot and choose Configure Daughter Card from the contextual menu. The Daughter Card Slot (Create) form opens with the General tab displayed.
  - 7 Click on the Assigned Daughter Card Type drop-down menu and choose ISA IP Reassembly and click on the OK button. The Daughter Card Slot form closes.
-

### Procedure 6-13 To enable IP packet reassembly on a VPRN L3 access interface

---

To enable IP packet reassembly on a VPRN L3 access interface, you must assign a virtual IP reassembly port to the interface and add a unique context value.



**Note** — This procedure assumes you have an existing VPRN service configured on the 5620 SAM. To create a new VPRN service, see the VPRN Services Management chapter in the *5620 SAM User Guide*.

This procedure also assumes you have configured an Interface on the appropriate Access Interface. To configure a new Interface, see the VPRN Services Management chapter in the *5620 SAM User Guide*.

- 1 Choose Manage→Service→Services from the 5620 SAM main menu. The Manage Services form opens.
- 2 If required, configure the filter criteria and click on the Search button. A list of services is displayed.
- 3 Choose a VPRN service and click on the Properties button. The VPRN Service (Edit) form opens with the General tab displayed.
- 4 On the navigation tree, navigate to an interface icon below a site. The path is *service\_type*→Sites→Routing Instance→Access Interfaces→Interface.
- 5 Right-click on an interface and choose Properties from the contextual menu. The VPRN L3 Access Interface (Edit) form opens with the General tab selected.
- 6 Click on the IP Packet Reassembly tab button.
- 7 Select the Reassemble check box. After the Reassemble parameter is configured, the form expands to display the Reassemble Packets and Reassembly Port panels.
- 8 Click on the Select button for the Reassembly Port in the Reassemble Packets panel. The Select Reassembly Port form opens.
- 9 Click on the Search button. A list of available IP reassembly virtual access ports is displayed.
- 10 Select a port and click on the OK button. The Select Reassembly Ports form closes and the selected port is displayed in the Name field in the Reassemble Packets panel.
- 11 Configure the Context Value parameter in the Reassemble Packets panel and click on the OK button. A confirmation window displays.
- 12 Acknowledge the confirmation window by clicking on the Yes button. The VPRN L3 Access Interface (Edit) form closes and the port Reassembly status is displayed beside the Interface on the navigation tree.

The 5620 SAM creates a network interface on the VPRN that represents the IP reassembly virtual interface. The interface is read-only.

---

### Procedure 6-14 To configure IP packet reassembly on a network interface

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To enable IP reassembly on a network interface, you are required to assign a virtual IP reassembly port to the interface and add a unique context value. You can assign individual physical ports or all ports associated with a LAG.

- 1 Choose Routing from the navigation tree view selector. The navigation tree displays the Routing view.
- 2 Expand the Discovered NE objects in the navigation tree to display a 7750 MG device.
- 3 Expand the 7750 MG device to display the Routing Instance associated with the device.
- 4 Expand the Routing Instance to display the Interfaces associated with the Routing Instance.
- 5 Right-click on a network interface and choose Properties from the contextual menu. The Network Interface (Edit) form opens.
- 6 Click on the IP Packet Reassembly tab button.
- 7 Select the Reassemble parameter. After the Reassemble parameter is configured, the form expands to display the Reassemble Packets and Reassembly Port panels.
- 8 Click on the Select button for the Reassembly Port in the Reassemble Packets panel. The Select Reassembly Port form opens.
- 9 Click on the Search button. A list of available IP reassembly virtual network ports is displayed.
- 10 Select an individual port or all ports associated with a LAG and click on the OK button. The Select Reassembly Port form closes and the selected port is pasted into the Name Parameter on the Reassembly Ports panel.



**Note** — A port which is already assigned to a LAG cannot be individually selected for IP Reassembly for an Interface.

- 11 Configure the Context Value parameter in the Reassemble Packets panel and click on the OK button. A confirmation window displays.
- 12 Acknowledge the confirmation window by clicking on the Yes button. The Network Interface Routing Instance form closes and the port Reassembly status is displayed beside the Interface on the navigation tree.

The 5620 SAM creates a network interface that represents the IP reassembly virtual interface. The interface is read-only.

---

## 6.6 Configuring a LAG on a 7750 MG

You can configure a LAG on a 7750 MG device using an ISA IP Reassembly MDA on the second daughter card slot of an ISM mobile card. A LAG is a group of physical ports that form one logical link between two NEs to increase bandwidth, allow load balancing, and provide seamless redundancy. LAG support over multiple devices provides node-level redundancy in addition to link-layer redundancy using a switchover function.

You can create an Access LAG or a Network LAG. Access LAGs are used when IP reassembly is required on a VPRN. Network LAGs are used when IP reassembly is required on a network interface.

---

### Procedure 6-15 To configure a LAG on a 7750 MG

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- 1 Perform Procedure 6-12 to configure a IP reassembly daughter card on an ISM mobile card. The ports on this card is used to configure a LAG on a 7750 MG device.
- 2 Choose Equipment from the view selector in the navigation tree. The navigation tree displays the Equipment view.
- 3 Expand the LAGs object below the Logical Groups on a 7750 MG device in the Equipment view.
- 4 Right-click on a LAG object and choose Create LAG from the contextual menu. The Create LAG wizard opens.
- 5 In step 1 of the wizard, configure the following parameters and click on the Next button:
  - Description
  - Configured Address
  - Mode (select the Network option to configure a Network LAG; select the Access option to configure a Access LAG)
  - Encap Type (select the Dot1 Q option)



**Note** — See the *5620 SAM Parameter Guide* for a description of all LAG parameters.

- 6 As required, configure the parameters in step 2 (applies to both Access LAGs and Network LAGs) and step 3 (applied to Access LAGs only) of the wizard to meet your network requirements. Click on the Next button to proceed to the next step in the wizard to configure the LAG members.
- 7 Click on the Create button. The Create Member wizard opens.
- 8 In step 1 of the wizard, configure the Class parameter to Virtual Port. This is the class type associated with the port on an IP reassembly daughter card.
- 9 Click on the Next button. The port associated with the IP reassembly daughter cards created in step 1 display.

- 10 Select the appropriate port(s) and click on the Next button.
  - 11 As required, configure the parameters in step 3 of the wizard to meet your network operational requirements.
  - 12 Click on the Finish button to save and close the Create Member wizard. A warning dialog box appears.
  - 13 Click on the OK button to acknowledge the warning. The Create LAG wizard form reappears displaying the configured LAG member.
  - 14 Click on the Finish button. The Create LAG wizard form summary displays.
  - 15 Click on the Close button to close the Create LAG wizard form. The LAG appears under the LAG Object on the navigation tree.
- 

## 6.7 Configuring threshold groups on a 7750 MG

You can configure threshold groups on an SGW or a PGW instance, or a 7750 MG group (Release 3.1 or later). Each threshold group can be assigned threshold counters with configurable limits. If a threshold is exceeded, the 5620 SAM generates an RMON alarm. The alarm is automatically cleared when the monitored statistic is again within the threshold limits.

### **Procedure 6-16 To configure a threshold group on an SGW or a PGW**

---

- 1 Choose Equipment from the navigation tree view selector. The navigation tree displays the Equipment view.
- 2 Right-click on a 7750 MG and choose Properties from the contextual menu. The Network Element (Edit) form opens with the General tab displayed.
- 3 In the Serving and PDN Gateway Instances panel, configure the filter criteria, if required, and click on the Search button.
- 4 Choose an SGW or a PGW from the list and click on the Properties button. The Serving Gateway (Edit) form or PDN Gateway (Edit) form opens with the General tab displayed.
- 5 Click on the Threshold Groups tab button.
- 6 Perform one of the following:
  - a Specify a filter to search for a threshold group. Select the threshold group to modify and click on the Properties button. The Threshold Group (Edit) form opens with the General tab displayed.
  - b Click on the Create button. The Threshold Group (Create) form opens with the General tab displayed.

7 Configure the parameters:

- Threshold Group
- Interval (minutes)
- Administrative State



**Note** — Set the Administrative State parameter of the threshold group to Down before you create a threshold group counter.

8 Click on the Threshold Group Counters tab button.

9 Click on the Create button. The Threshold Group Counter (Create) form opens.

10 Configure the parameters:

- Threshold Counter
- High Threshold
- Low Threshold

11 Click on the OK button. A dialog box opens.

12 Click on the OK button. The Threshold Group Counter (Create) form closes.

13 Repeat steps 9 to 12 to configure additional threshold group counters, as required.

14 Click on the OK button. The Threshold Group (Create) or Threshold Group (Edit) form closes and a dialog box opens.

15 Click on the OK button.

16 Click on the OK button. A dialog box opens.

17 Click on the Yes button. The Serving Gateway (Edit) form or PDN Gateway (Edit) form closes.

18 Close the Network Element (Edit) form.

---

### **Procedure 6-17 To configure a threshold group on a 7750 MG group**

---

- 1 Choose Equipment from the navigation tree view selector. The navigation tree displays the Equipment view.
- 2 Right-click on a 7750 MG and choose Properties from the contextual menu. The Network Element (Edit) form opens with the General tab displayed.
- 3 In the Serving and PDN Gateway Instances panel, configure the filter criteria, if required, and click on the Search button.
- 4 Choose an SGW or a PGW from the list and click on the Properties button. The Serving Gateway (Edit) form or PDN Gateway (Edit) form opens with the General tab displayed.



- 5 Click on the MG Groups tab button.
- 6 Configure the filter criteria, if required, and click on the Search button.
- 7 Choose a 7750 MG group from the list and click on the Properties button. The ISA-MG Group (Edit) form opens with the General tab displayed.
- 8 Click on the Threshold Groups tab button.
- 9 Perform one of the following:
  - a Specify a filter to search for a threshold group. Select the threshold group to modify and click on the Properties button. The Threshold Group (Edit) form opens with the General tab displayed.
  - b Click on the Create button. The Threshold Group (Create) form opens with the General tab displayed.
- 10 Configure the parameters:
  - Interval (minutes)
  - Administrative State



**Note** — Set the Administrative State parameter of the threshold group to Down before you add a threshold group counter.

- 11 Click on the Threshold Group Counters tab button.
- 12 Click on the Create button. The Threshold Group Counter (Create) form opens.
- 13 Configure the parameters:
  - Threshold Counter
  - High Threshold
  - Low Threshold
- 14 Click on the OK button. A dialog box opens.
- 15 Click on the OK button. The Threshold Group Counter (Create) form closes.
- 16 Repeat steps 12 to 15 to configure additional threshold group counters, as required.
- 17 Click on the OK button. The Threshold Group (Create) or Threshold Group (Edit) form closes and a dialog box opens.
- 18 Click on the OK button.
- 19 Click on the OK button. A confirmation dialog opens.
- 20 Click on the Yes button. The ISA-MG Group (Edit) form closes.

- 21 Close the Serving Gateway (Edit) form or PDN Gateway (Edit) form.
  - 22 Close the Network Element (Edit) form.
-

## **7 – 9471 MME configuration management**

---

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## 7.1 9471 MME configuration management overview

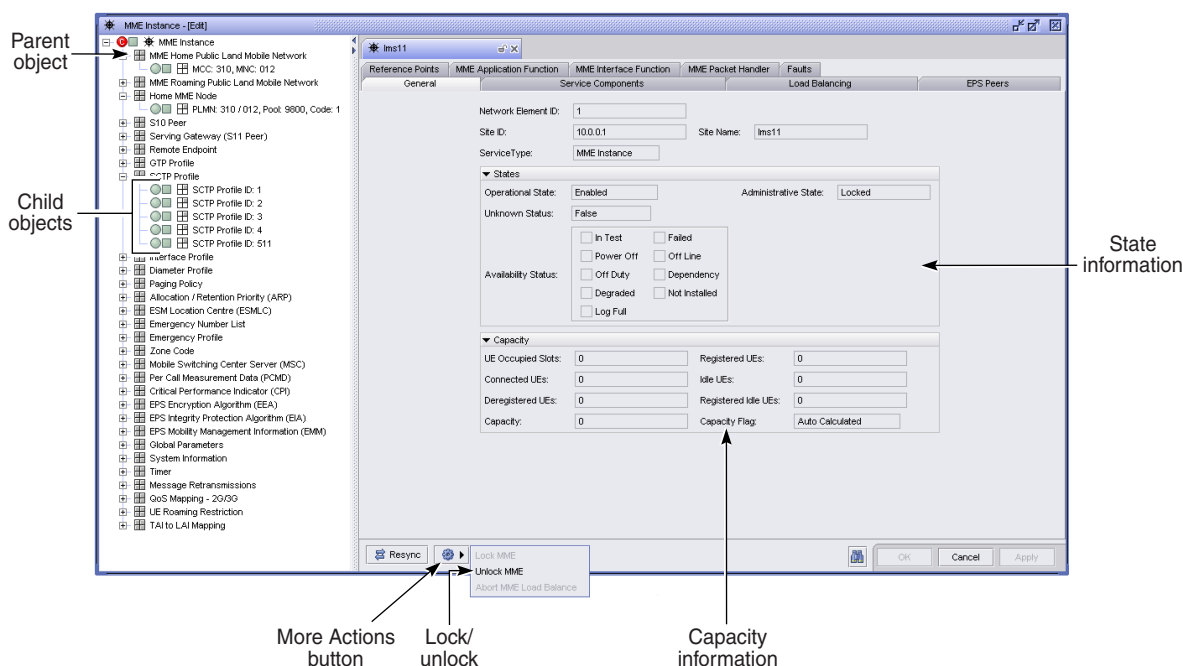
Configuration management is the process of initial configuration and post-installation object and parameter modification. Initial configuration is outside the scope of this document. This chapter describes the steps that are required to perform application and interface provisioning for the 9471 MME by using the 5620 SAM GUI. Configuration management for the 9471 MME can be performed by using the following 5620 SAM functions:

- the 9471 MME instance properties form and navigation tree
- global and local policies
- bulk operations

### 9471 MME instance properties form

The 9471 MME instance properties form allows operators to perform online configuration directly configure and deploy 9471 MME objects and parameters for a single NE. Object creation, deletion, association, parameter configuration, and NE locking/unlocking can all be performed by using this intuitive interface. The 5620 SAM performs internal validation checks to prevent invalid configuration changes from being deployed to the NE. Figure 7-1 displays the 9471 MME instance properties form and built-in navigation tree.

Figure 7-1 9471 MME instance properties form



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See Procedure 7-42 for more information about performing general configuration management tasks by using the 9471 MME instance form.

## 7.2 Workflow for 9471 MME configuration management

- 1 Perform the required procedure for 9471 MME application provisioning. See Procedure 7-1 for more information. Application provisioning involves the following tasks.
  - i Setting up the home PLMN. See step 4 of Procedure 7-1.
  - ii Configuring a 9471 MME pool. See step 5 of Procedure 7-1.
  - iii Assigning the home 9471 MME to an MME group. See step 6 of Procedure 7-1.
  - iv Locking the 9471 MME aggregate services. See step 7 of Procedure 7-1.
  - v Defining tracking areas and mappings. See step 8 of Procedure 7-1.
  - vi Defining S6a (HSS) connection data. See step 9 of Procedure 7-1.
  - vii Defining the S1 connection data. See step 10 of Procedure 7-1.
  - viii Defining the SGW connection data. See step 11 of Procedure 7-1.
  - ix Unlocking the 9471 MME aggregate services. See step 12 of Procedure 7-1.
- 2 Provision 9471 MME interfaces to other LTE network entities.
  - i Set up interoperation with non-3GPP MSCs. See Procedure 7-2 for more information.
  - ii Set up interoperation with S3 SGSNs. See Procedure 7-3 for more information.
  - iii Set up interoperation with Gn SGSNs. See Procedure 7-4 for more information.
  - iv Set up 9471 MME pooling (inter-MME S10 connections). See Procedure 7-5 for more information.
  - v Set up lawful intercept (X1\_1 and X2 interfaces). See Procedure 7-6 for more information.
  - vi Activate EIR (S13 and S6a interfaces). See Procedures 7-7, 7-8, and 7-9 for more information.
  - vii Set up 9471 MME interfaces for location-based services:
    - SLS interface. See Procedure 7-10 for more information.
    - SLg interface. See Procedure 7-11 for more information.
  - viii Set up the SBc interface for warning message delivery. See Procedure 7-12.
  - ix Set up 9471 MME interface for MBMS or eMBMS:
    - M3 interface. See Procedure 7-13 for more information.
    - Sm interface. See Procedure 7-14 for more information.

- x Configure CPI. See Procedure [7-15](#) for more information.
- xi Enable or disable PCMD jobs, as required. See Procedure [7-16](#) for more information.
- 3 Deprovision interfaces, as required, for IPv6 migration. Deprovisioning is not required for dual IP stack network implementations. See section “[Interface deprovisioning \(when migrating to IPv6\)](#)” for more information.  
See Procedure [7-17](#) for more information about deprovisioning the S6a interface.
- 4 Provision 9471 MME functionality, as required.
  - i Define paging methods and neighbors. See Procedure [7-18](#).
  - ii Set up SGW discovery. See Procedure [7-19](#).
  - iii Define equivalent PLMNs. See Procedure [7-20](#).
  - iv Manage tracking areas.
    - To add tracking areas, see Procedure [7-21](#).
    - To delete tracking areas, see Procedure [7-22](#).
  - v Manage SGWs.
    - Add SGWs. See Procedure [7-23](#).
    - Delete SGWs. See Procedure [7-24](#).
  - vi Change local ports for in-service SCTP profiles. See Procedure [7-25](#).
  - vii Set up roaming PLMNs. See Procedure [7-26](#).
  - viii Provision time zones. See Procedure [7-27](#).
  - ix Provision EPS integrity/encryption. See Procedure [7-28](#).
  - x Provision IMSI range. See Procedure [7-29](#).
  - xi Provision 9471 MME DNS support. See Procedure [7-30](#).
  - xii Provision automatic neighbor list generation. See Procedure [7-31](#).
  - xiii Transition from TCP to SCTP. See Procedure [7-32](#).
  - xiv Provision NAS cause code. See Procedure [7-33](#).
  - xv Convert IPv4 connections to IPv6:
    - MME Node (S10). See Procedure [7-34](#).
    - SGW (S11). See Procedure [7-35](#).
    - HSS (S6a). See Procedure [7-36](#).
    - S1MME (S1). See Procedure [7-37](#).
    - EIR (S13). See Procedure [7-38](#).
  - xvi Provision CSFB enhancements. See Procedure [7-39](#).

- xvii Provision support for IMS emergency services. See Procedure [7-40](#).
- xviii Provision SMS-only over SGs interface. See Procedure [7-41](#).

## 7.3 9471 MME application provisioning

This section describes a general procedure for configuring the 9471 MME application by using the 5620 SAM GUI. The 9471 MME application configuration steps include the configuration of application data such as interfaces, tracking identifiers, profiles, connections, and policies.

See the *5620 SAM LTE Parameter Reference* for more information about the parameters described in the following procedures. You can use the tool tips function of the 5620 SAM to view the mapping between 5620 SAM GUI parameters and the 9471 MME node equivalents.

### Procedure 7-1 To provision the 9471 MME application

---

- 1 Choose Manage→Mobile Core→MME Instances from the 5620 SAM main menu. The MME Instances form opens.
- 2 Configure the filter criteria, if required, and click on the Search button. A list of 9471 MME instances is displayed.
- 3 Select a 9471 MME instance from the list and click on the Properties button. The MME Instance (Edit) form opens with the General tab displayed.
- 4 Configure the PLMN for the 9471 MME. See Procedure [7-43](#) for more information.
- 5 Create an MME pool. See Procedure [10-1](#) for more information.
- 6 Assign the home 9471 MME to an MME pool.



**Note** — You must create an MME pool in step [5](#) before you can perform this step.

- i Expand the MME Home Public Land Mobile Network Object object, if required.
- ii Right-click on the MME Home PLMN instance and choose Properties from the contextual menu. The Public Land Mobile Network (PLMN) (Edit) form opens.
- iii Right-click on the Home MME Node parent object and choose Create Home MME Node from the contextual menu. The MME Node (Create) form opens.
- iv Click on the Select button for the Pool ID parameter. The Select Pool Information - MME Node form opens.
- v Configure the filter criteria, if required, and click on the Search button. A list of MME pools is displayed.
- vi Select an MME pool from the list and click on the OK button. The form closes and the MME Node (Create) form is updated with the MME pool data.

- vii Configure the parameters:
    - Local Name
    - MME CODE
    - Relative Capacity
    - Auto adjusts Relative Capacity
    - Home MME
    - S10 IP (displays only when you disable the Home MME parameter)
  - viii Click on the OK button. The MME Node (Create) form closes.
  - ix Click on the OK button in the Public Land Mobile Network (PLMN) (Edit) form. The form closes.
  - x Click on the Apply button in the MME Instance form. A dialog box appears.
  - xi Click on the Yes button. The changes are saved.
- 7 Lock the 9471 MME.
- i Click on the MME instance parent object in the navigation tree, if required. The MME Instance (Edit) form displays the MME instance parameters.
  - ii Click on the More Actions button and choose Lock MME. A dialog box appears.
  - iii Click on the Yes button.
  - iv Verify that the Administrative State parameter displays Locked.



**Note 1** — You must have an Administrator or EPC Operator scope of command role to be able to lock or unlock a 9471 MME. See the *5620 SAM User Guide* for more information about scope of command roles, profiles, and permissions.

**Note 2** — To lock or unlock an MME instance, you must have the correct CLI configuration on the mediation policy in the discovery rule for the MME being managed. To confirm that the mediation policy contains the right credentials for CLI, view the Discovery Rules tab on the Discovery Manager (Edit) form.

**Note 3** — See Procedure 4-6 for information about how to configure a basic mediation policy and discovery rule that can be used to discover a 9471 MME. For information about configuring additional parameters in a mediation policy or discovery rule, see the *5620 SAM User Guide*.

- 8 Define and associate the Tracking Areas within the home MME Group.
- i Perform Procedure 7-51 to create an MME-based tracking area.
  - ii Perform Procedure 7-52 to create an MME group to TAI list.
- 9 Define the S6a connection data.
- i Configure a diameter profile by performing Procedure 7-62.
  - ii Configure a remote endpoint by performing Procedure 7-58. Specify S6a for the Interface Type parameter.



- iii Configure a diameter connection by performing Procedure 7-63.
- iv Configure an SCTP profile by performing Procedure 7-60.
- v Configure an interface profile by performing Procedure 7-61. Specify the following:
  - specify S6a for the Interface Type parameter
  - associate the SCTP profile that you created in sub step iv with the interface profile
  - specify a value other than 0 for the Number of Authentication Vectors parameter

10 Define the S1 connection data.

- i Configure an SCTP profile by performing Procedure 7-60.



**Note** — Although SCTP Profile definitions can be shared among different SCTP interfaces, a dedicated SCTP Profile is recommended so SCTP parameters can be tuned up independently.

- ii Configure an interface profile by Performing Procedure 7-61. Set the following:
  - specify S1MME for the Interface Type parameter
  - associate the SCTP profile that you created in sub step i with the interface profile

11 Choose one of the following:

- a Define the S11 serving gateway connection data without a DNS.
  - i Configure an SGW pool by performing Procedure 10-5.
  - ii Configure a GTP profile by performing Procedure 7-59.
  - iii Configure a serving gateway object by performing Procedure 7-57.
  - iv Configure an SGW pool to TAI list by performing Procedure 7-53.
  - v Configure an interface profile by performing Procedure 7-61. Set the following:
    - specify S11 for the Interface Type parameter
    - associate the GTP profile that you created in sub step ii
  - vi Set the Discover SGW global parameter value to “No” by performing Procedure 7-75.
- b Define the serving gateway connection data with a DNS.
  - i Configure a GTP profile by performing Procedure 7-59.
  - ii Configure a serving gateway (S11 peer) by performing Procedure 7-57.

- iii Configure global parameters by performing Procedure [7-75](#). Set the following:
    - Discover SGW global parameter to “Yes”
    - GW Selection Mode parameter to “GW Selection Mode 1” or “GW Selection Mode 2”
  - iv Configure an interface profile by performing Procedure [7-61](#). Set the following:
    - specify S11 for the Interface Type parameter
    - associate the GTP profile that you created in sub step [i](#)
- 12 Unlock the 9471 MME.
- i Click on the MME instance parent object in the navigation tree. The MME Instance (Edit) form displays the MME instance data.
  - ii Click on the More Actions button and choose Unlock MME. A dialog box appears.
  - iii Click on the Yes button.
  - iv Verify that the Administrative State parameter displays Unlocked.
- 13 Close the MME Instance (Edit) form.
- 

## 7.4 9471 MME interface provisioning

This section contains two sub-sections:

- “[9471 MME interface provisioning scenarios](#)” contains specific procedures for the interface provisioning scenarios. These are high-level procedures that reference other procedures for the specific steps.
- “[Interface deprovisioning \(when migrating to IPv6\)](#)” contains specific information and procedures for interface deprovisioning related to IPv6 migration. Specifically, the section describes replacing IPv4 remote endpoints with IPv6 remote endpoints in 9471 MME objects.

### 9471 MME interface provisioning scenarios

This sub-section contains a procedure for each optional provisioning scenario.

## Procedure 7-2 To set up interoperation with non-3GPP MSCs

---

You must configure local SGs interface IP addresses before performing this procedure.

- 1 Define the SGs interface data.
  - i Create an SCTP Profile for the SGs interface. See Procedure [7-60](#).



**Note** — The SCTP profile must specify port 29118 for the connection to the MSC.

- ii Create an interface profile for the SGs interface. See Procedure [7-61](#).



**Note** — In the home PLMN, the CS Capability Supported parameter must not be set to SGS\_None. See Procedure [7-43](#) for more information about configuring home and roaming PLMNs.

- 2 Define the MSC Server(s), LAI and TAI objects, and configure the required mappings.
  - i Configure a remote endpoint and specify the MSC server IP addresses for the Address x parameters. See Procedure [7-58](#).
  - ii Configure an MSC server and specify the SCTP profile and remote endpoint that you created in this procedure. See Procedure [7-70](#).
  - iii Configure location area objects, as required. See Procedure [7-55](#).
  - iv Configure the LAI to MSC mappings, as required. See Procedure [7-71](#).
  - v Configure the TAI to LAI mappings, as required. See Procedure [7-80](#).
- 3 Review SGs related default values for the following object types and make changes, as required.
  - i Paging policy. See Procedure [7-64](#). Configure parameters for the following child objects (attempts 1-3):
    - Basic
    - SGS\_CS
    - SGS\_PS

- ii Timers. See Procedure [7-76](#). Configure parameters for the following child objects, as required:
    - TS6-1
    - TS8
    - TS9
    - TS10
    - TS12-1
    - TS12-2
    - SGs Paging
  - iii Message retransmissions. See Procedure [7-77](#). Configure parameters for the following child objects, as required:
    - Ns8
    - Ns9
    - Ns10
    - Ns12
- 4 Apply the changes in the MME Instance (Edit) form, if required.
- 

### Procedure 7-3 To set up operation with S3 SGSNs

---

You must configure local IPv4 and/or IPv6 S3 interfaces before performing this procedure.

- 1 Define the S3 interface data.
    - i Create a GTP profile, or use an existing one. See Procedure [7-59](#).
    - ii Create an interface profile for the S3 interface. See Procedure [7-61](#).
  - 2 Review S3 default values for the following object types and make changes, as required.
    - i Global parameters. See Procedure [7-75](#). Configure parameters for the following child objects:
      - S3 Gn Indirect Forwarding
      - NAS Tokens to Compare
    - ii Timer. See Procedure [7-76](#). Configure parameters for the following child objects:
      - HO2G3Deletion
      - SRNS Completion
      - S3Gn Indirect Forwarding
      - S3 Gn HO Complete
      - TAU After HO
  - 3 Apply the changes in the MME Instance (Edit) form, if required.
-

### Procedure 7-4 To set up interoperation with Gn SGSNs

---

- 1 Define the Gn interface data.
    - i Create a GTP profile, or use an existing one. See Procedure [7-59](#).
    - ii Create an interface profile for the Gn interface. See Procedure [7-61](#).
  - 2 Review Gn default values for the following object types and make changes, as required.
    - i QoS Mapping - 2G/3G. See Procedure [7-78](#).
    - ii Global parameters. See Procedure [7-75](#). Configure parameters for the following child objects:
      - ArpMValue
      - ArpHValue
      - Obtain UE-AMBR
      - S3 Gn Indirect Forwarding
    - iii Timer. See Procedure [7-76](#). Configure parameters for the following child objects:
      - HO2G3Deletion
      - SRNS Completion
      - S3Gn Indirect Forwarding
      - S3 Gn HO Complete
      - TAU After HO
  - 3 Apply the changes in the MME Instance (Edit) form, if required.
- 

### Procedure 7-5 To set up 9471 MME pooling

---

The local S10 interface must be defined.

- 1 Choose one of the following:
  - a 9471 MME pooling without a DNS.



**Note** — Do not set the parameter value of the Discover MME object (Global Parameters) to No until step [1 a](#) has been fully completed.

- i Perform Procedure [10-1](#) and create the 9471 MME pool, if required.
- ii Perform Procedure [10-3](#) and move 9471 MMEs to the MME pool, as required.

- iii Perform Procedure 10-7 and create global tracking areas, as required.
  - iv Perform Procedure 7-75 and set the Discover MME global parameter value to “No”.
  - b 9471 MME pooling with a DNS. Perform Procedure 7-75 and set parameter value of Discover MME to Yes.
- 2 Apply the changes in the MME Instance (Edit) form, if required.
- 

### Procedure 7-6 To set up interfaces for lawful intercept

---

Local X1\_1 and X2 interfaces must be defined. If not defined during installation, refer to *9471 MME OA&M 418-111-201*, Configuration Management chapter, for more information about growing in IP addresses.



**Note 1** — The 5620 SAM does not support management of the X1\_1 and X2 interfaces and does not directly perform traffic mirroring.

**Note 2** — This procedure requires the use of a 9471 MME CLI command. See the *Alcatel-Lucent 9471 Mobility Management Entity (MME) Command Line Interface (CLI) Reference Guide 418-111-215* for more information about using 9471 MME CLI commands.

- 1 Configure an interface profile for the X1\_1 interface. See Procedure 7-61. Specify a valid SCTP profile ID for the Profile ID parameter.
  - 2 Configure an interface profile for the X2 interface. See Procedure 7-61. Specify a valid SCTP profile ID for the Profile ID parameter.
  - 3 Configure the X1\_1 configuration record on the 9471 MME by using the *li\_link\_cli* command. Reference *9471 MME CALEA/LI Management 418-111-213* for more information.
  - 4 Configure the X2 configuration record on the 9471 MME by using the *li\_link\_cli* command. Reference *9471 MME CALEA/LI Management 418-111-213* for more information.
- 

### Procedure 7-7 To activate EIR (1st S13 link)

---



**Note** — This procedure requires the use of a 9471 MME CLI command. See the *Alcatel-Lucent 9471 Mobility Management Entity (MME) Command Line Interface (CLI) Reference Guide 418-111-215* for more information about using 9471 MME CLI commands.

The local S13 interface must be configured before performing this procedure.

- 1 Configure an SCTP profile for the S13 interface. See Procedure 7-60.
- 2 Define the EIR IP address and port by configuring a remote endpoint. See Procedure 7-58. Specify the following:
  - set the Interface Type parameter to S13
  - specify the EIR IPv4 or IPv6 address for Address 1
  - Address 2 is defaulted to 0.0.0.0 and should only be populated for SCTP multi-homed cases
  - set the Port parameter to the EIR far end port
- 3 Define the S13 (EIR) connection data. Configure a diameter connection by performing Procedure 7-63. Specify the following:
  - for the Profile ID parameter, set it to the Profile ID of the diameter profile that is currently associated with the S6a connection
  - set the Application Type parameter to S13
  - for Remote Endpoint IP 1, select the remote endpoint that you created in step 2
- 4 Define the S13 interface data by configuring an interface profile. See Procedure 7-61.
- 5 Verify that the S13 link is in service by using the *link\_cli* command.
- 6 In the MME Home Public Land Mobile Network (PLMN) object, enable the Validate IMEI with EIR parameter and save the changes:
  - i Perform step 1 of Procedure 7-42 in order to open the instance properties form of a 9471 MME, if required.
  - ii Expand the MME Home Public Land Mobile Network object.
  - iii Click on the MCC: xxx, MNC: xxx child object. The MME Instance (Edit) form is populated with the PLMN object data.
  - iv Enable the Validate IMEI with EIR parameter.
  - v Click on the Apply button in the MME Instance (Edit) form. A dialog box appears.
  - vi Click on the Yes button. The changes are saved.
  - vii Close the MME Instance (Edit) form, if required.

---

### Procedure 7-8 To activate EIR (subsequent S13 links)

---



**Note** — This procedure requires the use of a 9471 MME CLI command. See the *Alcatel-Lucent 9471 Mobility Management Entity (MME) Command Line Interface (CLI) Reference Guide 418-111-215* for more information about using 9471 MME CLI commands.

Perform this procedure if additional S13 links are required.

- 1 Define the EIR IP address and port by configuring a remote endpoint. See Procedure 7-58. Specify the following:
    - set the Interface Type parameter to S13
    - specify the EIR IPv4 or IPv6 address for Address 1
    - Address 2 is defaulted to 0.0.0.0 and should only be populated for SCTP multi-homed cases
    - set the Port parameter to the EIR far end port
  - 2 Define the S13 (EIR) connection data by opening the properties form of an existing diameter connection for S13 and specifying additional remote endpoints. See Procedure 7-63 for more information.
  - 3 Verify that the S13 link is in service by using the *link\_cli* command.
- 

### Procedure 7-9 To activate EIR (conversion from combined S6a/S13 to standalone S13)

---

This procedure assumes the following conditions are true:

- the local S13 interface is configured
- IMEI validation is enabled in the home PLMN
- no S13 links are present



**Note** — This procedure requires the use of a 9471 MME CLI command. See the *Alcatel-Lucent 9471 Mobility Management Entity (MME) Command Line Interface (CLI) Reference Guide 418-111-215* for more information about using 9471 MME CLI commands.

- 1 In the MME Home Public Land Mobile Network (PLMN) object, disable the Validate IMEI with EIR parameter and save the changes.
  - i Perform step 1 of Procedure 7-42 in order to open the instance properties form of a 9471 MME, if required.
  - ii Expand the MME Home Public Land Mobile Network object.
  - iii Click on the MCC: xxx, MNC: xxx child object. The MME Instance (Edit) form is populated with the PLMN object data.
  - iv Disable the Validate IMEI with EIR parameter.
  - v Click on the Apply button in the MME Instance (Edit) form. A dialog box appears.
  - vi Click on the Yes button. The changes are saved.
- 2 Define the SCTP interface by configuring an SCTP Profile. See Procedure 7-60.



- 3 Define the EIR IP address and port by configuring a remote endpoint. See Procedure 7-58. Specify the following:
  - set the Interface Type parameter to S13
  - specify the EIR IPv4 or IPv6 address for Address 1
  - Address 2 is defaulted to 0.0.0.0 and should only be populated for SCTP multi-homed cases
  - set the Port parameter to the EIR far end port
- 4 Define the S13 (EIR) connection data. Configure a diameter connection by performing Procedure 7-63. Specify the following:
  - for Profile ID, set it to the Profile ID of the diameter profile that is currently associated with the S6a connection
  - set the Application Type parameter to S13
  - for Remote Endpoint IP 1, select the remote endpoint that you created in step 3
- 5 Define the S13 interface data by configuring an interface profile. See Procedure 7-61.
- 6 Verify that the S13 link is in service by using the *link\_cli* command.
- 7 In the MME Home Public Land Mobile Network object, enable the Validate IMEI with EIR parameter and save the changes.



**Warning** — Only perform this step and sub steps if at least one S13 link is in service.

- i Perform step 1 of Procedure 7-42 in order to open the instance properties form of a 9471 MME, if required.
  - ii Expand the MME Home Public Land Mobile Network object.
  - iii Click on the MCC: xxx, MNC: xxx child object. The MME Instance (Edit) form is populated with the PLMN object data.
  - iv Enable the Validate IMEI with EIR parameter.
  - v Click on the Apply button in the MME Instance (Edit) form. A dialog box appears.
  - vi Click on the Yes button. The changes are saved.
  - vii Close the MME Instance (Edit) form, if required.
-

**Procedure 7-10 To set up the MME SLS interface for location based services**

---

Local SLS interface IPv4/IPv6 addresses must be configured.

- 1 Define the SLS interface data.
  - i Configure an SCTP profile for the SLS interface. See Procedure 7-60. The recommended port is 9082 for the connection toward the ESMC.
  - ii Configure an interface profile for the SLS interface. See Procedure 7-61.
- 2 Provision remote endpoints and add ESMC(s).
  - i Configure a remote endpoint for the ESMC(s). See Procedure 7-58. Address 2 is only used for SCTP multi-homed cases.
  - ii Configure the ESM Location Centre (ESMC) object. See Procedure 7-66. The 5620 SAM raises an exception if you do not specify an SLS remote endpoint.
- 3 Associate the ESMC with a TAI:
  - i Perform step 1 of Procedure 7-42 in order to open the instance properties form of a 9471 MME, if required.
  - ii Expand the MME Home Public Land Mobile Network parent object to display the child object.
  - iii Right-click on the MCC: xxx, MNC: xxx child object and choose Properties from the contextual menu. The Public Land Mobile Network (PLMN) (Edit) form opens.
  - iv Expand the Tracking Area parent object to display the child objects.
  - v Click on a tracking area child object. The Public Land Mobile Network (PLMN) (Edit) form is populated with the object data.
  - vi Configure the parameters:
    - Selection Algorithm
    - ESMC Identity 1
    - ESMC Identity 2
    - IMS Supported
  - vii Repeat sub steps v to vi to associate the ESMC with additional TAI objects, as required.
  - viii Click on the OK button. The Public Land Mobile Network (PLMN) (Edit) form closes.
  - ix Click on the Apply button in the MME Instance (Edit) form. A dialog box appears.
  - x Click on the Yes button. The changes are saved.

- 4 Review default values relevant to the SLS interface.
    - i Global parameters. See Procedure 7-75. Specify a parameter value for LCSAP Number of resets without Ack for alarm.
    - ii Timers. See Procedure 7-76. Specify parameter values for the following:
      - T3X01
      - T3X02
  - 5 Perform Procedure 7-11.
  - 6 Apply the changes in the MME Instance (Edit) form, if required.
- 

### Procedure 7-11 To set up the MME SLg interface for location based services

---

Local SLg interface IPv4/IPv6 addresses must be configured.

- 1 Define the SLg interface data.
  - i Configure an SCTP profile for the SLg interface. See Procedure 7-60.
  - ii Configure an interface profile for the SLg interface. See Procedure 7-61.
- 2 Provision remote endpoints and add GMLC(s).
  - i Configure a remote endpoint for the GMLC(s). See Procedure 7-58. Address 2 is only used for SCTP multi-homed cases.
  - ii Configure a diameter connection. See Procedure 7-63.
- 3 Review SLg related default values for the Timer object. See Procedure 7-76. Specify a parameter value for TSLR Ack from GMLC, if required.
- 4 Activate LCS by performing the following steps:



**Note** — Only activate LCS after both the SLS and SLg interfaces are provisioned.

- i Global parameters. See Procedure 7-75. Set Activate LCS to “yes”.
    - ii Home Public Land Mobile Network. See Procedure 7-43. Enable the Initiate LCS Emergency parameter.
    - iii Emergency Profile. See Procedure 7-68. Set the Initiate LCS Request parameter to “Initiate Location Request”.
  - 5 Apply the changes in the MME Instance (Edit) form, if required.
-

### **Procedure 7-12 To set up the MME SBc interface for warning message delivery**

---

Local SBc interface IPv4 and/or IPv6 addresses must be configured.

- 1 Define SBc interface data by creating an SCTP profile. See Procedure 7-60. Specify 29168 for the Port parameter.
  - 2 Configure an interface profile for the SBc interface. See Procedure 7-61.
  - 3 Review SBc related default values for the Timer object. See Procedure 7-76. Specify a parameter value for Warning Message.
  - 4 Apply the changes in the MME Instance (Edit) form, if required.
- 

### **Procedure 7-13 To set up the MME M3 interface for MBMS or eMBMS**

---

Local M3 interface IPv4/IPv6 addresses must be configured.

- 1 Define the M3 interface data.
    - i Configure an SCTP profile for the M3 interface. See Procedure 7-60.
    - ii Configure an interface profile for the M3 interface. See Procedure 7-61.
  - 2 Review M3 interface default values for the Timer object. See Procedure 7-76. Specify parameter values for the following:
    - MBMS Response from MCE
    - Min Time to MBMS Data Transfer
  - 3 Perform Procedure 7-14.
  - 4 Apply the changes in the MME Instance (Edit) form, if required.
- 

### **Procedure 7-14 To set up the MME Sm interface**

---

Local Sm interface IPv4/IPv6 addresses must be configured.

- 1 Define the Sm interface data.
  - i Configure a GTP profile for the Sm interface. See Procedure 7-59.
  - ii Configure an interface profile for the Sm interface. See Procedure 7-61.
- 2 Review Sm interface default values for the Timer object. See Procedure 7-76. Specify a parameter value for Min Time to MBMS Data Transfer.

3 Activate MBMS by performing the following steps:



**Note** — Only activate MBMS after both the M3 and Sm interfaces are provisioned.

- i Perform step 1 of Procedure 7-42 in order to open the instance properties form of a 9471 MME, if required.
  - ii Expand the MME Home Public
  - iii Enable the MBMS Enabled parameter.
  - iv Click on the Apply button in the MME Instance (Edit) form. A dialog box appears.
  - v Click on the Yes button. The changes are saved.
- 4 Close the MME Instance (Edit) form, if required.
- 

### **Procedure 7-15 To configure critical performance indicators (CPI)**

---

You can use the bulk operations function of the 5620 SAM to configure CPI object parameters. See the *5620 SAM User Guide* for more information about bulk operations.

- 1 Perform step 1 of Procedure 7-42 in order to open the instance properties form of a 9471 MME, if required.
  - 2 Expand the Critical Performance Indicator (CPI) object.
  - 3 Modify default values for a CPI child object:
    - i Click on a child object of the Critical Performance Indicator (CPI) object. The MME Instance (Edit) form displays the properties data of the object.
    - ii Configure the parameters:
      - CPI Enable
      - Critical Alarm (%)
      - Major Alarm (%)
      - Minor Alarm (%)
      - Minimum Number of Attempts
  - 4 Repeat step 3 to configure additional CPI child objects, as required.
  - 5 Click on the Apply button in the MME Instance (Edit) form. A dialog box appears.
  - 6 Click on the Yes button. The changes are saved.
  - 7 Close the MME Instance (Edit) form, if required.
-

**Procedure 7-16 To enable or disable PCMD collection for a 9471 MME**

---

- 1 Perform step 1 of Procedure 7-42 in order to open the instance properties form of a 9471 MME, if required.
  - 2 Expand the Per Call Measurement Data (PCMD) object in the MME Instance (Edit) form navigation tree.
  - 3 Choose one of the following:
    - a If there are no child objects:
      - i Right-click on the Per Call Measurement Data (PCMD) object and choose Create PCMD Configuration from the contextual menu. The PCMD Configuration (Create) form opens.
    - b If there is a child object:
      - i Click on the PCMD Job Name: *job\_name* child object. The MME Instance (Edit) form is updated with the properties data of the object.
      - ii Go to step 4.
  - 4 Configure the parameters:
    - PCMD Job Name
    - PCMD Enable
    - Enable CM Report
  - 5 Click on the Apply button in the MME Instance (Edit) form. A dialog box appears.
  - 6 Click on the Yes button. The changes are saved.
  - 7 Close the MME Instance (Edit) form, if required.
- 



**Note** — There can be only one PCMD job per 9471 MME. Attempting to create more than one PCMD job will result in a deployment failure.

**Interface deprovisioning (when migrating to IPv6)**

You must deprovision the IPv4 addresses and interfaces when you fully migrate to IPv6. Deprovisioning is not required for dual IP stack network implementations. The S3, S10, and S11 interfaces automatically discover their peers by using DNS queries. Update your DNS server and remove any IPv4 records for SGWs, SGSNs, and the 9471 MME.

No deprovisioning is required for S1 and SBc interfaces because there is no endpoint data. No action required.

You must manually deprovision the S6a IPv4 remote endpoints. See Procedure [7-17](#) for more information.

### **Procedure 7-17 To deprovision S6a (full transition from IPv4 to IPv6)**

---

This procedure describes the 9471 MME provisioning steps that are required to deprovision the S6a IPv4 service. It is assumed that prior to deleting the IPv4 S6a interface on the 9471 MME, the IPv6 S6a service has been provisioned, activated, and verified on both the 9471 MME and the peer HSS that uses the service. The activation of the IPv6 S6a service includes the creation of the S6a IPv6 Remote Endpoint IDs that are referred to in the following steps.

It is also assumed that at the time of taking these actions that any dependence on the use of the IPv4 S6a supported service has been removed, and that there is absolutely no S6a IPv4 traffic between the HSS and the 9471 MME. If this is not the case, performing the steps described in this procedure will result in a service interruption.

- 1 Collect the IP IDs of all IPv4 S6a remote endpoints. See Procedure [7-58](#).
- 2 Replace IPv4 IP addresses with IPv6 IP addresses for roaming PLMNs:
  - i Perform step [1](#) of Procedure [7-42](#) in order to open the instance properties form of a 9471 MME, if required.
  - ii Expand the MME Roaming Public Land Mobile Network parent object in order to display the child objects.
  - iii Click on an MCC: xxx, MNC: xxx child object. The MME Instance (Edit) form is populated with the object data.
  - iv Click on the Roaming tab button.
  - v Click on the Clear button in the VPLMN HSS IP Addresses panel for Remote Endpoint IP 1.
  - vi Click on the Select button in the VPLMN HSS IP Addresses panel for Remote Endpoint IP 1. The Select Remote Endpoint IP 1 - Public Land Mobile Network (PLMN) list form opens.
  - vii Configure the filter criteria, if required, and click on the Search button. A list of remote endpoints is displayed.
  - viii Select a remote endpoint from the list and click on the OK button. The form closes and the MME Instance (Edit) form is populated with the remote endpoint data.
  - ix Repeat sub steps [v](#) to [viii](#) for Remote Endpoint IP 2, if required.
  - x Click on the Apply button in the MME Instance (Edit) form. A dialog box appears.
  - xi Click on the Yes button. The changes are saved.

- 3 Replace remote endpoints in the IMSI to HSS Routing object, if required.
  - i Perform step 1 of Procedure 7-42 in order to open the instance properties form of a 9471 MME, if required.
  - ii Expand the MME Roaming Public Land Mobile Network parent object in order to display the child objects.
  - iii Right-click on an MCC: xxx, MNC: xxx child object. The Public Land Mobile Network (PLMN) (Edit) form opens with the General tab displayed.
  - iv Expand the MME IMSI to HSS Mapping parent object in order to display the child objects.
  - v Click on a child object. The Public Land Mobile Network (PLMN) (Edit) form is populated with the object data.
  - vi Click on the Clear button in the HSS IP Address panel for Remote Endpoint IP 1.
  - vii Click on the Select button in the HSS IP Address panel for Remote Endpoint IP 1. The Select Remote Endpoint IP 1 - IMSI to HSS Routing list form opens.
  - viii Configure the filter criteria, if required, and click on the Search button. A list of remote endpoints is displayed.
  - ix Select a remote endpoint from the list and click on the OK button. The form closes and the MME Instance (Edit) form is populated with the remote endpoint data.
  - x Repeat sub steps vi to ix for Remote Endpoint IP 2, if required.
  - xi Click on the OK button. The Public Land Mobile Network (PLMN) (Edit) form closes.
  - xii Click on the Apply button in the MME Instance (Edit) form. A dialog box appears.
  - xiii Click on the Yes button. The changes are saved.
- 4 Remove the IPv4 remote endpoints, as required.
  - i Perform step 1 of Procedure 7-42 in order to open the instance properties form of a 9471 MME, if required.
  - ii Click on the Remote Endpoint parent object in order to display a list of child objects.
  - iii Click on a child object. The MME Instance (Edit) form is populated with the object data.



- iv Click on the following tab buttons to verify that the remote endpoint is not associated to any other 9471 MME objects:
    - Diameter Connection
    - ESMLC
    - IMSI to HSS Routing
    - MSC Server
    - Public Land Mobile Network (PLMN)
  - v If none of the objects listed above are associated with the remote endpoint, right-click the remote endpoint child object and choose Delete from the contextual menu.
  - vi Click on the Apply button in the MME Instance (Edit) form. A dialog box appears.
  - vii Click on the Yes button. The changes are saved.
- 

## 7.5 9471 MME functionality provisioning

Perform the procedures in this section in order to provision 9471 MME functionality.

### **Procedure 7-18 To define paging methods and neighbors**

---

- 1 Review and adjust the paging policy. See Procedure [7-64](#).
  - 2 Review and adjust TAI neighbor lists. See Procedure [7-54](#).
-

### Procedure 7-19 To identify other SGWs

---

- 1 Choose one of the following:
  - a Identify other SGWs without a DNS.
    - i Define the serving gateway pool, inter-gateway protocol, and S11 IP address of all the other SGWs by performing Procedure 7-57.
    - ii Define all the tracking areas that are associated with each previously defined SGW pool by performing Procedure 7-53.
    - iii Set the Discover SGW global parameter to “No” by performing Procedure 7-75, if required.
  - b Define the serving gateway connection data with a DNS. Set the following:
    - Discover SGW global parameter to “Yes”
    - GW Selection Mode parameter to “GW Selection Mode 1” or “GW Selection Mode 2”



**Note** — Do not set the Discover SGW global parameter to “No” unless sub step i has been completed.

- 2 Apply the changes in the MME Instance (Edit) form.
- 

### Procedure 7-20 To define equivalent PLMNs

---

- 1 Configure one or more equivalent PLMNs. See Procedure 7-45.
  - 2 Apply the changes in the MME Instance (Edit) form.
- 

### Procedure 7-21 To add tracking areas

---

- 1 Create an MME based tracking area object. See Procedure 7-51.



**Note** — Perform the above step prior to activation of any eNodeBs that are associated with the tracking area. The 9471 MME will reject connections from eNodeBs that are associated with unknown tracking areas.

- 2 Create MME Group to TAI List objects, as required. See Procedure [7-52](#).



**Note** — If the Discover MME global parameter is set to “No” (not using DNS), the TAI must be added to the MME group with which it is associated, even if it is not used by the home MME (as defined in the MME Node object).

If the Discovery MME global parameter is set to “Yes” (for use with DNS), the TAI only needs to be added to an MME group if the TAI is associated with the MME group that is used by the home MME (as defined in the MME node object).

- 3 Create entries for the Serving Gateway Pool to TAI List object. See Procedure [7-53](#).



**Note** — If the Discover SGW global parameter is set to “No” (not using DNS), the TAI must be added to the SGW pool with which it is associated.

If the Discover SGW global parameter is set to “Yes” (for use with DNS), an entry does not need to be inserted in the Serving Gateway Pool to TAI list object.

- 4 If the 9471 MME is configured for combined network support, create entries for new TAIs in the TAI to LAI Mapping object. See Procedure [7-80](#).
  - 5 If access to a new TAI must be restricted, create an entry for the new TAI in the UE Roaming Restriction object. See Procedure [7-79](#).
  - 6 Apply the changes in the MME Instance (Edit) form, if required.
- 

## Procedure 7-22 To delete tracking areas

---

- 1 Verify that no eNodeBs are associated with the tracking area:
  - i Choose Manage→Mobile Core→LTE Tracking Area Objects from the 5620 SAM main menu. The LTE Tracking Area Objects list form opens.
  - ii Choose Tracking Area (LTEPOOL) from the object type drop-down list.
  - iii Configure the filter criteria, if required, and click on the Search button. A list of tracking areas is displayed.
  - iv Select a tracking area from the list and click on the Properties button. The Tracking Area (Edit) form opens with the General tab displayed.
  - v Click on the Associated eNodeBs tab button.
  - vi Click on the Search button. A list of associated eNodeBs is displayed.
- 2 Click on the MME Based Tracking Area tab button.

- 3 Select the object from the list and click on the Properties button. The MME Based Tracking Area (Edit) form opens with the General tab displayed.
  - 4 Click on the following tab buttons to view the associated objects:
    - TAI Neighbor List
    - TAI To LAI Mapping
    - UE Roaming TAI and LAI Restriction List
    - MME Group to TAI List
    - MME Zone Code
    - Serving Gateway Pool to TAI List
  - 5 Delete the tracking area from associated objects, as required, by expanding the following parent objects, right-clicking, and choosing Delete from the contextual menu. The path is shown in parenthesis.
    - MME Group to TAI List (MME Instance→MME Home/Roaming Public Land Mobile Network)
    - TAI Neighbouring (MME Instance→MME Home/Roaming Public Land Mobile Network)
    - SGW Pool To TAI List (MME Instance→MME Home/Roaming Public Land Mobile Network)
    - TAI to LAI Mapping (MME Instance)
    - UE Roaming Restriction (MME Instance)
  - 6 Choose Manage→Mobile Core→LTE Tracking Area Objects from the 5620 SAM main menu. The LTE Tracking Area Objects list form opens.
  - 7 Choose MME Based Tracking Area (LTE) from the object type drop-down list.
  - 8 Configure the filter criteria, if required, and click on the Search button. A list of MME based tracking areas is displayed.
  - 9 Select an MME based tracking area and click on the Delete button. A dialog box appears.
  - 10 Enable the check box and click on the Yes button. The tracking area is deleted.
  - 11 Close the LTE Tracking Area Objects list form.
- 

### Procedure 7-23 To add SGWs

---

- 1 Configure a serving gateway object. See Procedure [7-57](#).
  - 2 Configure a serving gateway pool to TAI list. See Procedure [7-53](#).
-

### Procedure 7-24 To delete SGWs

---



**Note** — This procedure requires the use of a 9471 MME CLI command. See the *Alcatel-Lucent 9471 Mobility Management Entity (MME) Command Line Interface (CLI) Reference Guide 418-111-215* for more information about using 9471 MME CLI commands.

- 1 Log in to the 9471 MME OA&M server and find the S11 link index for the SGW to be deleted by using the *link\_cli* command.
  - 2 Lock the SGW link that is targeted for deletion by using the *link\_cli* command.
  - 3 Delete the SGW pool to TAI list in the PLMN.
  - 4 Delete the SGW entry from the Serving Gateway (S11 Peer) object.
- 

### Procedure 7-25 To change the local port for an in-service SCTP profile

---

- 1 Configure a new SCTP profile that specifies the correct port. See Procedure [7-60](#).
  - 2 Update the associated interface profile. See Procedure [7-61](#).
  - 3 Delete the SCTP profile that specifies the previous port number.
    - i Perform step [1](#) of Procedure [7-42](#) in order to open the instance properties form of a 9471 MME, if required.
    - ii Expand the SCTP Profile parent object.
    - iii Right-click on a child object and choose Delete from the contextual menu. The object is deleted.
    - iv Click on the Apply button in the MME Instance (Edit) form. A dialog box appears.
    - v Click on the Yes button. The changes are saved.
  - 4 Close the MME Instance (Edit) form.
- 

### Procedure 7-26 To set up roaming PLMNs

---

- 1 Configure a roaming PLMN. See Procedure [7-43](#).
- 2 Configure the equivalent PLMN, if required. See Procedure [7-45](#).
- 3 If a restricted TAI is required, perform the following:
  - i Configure an MME-based tracking area. See Procedure [7-51](#).
  - ii Configure a UE roaming restriction. See Procedure [7-79](#).

- 4 If a restricted LAI is required, perform the following:
    - Configure a location area. See Procedure [7-55](#).
    - Add the location area to the UE roaming restriction that you created in the previous step. See Procedure [7-79](#).
  - 5 Close the MME Instance (Edit) form.
- 

### Procedure 7-27 To provision time zones

---

- 1 If an eNodeB has a different time zone than the 9471 MME, configure an MME eNodeB object. See Procedure [7-48](#).



**Note** — If an MME eNodeB object is not configured, the eNodeB is assumed to have the same time zone as the 9471 MME.

- 2 Close the MME Instance (Edit) form.
- 

### Procedure 7-28 To provision EPS Integrity/Encryption

---



**Warning** — Performing this procedure will detach all UEs, which is service-affecting.



**Note** — It is recommended that default provisioning values are used and these steps are only executed when needed.

- 1 Perform step 1 of Procedure [7-42](#) in order to open the instance properties form of a 9471 MME, if required.
- 2 Lock the 9471 MME.
  - i Click on the More Actions button and choose Lock MME. A dialog box appears.
  - ii Click on the Yes button.
  - iii Click on the MME instance parent object in the navigation tree. The MME Instance (Edit) form displays the MME instance data.
  - iv Verify that the Administrative State parameter displays Locked.
- 3 Configure the following objects, as required:
  - EPS Encryption Algorithm (EEA). See Procedure [7-72](#).
  - EPS Integrity Protection Algorithm (EIA). See Procedure [7-73](#).

- 4 Unlock the 9471 MME.
    - i Click on the More Actions button and choose Unlock MME. A dialog box appears.
    - ii Click on the Yes button.
    - iii Click on the MME instance parent object in the navigation tree. The MME Instance (Edit) form displays the MME instance data.
    - iv Verify that the Administrative State parameter displays Unlocked.
  - 5 Close the MME Instance (Edit) form.
- 

### **Procedure 7-29 To provision IMSI range**

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- 1 Perform step 1 of Procedure 7-42 in order to open the instance properties form of a 9471 MME, if required.
  - 2 Configure a remote endpoint for each HSS server. See Procedure 7-58. Specify S6a for the Interface Type parameter and at least one IP address of an HSS server.
  - 3 Configure the mapping between the IMSI range and the HSS server. See Procedure 7-56.
  - 4 Close the MME Instance (Edit) form.
- 

### **Procedure 7-30 To provision DNS support**

---

- 1 Perform step 1 of Procedure 7-42 in order to open the instance properties form of a 9471 MME, if required.
  - 2 Configure the Discover MME global parameter. See Procedure 7-75. Specify “Yes” as the parameter value.
  - 3 Close the MME Instance (Edit) form.
-

**Procedure 7-31 To provision automatic neighbor list generation**

---

- 1 Perform step 1 of Procedure 7-42 in order to open the instance properties form of a 9471 MME, if required.
- 2 Review the following global parameter values. See Procedure 7-75.
  - i Review the current global parameter values that are related to the control of the list of registered tracking areas that is sent to UE in the ATTACH ACCEPT and TAU ACCEPT messages.
  - ii Set the Include Neighbor List in TAI List global parameter according to the desired usage of the provisioned TAI neighbor list when determining the set of tracking areas where a UE is registered.



**Note 1** — The Include Neighbor List in TAI List global parameter only has an impact if the TAI Neighbor List is populated. Please note that it is generally recommended to leave the TAI Neighbor List empty.

**Note 2** — Set the Include Neighbor List in TAI List global parameter value to "Yes" in order to have the 9471 MME include provisioned TAs from the TAI Neighbor List in the list of registered tracking areas that is sent to the UE in the ATTACH ACCEPT and TAU ACCEPT messages.

**Note 3** — If the Include Neighbor List in TAI List global parameter value is set to "No", then the TAI Neighbor List will not affect the list of the registered tracking areas sent to the UE in the ATTACH ACCEPT and TAU ACCEPT messages. In this case, the TAI Neighbor List will only affect how a UE is paged if the LastSeenTAInBTai paging method is used.

- iii Set the value of the Auto Add TAI to TAI List global parameter value according to the desired usage of UE mobility history when determining the set of tracking areas where a UE is registered.



**Note 1** — Set the Auto Add TAI to TAI List global parameter value to "Off" in order to have the 9471 MME only automatically include the Last Seen Tracking Area in the registered tracking area list sent to the UE in the ATTACH ACCEPT and TAU ACCEPT messages.

**Note 2** — Set the Auto Add TAI to TAI List global parameter value to "Basic" in order to have the 9471 MME also include the last two tracking areas where the UE has been seen in the registered tracking area list, if cyclic movement between two tracking areas is observed.

**Note 3** — Set the Auto Add TAI to TAI List global parameter to "Enhanced" in order to have the MME also include the last three tracking areas where the UE has been seen in the registered tracking area list if cyclic movement between three tracking areas is observed.

- 3 Verify that the changes have been saved and close the MME Instance (Edit) form.
-



### Procedure 7-32 To transition from TCP to SCTP

---

- 1 Perform step 1 of Procedure 7-42 in order to open the instance properties form of a 9471 MME, if required.
  - 2 Configure the Diameter Connections object. See Procedure 7-63. Select an S6a type diameter connection and enable the Use SCTP parameter. When the changes are saved, the HSS automatically reconnects with the new transport if the HSS is using SCTP.
  - 3 Close the MME Instance (Edit) form.
- 

### Procedure 7-33 To provision NAS cause code

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The 9471 MME provides an option to specify what NAS cause code a UE will receive for certain types of access restriction cases. This option can be applied to all the UEs of any provisioned PLMN, including the home PLMN. See step 2.

The 9471 MME provides the option for the operator to specify what NAS Cause codes to use for errors reported by the HSS/EIR network elements. This option can be applied to all the UEs of any provisioned PLMN, including the home PLMN. See step 4.

You can use the Send NAS RAN Cause global parameter to specify whether to send NAS or RAN failure indication codes on the S11 interface to the SGW. The default value of this indicator is “No” (do not send). See step 6.

- 1 Perform step 1 of Procedure 7-42 in order to open the instance properties form of a 9471 MME, if required.
- 2 Set the Use Mapped NAS Codes global parameter value to “Yes”. See Procedure 7-75.



**Note** — UEs with PLMNs that are not listed in the MME Access Restriction object use a default value when the Use Mapped NAS Codes global parameter value is set to “yes”.

- 3 Configure the MME Access Restriction object. See Procedure 7-49.
- 4 Set the Use Mapped Diameter Codes global parameter value to “Yes”. See Procedure 7-75.



**Note** — UE with PLMNs that are not listed in the MME Diameter Cause object will use a default value when the Use Mapped Diameter Codes global parameter value is set to “Yes”.

- 5 Configure the MME Diameter Cause object. See Procedure 7-50.

- 6 Set the Send NAS RAN Cause on S11 global parameter to “Yes”. See Procedure [7-75](#).
  - 7 Close the MME Instance (Edit) form.
- 

### Procedure 7-34 To convert MME S10 connections from IPv4 to IPv6

---



**Note** — This procedure requires the use of a 9471 MME CLI command. See the *Alcatel-Lucent 9471 Mobility Management Entity (MME) Command Line Interface (CLI) Reference Guide 418-111-215* for more information about using 9471 MME CLI commands.

- 1 Perform step [1](#) of Procedure [7-42](#) in order to open the instance properties form of a 9471 MME, if required.
- 2 Determine whether the Discover MME global parameter value is set to “Yes” or “No”. See Procedure [7-75](#).
- 3 Choose one of the following:
  - a If Discover MME is set to “Yes”, go to step [4](#).
  - b If Discover MME is set to “No”, go to step [5](#).
- 4 Add an AAAA record (IPv6 address) for the target 9471 MME and the appropriate NAPTR records for TAI and GUTI query to the DNS.
- 5 Delete all entries that reference the MME group of the 9471 MME from the MME Group to TAI List.
  - i Expand the MME Home Public Land Mobile Network object to display the child object.
  - ii Right-click on the child object and choose Properties from the contextual menu. The Public Land Mobile Network (PLMN) (Edit) form opens with the General tab displayed.
  - iii Expand the MME Group to TAI List object to display the child objects.
  - iv Select one or more child objects that reference the required MME group. Multiple select by using the SHIFT and CTRL keys is possible.
  - v Right-click on the child object(s) and choose Delete from the contextual menu. The objects are deleted.
  - vi Click on the OK button in the Public Land Mobile Network (PLMN) (Edit) form. The form closes.
  - vii Click on the Apply button in the MME Instance (Edit) form. A dialog box appears.
  - viii Click on the Yes button. The changes are saved.
- 6 Verify the S10 link status by using the *link\_cli* command and view the MME S10 link status in the fs.log file.

- 7 Lock the S10 link by using the *link\_cli* command, if the link is not currently locked.
  - 8 Delete the IPv4 version of the MME Node object:
    - i Expand the MME Home Public Land Mobile Network object to display the child object.
    - ii Right-click on the child object and choose Properties from the contextual menu. The Public Land Mobile Network (PLMN) (Edit) form opens with the General tab displayed.
    - iii Expand the Home MME Node object to display the child object.
    - iv Right-click on the child object and choose Delete from the contextual menu. The object is deleted.
  - 9 Add the IPv6 version of the MME Node object.
    - i Right-click on the Home MME Node object and choose Create MME Node from the contextual menu. The MME Node (Create) form opens.
    - ii Configure the parameters:
      - Local Name
      - MME Code
      - Relative Capacity
      - Auto adjusts Relative Capacity
      - Home MME
      - S10 IP
    - iii Click on the OK button. The MME Node (Create) form closes.
    - iv Click on the OK button in the Public Land Mobile Network (PLMN) (Edit) form. The form closes.
    - v Click on the Apply button in the MME Instance (Edit) form. A dialog box appears.
    - vi Click on the Yes button. The changes are saved.
  - 10 Verify the S10 link status by using the *link\_cli* command. When the heartbeat exchange starts, the link status will be unlocked and enabled.
  - 11 Add mapping entries that reference the MME group of the 9471 MME by configuring MME Group to TAI List objects. See Procedure [7-52](#).
  - 12 Close the MME Instance (Edit) form.
-

**Procedure 7-35 To convert SGW S11 connections from IPv4 to IPv6**

---



**Note** — This procedure requires the use of a 9471 MME CLI command. See the *Alcatel-Lucent 9471 Mobility Management Entity (MME) Command Line Interface (CLI) Reference Guide 418-111-215* for more information about using 9471 MME CLI commands.

- 1 Perform step 1 of Procedure 7-42 in order to open the instance properties form of a 9471 MME, if required.
  - 2 Determine whether the Discover SGW global parameter value is set to “Yes” or “No”. See Procedure 7-75.
  - 3 Choose one of the following:
    - a If Discover SGW is set to “Yes”, go to step 4.
    - b If Discover SGW is set to “No”, go to step 5.
  - 4 Add an AAAA record (IPv6 address) for the target SGW to the DNS.
  - 5 Verify the S11 link status by using the *link\_cli* command and view the SGW S11 link status in the fs.log file.
  - 6 Lock the S11 link by using the *link\_cli* command, if the link is not currently locked.
  - 7 Delete Serving Gateway (S11 Peer) child objects that reference the IPv4 address.
    - i Expand the Serving Gateway (S11 Peer) parent object to display the child objects.
    - ii Select one or more child objects that reference the IPv4 address. Multiple select by using the SHIFT and CTRL keys is possible.
    - iii Right-click on a selected object and choose Delete from the contextual menu. The objects are deleted.
  - 8 Add new Serving Gateway (S11 Peer) objects that reference the IPv6 address, as required. See Procedure 7-57.
  - 9 Verify S11 link status by using the *link\_cli* command.
  - 10 Close the MME Instance (Edit) form.
-

### Procedure 7-36 To convert HSS (S6a) IPv4 connections to IPv6



**Note** — This procedure requires the use of a 9471 MME CLI command. See the *Alcatel-Lucent 9471 Mobility Management Entity (MME) Command Line Interface (CLI) Reference Guide 418-111-215* for more information about using 9471 MME CLI commands.

- 1 Perform step 1 of Procedure 7-42 in order to open the instance properties form of a 9471 MME, if required.
- 2 Determine the number of S6a links that are provisioned for IPv4.
  - i Expand the Remote Endpoint parent object to display the child objects.
  - ii Make a note of all S6a remote endpoint objects.
  - iii Prepare a conversion table for includes a list of current IPv4 S6a addresses, and the corresponding IPv6 addresses for each link to be converted.
- 3 Configure IPv6 remote endpoint objects, as required. See Procedure 7-58. Specify the following:
  - set the Interface Type parameter to S6a
  - set the Address 1 parameter to the IPv6 address for the corresponding HSS
  - set the Port parameter 3868
- 4 Update the diameter connection with the IPv6 remote endpoints. See Procedure 7-63.



**Warning** — New calls cannot be processed for each HSS while the address is being updated, which is service-affecting.

- 5 Update the IMSI to HSS Routing object with the IPv6 remote endpoints. See Procedure 7-56.
- 6 Update VPLMN HSS IP addresses in the roaming PLMNs, as required.
  - i In the MME Instance (Edit) form, expand the MME Roaming Public Land Mobile Network object to display the child objects.
  - ii Right-click on a roaming PLMN object and choose Properties from the contextual menu. The Public Land Mobile Network (PLMN) (Edit) form opens with the General tab displayed.
  - iii Click on the Roaming tab button.
  - iv Click on a Clear button in the VPLMN HSS IP Address panel for the remote endpoint to be replaced.
  - v Click on a Select button for the remote endpoint to be replaced. The Select Remote Endpoint IP 1 - Public Land Mobile Network (PLMN) list form opens.
  - vi Configure the filter criteria, if required, and click on the Search button. A list of remote endpoints is displayed.

- vii Select a remote endpoint from the list and click on the OK button. The list form closes and the Public Land Mobile Network (PLMN) (Edit) form is updated with the remote endpoint data.
  - viii Return to sub step [iv](#) and add a second remote endpoint, if required.
  - ix Click on the OK button. The Public Land Mobile Network (PLMN) (Edit) form closes.
- 7 Repeat step [6](#), as required, for other roaming PLMN objects.
  - 8 Click on the OK button to close the Public Land Mobile Network (PLMN) (Edit) form, if required.
  - 9 Click on the Apply button in the MME Instance (Edit) form. A dialog box appears.
  - 10 Click on the Yes button. The changes are saved.
  - 11 Verify the status of new IPv6 S6a links by using the *link\_cli* command, as required.
  - 12 Delete the IPv4 remote endpoint objects.
    - i In the MME Instance (Edit) form, expand the Remote Endpoint object to display the child objects.
    - ii Select one or more remote endpoint to be deleted. Multiple select by using the SHIFT and CTRL keys is possible.
  - 13 Click on the Apply button in the MME Instance (Edit) form. A dialog box appears.
  - 14 Click on the Yes button. The changes are saved.
  - 15 Close the MME Instance (Edit) form.
- 

### Procedure 7-37 To convert IPv4 S1MME connections to IPv6

---

You must configure local IPv6 S1MME addresses.



**Note 1** — No changes are required for the SCTP Profile and Interface Profile objects.

**Note 2** — This procedure assumes that the eNodeB PLMN and TAs remain the same. Therefore, no changes are required for the MME Group to TAI List and/or SGW Pool to TAI List objects.

**Note 3** — This procedure requires the use of a 9471 MME CLI command. See the *Alcatel-Lucent 9471 Mobility Management Entity (MME) Command Line Interface (CLI) Reference Guide 418-111-215* for more information about using 9471 MME CLI commands.

- 1 Verify the eNodeB S1MME link status in the fs.log file and identify the S1MME link number of the target eNodeB.
- 2 Verify the S1MME link status by using the *link\_cli* command.

- 3 Lock the target S1MME link by using the *link\_cli* command, if required.
- 4 Perform the eNodeB IPv4 to IPv6 migration procedure. See the following for more information:
  - *5620 SAM LTE RAN User Guide*
  - *Alcatel-Lucent 9400 | Release LAx.x-TLax.x Migration to IPv6 (Telecom and OAM) Procedure 418-000-052*
  - other associated eNodeB documentation

When the IPv6-based eNodeB brings up an SCTP socket and performs the S1 setup procedure, a new S1MME link is created.



**Note** — The IPv6 eNodeB S1MME link is assigned a link number that is different from the IPv4 link number.

- 5 Verify the S1MME link status by using the *link\_cli* command.
  - 6 Unlock the IPv4 S1MME link by using the *link\_cli* command. The link is automatically deleted after the provisioned TdynMO time period expires.
- 

### Procedure 7-38 To convert EIR IPv4 connections to IPv6

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**Note** — This procedure requires the use of a 9471 MME CLI command. See the *Alcatel-Lucent 9471 Mobility Management Entity (MME) Command Line Interface (CLI) Reference Guide 418-111-215* for more information about using 9471 MME CLI commands.

- 1 Perform step 1 of Procedure 7-42 in order to open the instance properties form of a 9471 MME, if required.
- 2 Determine the number of S13 links that are provisioned for IPv4.
  - i Expand the Remote Endpoint parent object to display the child objects.
  - ii Make a note of all S13 remote endpoint objects.
  - iii Prepare a conversion table for includes a list of current IPv4 S13 addresses, and the corresponding IPv6 addresses for each link to be converted.
- 3 Configure remote endpoint objects. See Procedure 7-58. Specify the following:
  - set the Interface Type parameter to S13
  - set the Address 1 parameter to the IPv6 address for the corresponding HSS
  - set the Address 2 parameter for SCTP multi-homing only
  - set the Port parameter 3868

- 4 Update the diameter connection with the IPv6 remote endpoints. See Procedure 7-63.



**Warning** — New calls cannot be processed for each HSS while the address is being updated, which is service-affecting.

- 5 Verify the status of the IPv6 S13 links by using the *link\_cli* command.
  - 6 Delete the IPv4 remote endpoint objects.
    - i In the MME Instance (Edit) form, expand the Remote Endpoint object to display the child objects.
    - ii Select one or more remote endpoint to be deleted. Multiple select by using the SHIFT and CTRL keys is possible.
  - 7 Click on the Apply button in the MME Instance (Edit) form. A dialog box appears.
  - 8 Click on the Yes button. The changes are saved.
  - 9 Close the MME Instance (Edit) form.
- 

### Procedure 7-39 To provision circuit switch fallback (CSFB) enhancements

---

- 1 Perform step 1 of Procedure 7-42 in order to open the instance properties form of a 9471 MME, if required.
- 2 Configure PLMN parameters for CSFB:
  - i Expand a MME Home/Roaming Public Land Mobile Network parent object to display the child objects.
  - ii Right-click on a child object and choose Properties from the contextual menu. The Public Land Mobile Network (PLMN) (Edit) form opens with the General tab displayed.
  - iii Right-click on a child object and choose Properties from the contextual menu. The Public Land Mobile Network (PLMN) (Edit) form opens with the General tab displayed.



- iv Configure the CS Capability Supported parameter by specifying one of the following values:
    - SGS\_None (specifies no CSFB or SMS support)
    - SMS\_Only (specifies no CSFB support, only SMS support)
    - CSFB\_2G3G (specifies CSFB support for voice and SMS)
    - CSFB\_Not\_Preferred (specifies CSFB support for voice and SMS, although voice is not preferred—if UE has IMS PS Voice available, it will be used)
  - v Configure the following RFSP parameters:
    - CS RFSP
    - CS Preferred RFSP
    - IMS RFSP
    - IMS Preferred RFSP
- 3 Configure TAI parameters for CSFB:
- i In the Public Land Mobile Network (PLMN) (Edit) form, expand the Tracking Area object to display the child objects.
  - ii Right-click on a child object and choose Properties from the contextual menu. The MME Based Tracking Area (Edit) form opens with the General tab displayed.
  - iii Enable the IMS Supported parameter.
  - iv Click on the OK button. The MME Based Tracking Area (Edit) form closes.
- 4 Configure LAI parameters for CSFB:
- i In the Public Land Mobile Network (PLMN) (Edit) form, expand the Location Area object to display the child objects.
  - ii Right-click on a child object and choose Properties from the contextual menu. The Location Area Code (Edit) form opens with the General tab displayed.
  - iii Enable the Is CSFB Supported? parameter.
  - iv Click on the OK button. The Location Area Code (Edit) form closes.
- 5 Click on the OK button in the Public Land Mobile Network (PLMN) (Edit) form. The form closes.
- 6 Configure paging policies for CSFB. See Procedure [7-64](#). Specify policies for up to 4 attempts for UE paging triggered by SGS CS and SGS PG Paging.
- 7 Click on the Apply button in the MME Instance (Edit) form. A dialog box appears.
- 8 Click on the Yes button. The changes are saved.
- 9 Close the MME Instance (Edit) form.
-

### **Procedure 7-40 To provision support for IMS emergency services**

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- 1 Configure an emergency number list. See Procedure [7-67](#).
  - 2 Configure an emergency profile. See Procedure [7-68](#).
  - 3 Specify timer values. See Procedure [7-76](#). Specify a timer value for the Emergency Mobile Reachable object.
  - 4 Activate IMS emergency services in the PLMN:
    - i Expand a MME Home/Roaming Public Land Mobile Network parent object to display the child objects.
    - ii Right-click on a child object and choose Properties from the contextual menu. The Public Land Mobile Network (PLMN) (Edit) form opens with the General tab displayed.
    - iii Click on the Select button for the Emergency Profile ID parameter. The Select Emergency Profile - Public Land Mobile Network (PLMN) list form opens.
    - iv Configure the filter criteria, if required, and click on the Search button. A list of emergency profiles is displayed.
    - v Select an emergency profile from the list and click on the OK button. The list form closes and the Public Land Mobile Network (PLMN) (Edit) form is updated with the emergency profile data.
    - vi Click on the OK button. The Public Land Mobile Network (PLMN) (Edit) form closes.
  - 5 Click on the Apply button in the MME Instance (Edit) form. A dialog box appears.
  - 6 Click on the Yes button. The changes are saved.
  - 7 Close the MME Instance (Edit) form.
- 

### **Procedure 7-41 To provision SMS-only over SGs interface**

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- 1 Perform step 1 of Procedure [7-42](#) in order to open the instance properties form of a 9471 MME, if required.
- 2 Configure PLMN parameters for CSFB:
  - i Expand a MME Home/Roaming Public Land Mobile Network parent object to display the child objects.
  - ii Right-click on a child object and choose Properties from the contextual menu. The Public Land Mobile Network (PLMN) (Edit) form opens with the General tab displayed.

- iii Right-click on a child object and choose Properties from the contextual menu. The Public Land Mobile Network (PLMN) (Edit) form opens with the General tab displayed.
  - iv Configure the CS Capability Supported parameter by specifying one of the following values:
    - SGS\_None (specifies no CSFB or SMS support)
    - SMS\_Only (specifies no CSFB support, only SMS support)
    - CSFB\_2G3G (specifies CSFB support for voice and SMS)
    - CSFB\_Not\_Preferred (specifies CSFB support for voice and SMS, although voice is not preferred—if UE has IMS PS Voice available, it will be used)
- 3 Specify SMS-only LAI data, if required:



**Note** — This step is only required if a TAI to LAI mapping is not being used.

- i Click on the Select button in the SMS Only Pointer panel. The Select SMS Only Pointer - Public Land Mobile Network (PLMN) list form opens.
  - ii Configure the filter criteria, if required, and click on the Search button. A list of location areas is displayed.
  - iii Select a location area from the list and click on the OK button. The Public Land Mobile Network (PLMN) (Edit) form is updated with the location area data.
  - iv Click on the Properties button in the SMS Only Pointer panel. The Location Area Code (Edit) form opens with the General tab displayed.
  - v Configure the Is CSFB Supported? parameter.
  - vi Click on the Apply button in the Location Area Code (Edit) form. A dialog box appears.
  - vii Click on the Yes button. The changes are saved.
- 4 Configure an MSC server object. See Procedure [7-70](#).
- 5 Configure a remote endpoint for the SGs interface. See Procedure [7-58](#).
- 6 Specify paging policy entries for SGS\_CS and SGS\_PS. See Procedure [7-64](#).
- 7 Click on the Apply button in the MME Instance (Edit) form. A dialog box appears.
- 8 Click on the Yes button. The changes are saved.
- 9 Close the MME Instance (Edit) form.
-

## 7.6 Object configuration procedures

This section describes general procedures for configuring the 9471 MME instance, objects, child objects, and parameters. The procedures in this section are organized according to the object hierarchy of the 9471 MME instance navigation tree.

### Procedure 7-42 To open and configure a 9471 MME instance and associated objects

---

This is a generic procedure that describes the steps that are required to do the following tasks:

- select and open the properties form of a 9471 MME instance (step 1)
- access objects, child objects, and parameters (step 2)
- create objects (step 3)
- save the changes and close the form (step 4)

See Figure 7-1 for a view of the 9471 MME instance form.

- 1 Choose one of the following:
  - a Select a 9471 MME instance from a filtered list.
    - i Choose Manage→Mobile Core→MME Instances from the 5620 SAM main menu. The MME Instances list form opens.
    - ii Configure the filter criteria, if required, and click on the Search button. A list of 9471 MME instances is displayed.
    - iii Select a 9471 MME instance from the list and click on the Properties button. The MME Instance (Edit) form opens with the General tab displayed.
    - iv Go to step 2.
  - b Select a 9471 MME instance from the Equipment view of the navigation tree.
    - i Choose Equipment from the view selector in the navigation tree. The navigation tree displays the Equipment view.
    - ii Right-click on a 9471 MME in the Equipment view and choose Properties from the contextual menu. The Network Element (Edit) form opens with the General tab displayed.
    - iii In the MME Service Dashboard panel, select the MME Instance object and click on the Properties button. The MME Instance (Edit) form opens with the General tab displayed.
    - iv Go to step 2.

- 2 To access the properties forms of objects and child objects:
  - i Expand objects in the MME Instance (Edit) form navigation tree, as required.
  - ii Click on a parent or child object. The MME Instance (Edit) form is populated with the properties data of the object.



**Note** — To open a separate properties form for an object, right-click on the object and choose Properties from the contextual menu.

- 3 To create an object:
  - i Right-click on a parent object and choose Create from the contextual menu. The *object\_type* (Create) form opens.



**Note** — Not all objects support the manual creation of child objects. Some objects, such as Global Parameters and Timer, have a default set of child objects that cannot be deleted. These default objects contain parameters that you can configure.

- ii Configure parameters, as required.
  - iii Click on the OK button. The form closes.
  - iv Go to step 4. The new object is not saved or deployed to the 9471 MME until you apply the changes in the MME Instance (Edit) form.
- 4 To apply the changes to the MME Instance and finalize object creation/modification:
  - i Click on the Apply button in the MME Instance (Edit) form. A dialog box appears.
  - ii Click on the Yes button. The changes are saved.



**Note** — The 5620 SAM displays the Problems Encountered window in the case of a deployment failure or validation error. You can select the problem and click on the Properties button to display detailed information about the deployment failure.

- 5 Close the MME Instance (Edit) form.
-

**Procedure 7-43 To configure a PLMN (home or roaming)**

---

- 1 Perform step 1 of Procedure 7-42 in order to open the instance properties form of a 9471 MME, if required.
- 2 Choose one of the following:
  - a Configure the home PLMN.
    - i In the object navigation tree, right-click on the MME Home Public Land Mobile Network object and choose Create Public Mobile Land Network (PLMN) from the contextual menu. The Public Land Mobile Network (PLMN) (Create) form opens with the General tab displayed.
    - ii Go to step 3.
  - b Configure a roaming PLMN.
    - i In the object navigation tree, right-click on the MME Roaming Public Land Mobile Network object and choose Create Public Mobile Land Network (PLMN) from the contextual menu. The Public Land Mobile Network (PLMN) (Create) form opens with the General tab displayed.
    - ii Go to step 3.
- 3 Configure the basic PLMN parameters.
  - i Click on the Select button in the Mobile Node Region (PLMN) Information panel. The Select Mobile Node Region (PLMN) Information - Public Land Mobile Network (PLMN) form opens.
  - ii Configure the filter criteria, if required, and click on the Search button. A list of mobile node regions is displayed.



**Note** — You can create a new mobile node region by clicking on the Create button. See Procedure 9-1 for more information.

- iii Select a mobile node region from the list and click on the OK button. The form closes and the Public Land Mobile Network (PLMN) (Create) form is updated with the mobile node region data.

- iv Configure the following parameters:



**Note 1** — The Home PLMN parameter specifies whether the PLMN is home or roaming.

**Note 2** — Perform Procedure 7-41 to configure SMS-only.

**Note 3** — Perform Procedure 7-40 to configure IMS emergency support.

- |                        |                           |
|------------------------|---------------------------|
| • Home PLMN            | • IMS RFSP                |
| • Number of MNC Digits | • IMS Preferred RFSP      |
| • ISDN Country Code    | • Inter-Gateway Protocol  |
| • Obtain IMEISV        | • Initiate LCS Emergency  |
| • MBMS Enabled         | • CS Capability Supported |
| • CS RFSP              | • NRI Length              |
| • CS Preferred RFSP    |                           |

- v If you enabled the Home PLMN parameter in sub step iv, go to step 5. If you disabled the Home PLMN parameter (specifying the PLMN as a roaming PLMN), go to step 4.

- 4 Configure roaming PLMN parameters and HSS remote endpoints, if applicable.

- i Click on the Roaming tab button.

- ii Configure the parameters:

- Honor VPLMN Requests
- RFSP Index
- Network Access Mode

- iii Configure the parameters in the Operator Determined Barring Supported panel:

- All APN
- VPLMN APN
- HPLMN APN

- iv Configure the parameters in the Access Not Allowed panel:

- GERAN
- UTRAN
- CDMA2000
- EUTRAN

- v Configure the parameters in the UE Roaming Allowed panel:

- IMS Voice Over PS
- CSFB DTR

- vi Click on the Select button in the Remote Endpoint IP 1 sub panel of the VPLMN HSS IP Address panel. The Select Remote Endpoint IP 1 - Public Land Mobile Network (PLMN) form opens.

- vii Configure the filter criteria, if required, and click on the Search button. A list of remote endpoints is displayed.



**Note** — If there are no endpoints in the Select Remote Endpoint IP 1 list, then create a remote endpoint by performing Procedure 7-58.

- viii Select a remote endpoint from the list and click on the OK button. The form closes and the Public Land Mobile Network (PLMN) (Create) form is updated with the remote endpoint data.
  - ix Click on the Select button in the Remote Endpoint IP 2 sub panel of the VPLMN HSS IP Address panel. The Select Remote Endpoint IP 2 - Public Land Mobile Network (PLMN) form opens.
  - x Configure the filter criteria, if required, and click on the Search button. A list of remote endpoints is displayed.
  - xi Select a remote endpoint from the list and click on the OK button. The form closes and the Public Land Mobile Network (PLMN) (Create) form is updated with the remote endpoint data.
- 5 Click on the OK button. The Public Land Mobile Network (PLMN) (Create) form closes.
  - 6 Click on the Apply button in the MME Instance (Edit) form. A dialog box appears.
  - 7 Click on the Yes button. The changes are saved.
  - 8 Close the MME Instance (Edit) form, if required.
- 

#### Procedure 7-44 To configure PLMN security

---

- 1 Perform step 1 of Procedure 7-42 in order to open the instance properties form of a 9471 MME, if required.
- 2 Perform one of the following.
  - a To configure security on the home PLMN, expand the MME Home Public Land Mobile Network parent object. Right-click on a child object and choose Properties from the contextual menu. The Public Land Mobile Network (PLMN) (Edit) form opens.
  - b To configure security on a roaming PLMN, expand the MME Roaming Public Land Mobile Network parent object. Right-click on a child object and choose Properties from the contextual menu. The Public Land Mobile Network (PLMN) (Edit) form opens with the General tab displayed.



- 3 Expand the PLMN Security object in the Public Land Mobile Network (PLMN) navigation tree. A list of MMA procedures is displayed:
    - SubAttach
    - TAUpdate
    - ServiceReq
    - UEInitDetach
    - UEInitExtSrvReq
    - IRATTAUpdate
  - 4 Right-click on an entry and choose Properties from the contextual menu. The PLMN Security - ProcedureName (Edit) form opens.
  - 5 Configure the parameters:
    - Authentication Interaction (%)
    - GUTI Reallocation (%)
  - 6 Click on the OK button. The PLMN Security - ProcedureName (Edit) form closes.
  - 7 Click on the OK button. The Public Land Mobile Network (PLMN) (Edit) form closes.
  - 8 Click on the Apply button in the MME Instance (Edit) form. A dialog box appears.
  - 9 Click on the Yes button. The changes are saved.
  - 10 Close the MME Instance (Edit) form.
- 

### **Procedure 7-45 To provision an equivalent PLMN**

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Perform the following procedure to provision an equivalent PLMN. An equivalent PLMN is a network that is owned by the home network that contains this 9471 MME. You must provision the equivalent PLMN at initial installation.

- 1 Perform step 1 of Procedure 7-42 in order to open the instance properties form of a 9471 MME, if required.
- 2 Perform one of the following.
  - a To provision an equivalent PLMN on the home PLMN, expand the MME Home Public Land Mobile Network parent object. Right-click on a child object and choose Properties from the contextual menu. The Public Land Mobile Network (PLMN) (Edit) form opens.
  - b To provision an equivalent PLMN on a roaming PLMN, expand the MME Roaming Public Land Mobile Network parent object. Right-click on a child object and choose Properties from the contextual menu. The Public Land Mobile Network (PLMN) (Edit) form opens with the General tab displayed.
- 3 Right-click on the Equivalent PLMN object in the Public Land Mobile Network (PLMN) navigation tree and choose Create Equivalent PLMN from the contextual menu. The Equivalent PLMN (Create) form opens.
- 4 Click on the Select button for the Mobile Country Code parameter. The Select Mobile Node Region (PLMN) Information - Equivalent PLMN form opens.

- 5 Configure the filter criteria, if required, and click on the Search button. A list of mobile node regions is displayed.
  - 6 Select a mobile node region from the list and click on the OK button. The Select Mobile Node Region (PLMN) Information - Equivalent PLMN form closes and the Equivalent PLMN (Create) form is updated with the mobile node region data.
  - 7 Click on the OK button. The Equivalent PLMN (Create) form closes.
  - 8 Click on the OK button. Public Land Mobile Network (PLMN) (Edit) form closes.
  - 9 Click on the Apply button in the MME Instance (Edit) form. A dialog box appears.
  - 10 Click on the Yes button. The changes are saved.
  - 11 Close the MME Instance (Edit) form.
- 

#### **Procedure 7-46 To provision a home MME node**

---

- 1 Perform step 1 of Procedure 7-42 in order to open the instance properties form of a 9471 MME, if required.
- 2 Expand the MME Home Public Land Mobile Network parent object. Right-click on the child object and choose Properties from the contextual menu. The Public Land Mobile Network (PLMN) (Edit) form opens.
- 3 Right-click on the Home MME Node object and choose Create MME Node from the contextual menu. The MME Node (Create) form opens.
- 4 Configure the parameters:
  - Local Name
  - MME CODE
  - Relative Capacity
  - Auto adjusts Relative Capacity
  - Home MME
  - S10 IP
- 5 Click on the Select button for the Pool ID parameter. The Select Pool Information - MME Node form opens.

- 6 Perform one of the following.
    - a Select an existing MME pool.
      - i Configure the filter criteria, if required, and click on the Search button. A list of MME pools is displayed.
      - ii Select an MME pool from the list and click on the OK button. The Select Pool Information - MME Node form closes and the MME Node (Create) form is updated with the MME pool information.
    - b Create an MME pool.
      - i Click on the Create button. The MME Pool (Create) form opens with the General tab displayed.
      - ii Configure the parameters:
        - Pool Name
        - Pool ID
        - Description
      - iii Click on the Select button for the Mobile Country Code parameter. The Select Mobile Node Region (PLMN) Information - MME Pool form opens.
      - iv Configure the filter criteria, if required, and click on the Search button. A list of mobile node regions is displayed.
      - v Select a mobile node region from the list and click on the OK button. The Select Mobile Node Region (PLMN) Information - MME Pool form closes and the MME Pool (Create) form is updated with the mobile node region information.
      - vi Click on the OK button to save the configuration and close the MME Pool (Create) form.
      - vii Select the MME pool that you created from the list and click on the OK button. The Select Pool Information - MME Node form closes and the MME Node (Create) form is updated with the MME pool information.
  - 7 Click on the OK button. The MME Node (Create) form closes.
  - 8 Click on the OK button. The Public Land Mobile Network (PLMN) (Edit) form closes.
  - 9 Click on the Apply button in the MME Instance (Edit) form. A dialog box appears.
  - 10 Click on the Yes button. The changes are saved.
  - 11 Close the MME Instance (Edit) form.
-

**Procedure 7-47 To provision an MME node (S10 peer)**

---

- 1 Perform step 1 of Procedure 7-42 in order to open the instance properties form of a 9471 MME, if required.
- 2 Perform one of the following.
  - a To provision an MME node on the home PLMN, expand the MME Home Public Land Mobile Network parent object. Right-click on a child object and choose Properties from the contextual menu. The Public Land Mobile Network (PLMN) (Edit) form opens.
  - b To provision an MME node on a roaming PLMN, expand the MME Roaming Public Land Mobile Network parent object. Right-click on a child object and choose Properties from the contextual menu. The Public Land Mobile Network (PLMN) (Edit) form opens with the General tab displayed.
- 3 Right-click on the S10 Peer object in the Public Land Mobile Network (PLMN) navigation tree and choose Create MME Node from the contextual menu. The MME Node (Create) form opens.
- 4 Configure the parameters:
  - Local Name
  - MME CODE
  - Relative Capacity
  - Auto adjusts Relative Capacity
  - Home MME
  - S10 IP
- 5 Click on the Select button for the Pool ID parameter. The Select Pool Information - MME Node form opens.
- 6 Perform one of the following.
  - a Select an existing MME pool.
    - i Configure the filter criteria, if required, and click on the Search button. A list of MME pools is displayed.
    - ii Select an MME pool from the list and click on the OK button. The Select Pool Information - MME Node form closes and the MME Node (Create) form is updated with the MME pool information.
  - b Create an MME pool.
    - i Click on the Create button. The MME Pool (Create) form opens with the General tab displayed.
    - ii Configure the parameters:
      - Pool Name
      - Pool ID
      - Description
    - iii Click on the Select button for the Mobile Country Code parameter. The Select Mobile Node Region (PLMN) Information - MME Pool form opens.
    - iv Configure the filter criteria, if required, and click on the Search button. A list of mobile node regions is displayed.

- v Select a mobile node region from the list and click on the OK button. The Select Mobile Node Region (PLMN) Information - MME Pool form closes and the MME Pool (Create) form is updated with the mobile node region information.
  - vi Click on the OK button to save the configuration and close the MME Pool (Create) form.
  - vii Select the MME pool that you created from the list and click on the OK button. The Select Pool Information - MME Node form closes and the MME Node (Create) form is updated with the MME pool information.
- 7 Click on the OK button. The MME Node (Create) form closes.
  - 8 Click on the OK button. The Public Land Mobile Network (PLMN) (Edit) form closes.
  - 9 Click on the Apply button in the MME Instance (Edit) form. A dialog box appears.
  - 10 Click on the Yes button. The changes are saved.
  - 11 Close the MME Instance (Edit) form.
- 

#### **Procedure 7-48 To configure an MME eNodeB (time zone)**

---

- 1 Perform step 1 of Procedure 7-42 in order to open the instance properties form of a 9471 MME, if required.
- 2 Perform one of the following.
  - a To configure the eNodeB on the home PLMN, expand the MME Home Public Land Mobile Network parent object. Right-click on a child object and choose Properties from the contextual menu. The Public Land Mobile Network (PLMN) (Edit) form opens.
  - b To configure the eNodeB on a roaming PLMN, expand the MME Roaming Public Land Mobile Network parent object. Right-click on a child object and choose Properties from the contextual menu. The Public Land Mobile Network (PLMN) (Edit) form opens with the General tab displayed.
- 3 Right-click on the MME eNodeB object in the Public Land Mobile Network (PLMN) navigation tree and choose Create eNodeB from the contextual menu. The eNodeB (Create) form opens.
- 4 Click on the Select button for the Mobile Country Code parameter. The Select Mobile Node Region (PLMN) Information - eNodeB form opens.
- 5 Configure the filter criteria, if required, and click on the Search button. A list of mobile country codes is displayed.
- 6 Select an entry from the list and click on the OK button. The Select Mobile Node Region (PLMN) Information - eNodeB form closes and the eNodeB (Create) form is updated with the mobile node region information.

- 7 Configure the parameters:
    - Macro eNB ID
    - Region Name
    - Time Zone Name
  - 8 Click on the OK button. The eNodeB (Create) form closes.
  - 9 Click on the OK button. The Public Land Mobile Network (PLMN) (Edit) form closes.
  - 10 Click on the Apply button in the MME Instance (Edit) form. A dialog box appears.
  - 11 Click on the Yes button. The changes are saved.
  - 12 Close the MME Instance (Edit) form.
- 

#### **Procedure 7-49 To configure an MME access restriction to NAS cause mapping**

---

- 1 Perform step 1 of Procedure 7-42 in order to open the instance properties form of a 9471 MME, if required.
- 2 Perform one of the following.
  - a To create an access restriction to NAS cause mapping on the home PLMN, expand the MME Home Public Land Mobile Network parent object. Right-click on a child object and choose Properties from the contextual menu. The Public Land Mobile Network (PLMN) (Edit) form opens.
  - b To create an access restriction to NAS cause mapping on a roaming PLMN, expand the MME Roaming Public Land Mobile Network parent object. Right-click on a child object and choose Properties from the contextual menu. The Public Land Mobile Network (PLMN) (Edit) form opens with the General tab displayed.
- 3 Right-click on the MME Access Restriction object in the Public Land Mobile Network (PLMN) navigation tree and choose Create Access Restriction To NAS Cause Mapping from the contextual menu. The Access Restriction To NAS Cause Mapping (Create) form opens.
- 4 Click on the Select button for the Mobile Country Code parameter. The Select Mobile Node Region (PLMN) Information - Access Restriction to NAS Cause Mapping form opens.
- 5 Configure the filter criteria, if required, and click on the Search button. A list of mobile country codes is displayed.
- 6 Select an entry from the list and click on the OK button. The Select Mobile Node Region (PLMN) Information - Access Restriction to NAS Cause Mapping form closes and the Access Restriction To NAS Cause Mapping (Create) form is updated with the mobile node region information.

- 7 Configure the parameters:
    - Access Restriction Cause
    - NAS Cause
  - 8 Click on the OK button. The Access Restriction To NAS Cause Mapping (Create) form closes.
  - 9 Click on the OK button. The Public Land Mobile Network (PLMN) (Edit) form closes.
  - 10 Click on the Apply button in the MME Instance (Edit) form. A dialog box appears.
  - 11 Click on the Yes button. The changes are saved.
  - 12 Close the MME Instance (Edit) form.
- 

### **Procedure 7-50 To configure an MME diameter cause**

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- 1 Perform step 1 of Procedure 7-42 in order to open the instance properties form of a 9471 MME, if required.
- 2 Perform one of the following.
  - a To create a diameter cause to NAS cause mapping on the home PLMN, expand the MME Home Public Land Mobile Network parent object. Right-click on a child object and choose Properties from the contextual menu. The Public Land Mobile Network (PLMN) (Edit) form opens.
  - b To create a diameter cause to NAS cause mapping on a roaming PLMN, expand the MME Roaming Public Land Mobile Network parent object. Right-click on a child object and choose Properties from the contextual menu. The Public Land Mobile Network (PLMN) (Edit) form opens with the General tab displayed.
- 3 Right-click on the MME Diameter Cause object in the Public Land Mobile Network (PLMN) navigation tree and choose Create MME Diameter Cause from the contextual menu. The MME Diameter Cause (Create) form opens.
- 4 Click on the Select button for the Mobile Country Code parameter. The Select Mobile Node Region (PLMN) Information - MME Diameter Cause form opens.
- 5 Configure the filter criteria, if required, and click on the Search button. A list of mobile country codes is displayed.
- 6 Select an entry from the list and click on the OK button. The Select Mobile Node Region (PLMN) Information - MME Diameter Cause form closes and the MME Diameter Cause (Create) form is updated with the mobile node region information.
- 7 Configure the parameters:
  - Diameter Cause
  - NAS Cause

- 8 Click on the OK button. The MME Diameter Cause (Create) form closes.
  - 9 Click on the OK button. The Public Land Mobile Network (PLMN) (Edit) form closes.
  - 10 Click on the Apply button in the MME Instance (Edit) form. A dialog box appears.
  - 11 Click on the Yes button. The changes are saved.
  - 12 Close the MME Instance (Edit) form.
- 

### **Procedure 7-51 To create an MME-based tracking area**

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Perform the following procedure to provision the MME with the set of Tracking Area Identifiers (TAIs) in the overall wireless LTE network. You cannot modify a TAI after you provision it.

- 1 Perform step 1 of Procedure 7-42 in order to open the instance properties form of a 9471 MME, if required.
- 2 Perform one of the following.
  - a To create an MME-based tracking area on the home PLMN, expand the MME Home Public Land Mobile Network parent object. Right-click on a child object and choose Properties from the contextual menu. The Public Land Mobile Network (PLMN) (Edit) form opens.
  - b To create an MME-based tracking area on a roaming PLMN, expand the MME Roaming Public Land Mobile Network parent object. Right-click on a child object and choose Properties from the contextual menu. The Public Land Mobile Network (PLMN) (Edit) form opens with the General tab displayed.
- 3 Right-click on the Tracking Area object in the Public Land Mobile Network (PLMN) navigation tree and choose Create MME Based Tracking Area from the contextual menu. The MME Based Tracking Area (Create) form opens.
- 4 Replace the mobile node region, if required:
  - i Click on the Select button for the Mobile Country Code parameter. The Select Mobile Node Region (PLMN) Information - MME Based Tracking Area form opens.
  - ii Configure the filter criteria, if required, and click on the Search button. A list of mobile node regions is displayed.
  - iii Select a mobile node region from the list and click on the OK button. The Select Mobile Node Region (PLMN) Information - MME Based Tracking Area form closes and the MME Based Tracking Area (Create) form is updated with the mobile node region information.



- 5 Configure the parameters:
    - Tracking Area Code
    - Selection Algorithm
    - ESMLC Identity 1
    - ESMLC Identity 2
    - IMS Supported
  - 6 Click on the OK button. The MME Based Tracking Area (Create) form closes.
  - 7 Click on the OK button. The Public Land Mobile Network (PLMN) (Edit) form closes.
  - 8 Click on the Apply button in the MME Instance (Edit) form. A dialog box appears.
  - 9 Click on the Yes button. The changes are saved.
  - 10 Close the MME Instance (Edit) form.
- 

#### **Procedure 7-52 To create an MME group to TAI list**

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- 1 Perform step 1 of Procedure 7-42 in order to open the instance properties form of a 9471 MME, if required.
- 2 Perform one of the following.
  - a To create an MME group to TAI list on the home PLMN, expand the MME Home Public Land Mobile Network parent object. Right-click on a child object and choose Properties from the contextual menu. The Public Land Mobile Network (PLMN) (Edit) form opens.
  - b To create an MME group to TAI list on a roaming PLMN, expand the MME Roaming Public Land Mobile Network parent object. Right-click on a child object and choose Properties from the contextual menu. The Public Land Mobile Network (PLMN) (Edit) form opens with the General tab displayed.
- 3 Right-click on the MME Group to TAI List object in the Public Land Mobile Network (PLMN) navigation tree and choose Create MME Group to TAI List from the contextual menu. The MME Group to TAI List (Create) form opens.
- 4 Click on the Select button for the Pool ID parameter. The Select Pool Information - MME Group to TAI List form opens.
- 5 Configure the filter criteria, if required, and click on the Search button. A list of MME pools is displayed.
- 6 Select an MME pool from the list and click on the OK button. The Select Pool Information - MME Group to TAI List form closes and the MME Group to TAI List (Create) form is updated with the MME pool information.
- 7 Click on the Select button for the Mobile Country Code parameter. The Select Tracking Area Information - MME Group to TAI List form opens.
- 8 Configure the filter criteria, if required, and click on the Search button. A list of tracking area codes is displayed.

- 9 Select an entry from the list and click on the OK button. The Select Tracking Area Information - MME Group to TAI List form closes and the MME Group to TAI List (Create) form is updated with the tracking area information.
  - 10 Click on the OK button. The MME Group to TAI List (Create) form closes.
  - 11 Click on the OK button. The Public Land Mobile Network (PLMN) (Edit) form closes.
  - 12 Click on the Apply button in the MME Instance (Edit) form. A dialog box appears.
  - 13 Click on the Yes button. The changes are saved.
  - 14 Close the MME Instance (Edit) form.
- 

### Procedure 7-53 To configure an SGW pool to TAI list

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- 1 Perform step 1 of Procedure 7-42 in order to open the instance properties form of a 9471 MME, if required.
- 2 Choose one of the following:
  - a Configure an SGW pool to TAI list for the home PLMN.
    - i Expand the MME Home Public Land Mobile Network object to display the child object.
    - ii Right-click on the MCC: xxx, MNC: xxx object and choose Properties from the contextual menu. The Public Land Mobile Network (PLMN) (Edit) form opens.
    - iii Go to step 3.
  - b Configure an SGW pool to TAI list for a roaming PLMN.
    - i Expand the MME Roaming Public Land Mobile Network object to display the child objects.
    - ii Right-click on an MCC: xxx, MNC: xxx object and choose Properties from the contextual menu. The Public Land Mobile Network (PLMN) (Edit) form opens.
    - iii Go to step 3.
- 3 Right-click on the SGW Pool to TAI List object and choose Create Serving Gateway Pool to TAI List from the contextual menu. The Serving Gateway Pool to TAI List (Create) form opens.
- 4 Click on the Select button for the SGW Pool ID parameter. The Select Pool Information - Serving Gateway Pool to TAI List form opens.
- 5 Configure the filter criteria, if required, and click on the Search button. A list of SGW pools is displayed.

- 6 Select an SGW pool from the list and click on the OK button. The form closes and the Serving Gateway Pool to TAI List (Create) form is updated with the SGW pool data.
  - 7 Click on the Select button in the Tracking Area Information panel. The Select Tracking Area Information - Serving Gateway Pool to TAI List form opens.
  - 8 Configure the filter criteria, if required, and click on the Search button. A list of MME-based tracking areas is displayed.
  - 9 Click on the OK button. The form closes and the Serving Gateway Pool to TAI List (Create) form is updated with the MME-based tracking area data.
  - 10 Click on the OK button. The Serving Gateway Pool to TAI List (Create) form closes.
  - 11 Click on the OK button. The Public Land Mobile Network (PLMN) (Edit) form closes.
  - 12 Click on the Apply button in the MME Instance (Edit) form. A dialog box appears.
  - 13 Click on the Yes button. The changes are saved.
  - 14 Close the MME Instance (Edit) form, if required.
- 

#### **Procedure 7-54 To create a TAI neighbor list**

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It is generally recommended to leave the TAI neighbor list empty. The TAI neighbor list is used primarily to deal with special cases that may not fully addressed by the automatic neighbor list generation feature.

- 1 Perform step 1 of Procedure 7-42 in order to open the instance properties form of a 9471 MME, if required.
- 2 Perform one of the following.
  - a To create a TAI neighbor list on the home PLMN, expand the MME Home Public Land Mobile Network parent object. Right-click on a child object and choose Properties from the contextual menu. The Public Land Mobile Network (PLMN) (Edit) form opens.
  - b To create a TAI neighbor list on a roaming PLMN, expand the MME Roaming Public Land Mobile Network parent object. Right-click on a child object and choose Properties from the contextual menu. The Public Land Mobile Network (PLMN) (Edit) form opens with the General tab displayed.
- 3 Right-click on the TAI Neighbouring object in the Public Land Mobile Network (PLMN) navigation tree and choose Create TAI Neighbour List from the contextual menu. The TAI Neighbour List (Create) form opens.
- 4 Click on the Select button for the Mobile Country Code parameter in the Tracking Area 1 panel. The Select Tracking Area 1 - TAI Neighbour List form opens.
- 5 Configure the filter criteria, if required, and click on the Search button. A list of tracking area codes is displayed.

- 6 Select an entry from the list and click on the OK button. The Select Tracking Area 1 - TAI Neighbour List form closes and the TAI Neighbour List (Create) form is updated with the tracking area information.
  - 7 Click on the Select button for the Mobile Country Code parameter in the Tracking Area 2 panel. The Select Tracking Area 2 - TAI Neighbour List form opens.
  - 8 Configure the filter criteria, if required, and click on the Search button. A list of tracking area codes is displayed.
  - 9 Select an entry from the list and click on the OK button. The Select Tracking Area 2 - TAI Neighbour List form closes and the TAI Neighbour List (Create) form is updated with the tracking area information.
  - 10 Click on the OK button. The TAI Neighbour List (Create) form closes.
  - 11 Click on the OK button. The Public Land Mobile Network (PLMN) (Edit) form closes.
  - 12 Click on the Apply button in the MME Instance (Edit) form. A dialog box appears.
  - 13 Click on the Yes button. The changes are saved.
  - 14 Close the MME Instance (Edit) form.
- 

### Procedure 7-55 To provision a location area Identity

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- 1 Perform step 1 of Procedure 7-42 in order to open the instance properties form of a 9471 MME, if required.
- 2 Perform one of the following.
  - a To create a LAI on the home PLMN, expand the MME Home Public Land Mobile Network parent object. Right-click on a child object and choose Properties from the contextual menu. The Public Land Mobile Network (PLMN) (Edit) form opens.
  - b To create a LAI on a roaming PLMN, expand the MME Roaming Public Land Mobile Network parent object. Right-click on a child object and choose Properties from the contextual menu. The Public Land Mobile Network (PLMN) (Edit) form opens with the General tab displayed.
- 3 Right-click on the Location Area object in the Public Land Mobile Network (PLMN) navigation tree and choose Create Location Area Code from the contextual menu. The Location Area Code (Create) form opens.
- 4 Click on the Select button for the Mobile Country Code parameter. The Select Mobile Node Region (PLMN) Information - Location Area Code form opens.
- 5 Configure the filter criteria, if required, and click on the Search button. A list of mobile country codes is displayed.
- 6 Select an entry from the list and click on the OK button. The Select Mobile Node Region (PLMN) Information - Location Area Code form closes and the Location Area Code (Create) form is updated with the mobile node region information.

- 7 Configure the parameters:
    - Location Area Code
    - Is CSFB Supported?
  - 8 Click on the OK button. The Location Area Code (Create) form closes.
  - 9 Click on the OK button. The Public Land Mobile Network (PLMN) (Edit) form closes.
  - 10 Click on the Apply button in the MME Instance (Edit) form. A dialog box appears.
  - 11 Click on the Yes button. The changes are saved.
  - 12 Close the MME Instance (Edit) form.
- 

### **Procedure 7-56 To configure an MME IMSI to HSS mapping**

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- 1 Perform step 1 of Procedure 7-42 in order to open the instance properties form of a 9471 MME, if required.
- 2 Perform one of the following.
  - a To create an IMSI to HSS mapping on the home PLMN, expand the MME Home Public Land Mobile Network parent object. Right-click on a child object and choose Properties from the contextual menu. The Public Land Mobile Network (PLMN) (Edit) form opens.
  - b To create an IMSI to HSS mapping on a roaming PLMN, expand the MME Roaming Public Land Mobile Network parent object. Right-click on a child object and choose Properties from the contextual menu. The Public Land Mobile Network (PLMN) (Edit) form opens with the General tab displayed.
- 3 Right-click on the MME IMSI to HSS Mapping object in the Public Land Mobile Network (PLMN) navigation tree and choose Create MME IMSI to HSS Routing from the contextual menu. The IMSI to HSS Routing (Create) form opens.
- 4 Click on the Select button for the Mobile Country Code parameter. The Select Mobile Node Region (PLMN) Information - IMSI to HSS Routing form opens.
- 5 Configure the filter criteria, if required, and click on the Search button. A list of mobile country codes is displayed.
- 6 Select an entry from the list and click on the OK button. The Select Mobile Node Region (PLMN) Information - IMSI to HSS Routing form closes and the IMSI to HSS Routing (Create) form is updated with the mobile node region information.
- 7 Configure the parameters:
  - Mapping Type
  - Minimum MSIN
  - Maximum MSIN
- 8 Click on the Select button for the Endpoint ID parameter in the Remote Endpoint IP 1 panel. The Select Remote Endpoint IP 1 - IMSI to HSS Routing form opens.

- 9 Configure the filter criteria, if required, and click on the Search button. A list of remote endpoints is displayed.
  - 10 Select an entry from the list and click on the OK button. The Select Remote Endpoint IP 1 - IMSI to HSS Routing form closes and the IMSI to HSS Routing (Create) form is updated with the remote endpoint.
  - 11 Click on the Select button for the Endpoint ID parameter in the Remote Endpoint IP 2 panel. The Select Remote Endpoint IP 2 - IMSI to HSS Routing form opens.
  - 12 Configure the filter criteria, if required, and click on the Search button. A list of remote endpoints is displayed.
  - 13 Select an entry from the list and click on the OK button. The Select Remote Endpoint IP 2 - IMSI to HSS Routing form closes and the IMSI to HSS Routing (Create) form is updated with the remote endpoint.
  - 14 Click on the OK button. The IMSI to HSS Routing (Create) form closes.
  - 15 Click on the OK button. The Public Land Mobile Network (PLMN) (Edit) form closes.
  - 16 Click on the Apply button in the MME Instance (Edit) form. A dialog box appears.
  - 17 Click on the Yes button. The changes are saved.
  - 18 Close the MME Instance (Edit) form.
- 

#### **Procedure 7-57 To configure a serving gateway (S11 peer)**

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- 1 Perform step 1 of Procedure 7-42 in order to open the instance properties form of a 9471 MME, if required.
- 2 Right-click on the Serving Gateway (S11 Peer) object and choose Create Serving Gateway from the contextual menu. The Serving Gateway (Create) form opens.
- 3 Configure the parameters:
  - SGW Name
  - S11 IP
  - Inter-Gateway Protocol
- 4 Click on the Select button for the Pool ID parameter. The Select Pool Information - Serving Gateway list form opens.
- 5 Configure the filter criteria, if required, and click on the Search button. A list of SGW pools is displayed.
- 6 Select an SGW pool from the list and click on the OK button. The form closes and the Serving Gateway (Create) form is updated with the SGW pool data.
- 7 Click on the OK button. The form closes.
- 8 Click on the Apply button in the MME Instance (Edit) form. A dialog box appears.

- 9 Click on the Yes button. The changes are saved.
  - 10 Close the MME Instance (Edit) form, if required.
- 

### Procedure 7-58 To configure a remote endpoint

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- 1 Perform step 1 of Procedure 7-42 in order to open the instance properties form of a 9471 MME, if required.
- 2 Right-click on Remote Endpoint object and choose Create Endpoint Configuration from the contextual menu. The Endpoint Configuration (Create) form opens.
- 3 Configure the parameters:
  - IP ID
  - Interface Type
  - Address 1
  - Address 2
  - Port
  - Shutdown Reconnect Timer



**Note** — The Shutdown Reconnect Timer parameter is only visible when you specify S6a as for the Interface Type parameter.

- 4 Click on the OK button. The Endpoint Configuration (Create) form closes.
  - 5 Click on the Apply button in the MME Instance (Edit) form. A dialog box appears.
  - 6 Click on the Yes button. The changes are saved.
  - 7 Close the MME Instance (Edit) form, if required.
- 

### Procedure 7-59 To configure a local GTP profile

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You can also configure a global GTP profile and distribute it to one or more 9471 MMEs. See Procedure 15-25 for more information.

- 1 Perform step 1 of Procedure 7-42 in order to open the instance properties form of a 9471 MME, if required.
- 2 Right-click on the GTP Profile object and choose Create GTP Profile from the contextual menu. The GTP Profile (Create) form opens.

- 3 Configure the parameters:
    - GTP Profile ID
    - Inter-Echo Request Timer (seconds)
    - Echo Response Timer (seconds)
    - Echo Requests
    - GTP Message Response Timer (seconds)
    - GTP Message Send Attempts
  - 4 Click on the OK button. The GTP Profile (Create) form closes.
  - 5 Click on the Apply button in the MME Instance (Edit) form. A dialog box appears.
  - 6 Click on the Yes button. The changes are saved.
  - 7 Close the MME Instance (Edit) form, if required.
- 

### **Procedure 7-60 To configure a local SCTP profile**

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You can also configure a global SCTP profile and distribute it to one or more 9471 MMEs. See Procedure [15-24](#) for more information.

- 1 Perform step 1 of Procedure [7-42](#) in order to open the instance properties form of a 9471 MME, if required.
  - 2 Right-click on the SCTP Profile object and choose Create SCTP Profile from the contextual menu. The SCTP Profile (Create) form opens.
  - 3 Configure the parameters:

• SCTP Profile ID	• SACK Period (ms)
• Config Type	• SACK Frequency
• SCTP Port	• MTU Size (octets)
• RTO Minimum (ms)	• Maximum Association Retransmissions
• RTO Maximum (ms)	• Maximum Path Retransmissions
• RTO Initial Value (ms)	• Maximum Init Retransmissions
• Cookie Life (seconds)	
• Heartbeat Interval (seconds)	
  - 4 Click on the OK button. The SCTP Profile (Create) form closes.
  - 5 Click on the Apply button in the MME Instance (Edit) form. A dialog box appears.
  - 6 Click on the Yes button. The changes are saved.
  - 7 Close the MME Instance (Edit) form, if required.
-



**Procedure 7-61 To configure an interface profile (LM4.0)**

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- 1 Perform step 1 of Procedure 7-42 in order to open the instance properties form of a 9471 MME, if required.
- 2 Right-click on the Interface Profile object and choose Create Interface Profile from the contextual menu. The Interface Profile (Create) form opens.
- 3 Configure the parameters, as required:
  - Interface Type
  - Profile ID
  - GTP Profile ID
  - SCTP Profile ID
  - DSCP Code
  - Number of Authentication Vectors



**Note** — The displayed parameter set is determined by the value of the Interface Type parameter. Some of the following parameters may not be applicable to the interface profile that you are configuring.

- 4 Click on the OK button. The Interface Profile (Create) form closes.
  - 5 Click on the Apply button in the MME Instance (Edit) form. A dialog box appears.
  - 6 Click on the Yes button. The changes are saved.
  - 7 Close the MME Instance (Edit) form, if required.
- 

**Procedure 7-62 To configure a diameter profile**

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This procedure describes the steps for creating a diameter profile object for the 9471 MME. See Procedure 7-63 for more information about configuring diameter connection data. You can use the bulk operations function of the 5620 SAM to configure the parameters on existing diameter profiles. See the *5620 SAM User Guide* for more information about bulk operations.

- 1 Perform step 1 of Procedure 7-42 in order to open the instance properties form of a 9471 MME, if required.
- 2 Right-click on the Diameter Profile object and choose Create Diameter Profile from the contextual menu. The Diameter Profile (Create) form opens.
- 3 Configure the parameters:

• Profile ID	• DWR Max Retransmissions
• Profile Name	• CER Message Timer
• DWR Frequency Timer	• CER Max Retransmissions
• DWR Message Timer	• Diameter Product Name
- 4 Click on the OK button. The Diameter Profile (Create) form closes.

- 5 Click on the Apply button in the MME Instance (Edit) form. A dialog box appears.
  - 6 Click on the Yes button. The changes are saved.
  - 7 Close the MME Instance (Edit) form, if required.
- 

### **Procedure 7-63 To configure diameter connections in a diameter profile**

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- 1 Perform step 1 of Procedure 7-42 in order to open the instance properties form of a 9471 MME, if required.
- 2 Expand the Diameter Profile object to display the child objects.
- 3 Click on a child object. The MME Instance (Edit) form displays the properties data of the child object.
- 4 Click on the Diameter Connection tab button.
- 5 Create a diameter connection:
  - i Click on the Create button. The Diameter Connection (Create) form opens.
  - ii Configure the parameters:
    - Profile ID
    - Application Type
    - Min Active Connections (%)
    - Application TimeOut (seconds)
    - Origin Host
    - Origin Realm
    - Use SCTP
  - iii Click on the Select button in the Remote Endpoint IP 1 panel. The Select Remote Endpoint IP 1 - Diameter Connection form opens.
  - iv Configure the filter criteria, if required, and click on the Search button. A list of remote endpoints is displayed.
  - v Choose a remote endpoint from the list and click on the OK button. The form closes and the Diameter Connection (Create) form is updated with the remote endpoint data.

For a basic interface configuration, go to step 6. For a maximum configuration setup, complete sub steps vi to xiv.
  - vi Click on the Select button in the Remote Endpoint IP 2 panel. The Select Remote Endpoint IP 2 - Diameter Connection form opens.
  - vii Configure the filter criteria, if required, and click on the Search button. A list of remote endpoints is displayed.
  - viii Choose a remote endpoint from the list and click on the OK button. The form closes and the Diameter Connection (Create) form is updated with the remote endpoint data.

- ix Click on the Select button in the Remote Endpoint IP 3 panel. The Select Remote Endpoint IP 3 - Diameter Connection form opens.
  - x Configure the filter criteria, if required, and click on the Search button. A list of remote endpoints is displayed.
  - xi Choose a remote endpoint from the list and click on the OK button. The form closes and the Diameter Connection (Create) form is updated with the remote endpoint data.
  - xii Click on the Select button in the Remote Endpoint IP 4 panel. The Select Remote Endpoint IP 4 - Diameter Connection form opens.
  - xiii Configure the filter criteria, if required, and click on the Search button. A list of remote endpoints is displayed.
  - xiv Choose a remote endpoint from the list and click on the OK button. The form closes and the Diameter Connection (Create) form is updated with the remote endpoint data.
- 6 Click on the OK button. The Diameter Connection (Create) form closes.
  - 7 Click on the Apply button in the MME Instance (Edit) form. A dialog box appears.
  - 8 Click on the Yes button. The changes are saved.
  - 9 Close the MME Instance (Edit) form, if required.
-

## Procedure 7-64 To configure paging policies

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You can perform the following tasks with paging policies:

- To increase the maximum number of page attempts made to reach a UE, insert a new entry in the Paging Policy. See step 2.
  - To change the paging method or T3413 timer value associated with a specific page attempt, configure the relevant parameters. See step 3.
  - To reduce the maximum number of page attempts made to reach a UE, delete the entry for the last page attempt in the Paging Policy. See step 4.
- 1 Perform step 1 of Procedure 7-42 in order to open the instance properties form of a 9471 MME, if required.
  - 2 To add a paging policy attempt:
    - i Right-click on the Paging Policy object and choose Create Paging Policy from the contextual menu. The Paging Policy (Create) form opens.
    - ii Configure the parameters:
      - Paging Type
      - Attempt
      - Method
      - Extended Range Flag
      - T3413 Timer (seconds)
    - iii Click on the OK button. The Paging Policy (Create) form closes.
  - 3 To modify a paging policy entry:
    - i Expand the Paging Policy parent object to display the child objects, if required.
    - ii Right-click on a paging policy child object and choose Properties from the contextual menu. The Paging Policy (Edit) form opens.
    - iii Configure the parameters:
      - Method
      - Extended Range Flag
      - T3413 Timer (seconds)
    - iv Click on the OK button. The Paging Policy (Edit) form closes.
  - 4 To delete a paging policy entry:
    - i Expand the Paging Policy parent object to display the child objects, if required.
    - ii Right-click on a paging policy child object and choose Delete from the contextual menu. The object is deleted.
  - 5 Click on the Apply button in the MME Instance (Edit) form. A dialog box appears.

- 6 Click on the Yes button. The changes are saved.
  - 7 Close the MME Instance (Edit) form, if required.
- 

#### **Procedure 7-65 To configure allocation / retention priority (ARP)**

---

- 1 Perform step 1 of Procedure 7-42 in order to open the instance properties form of a 9471 MME, if required.
  - 2 Right-click on the Allocation/Retention Priority (ARP) object and choose Create ARP from the contextual menu. The ARP (Create) form opens.
  - 3 Configure the parameters:
    - QCI
    - Capability
    - Vulnerability
  - 4 Click on the OK button. The ARP (Create) form closes.
  - 5 Click on the Apply button in the MME Instance (Edit) form. A dialog box appears.
  - 6 Click on the Yes button. The changes are saved.
  - 7 Close the MME Instance (Edit) form.
- 

#### **Procedure 7-66 To configure an ESM location center (ESMLC)**

---

- 1 Perform step 1 of Procedure 7-42 in order to open the instance properties form of a 9471 MME, if required.
- 2 Right-click on the ESM Location Centre (ESMLC) object and choose Create ESMLC from the contextual menu. The ESMLC (Create) form opens.
- 3 Configure the parameters:
  - ESMLC Identifier
  - ESMLC Name

- 4 To add a remote endpoint:



**Note** — You must choose SLS interfaces as the remote endpoints for an ESMC.

- i Click on the Select button in a Remote Endpoint IP x panel. The Select Remote Endpoint IP x - ESMC list form opens.
  - ii Select a remote endpoint from the list and click on the OK button. The form closes and the ESMC (Create) form is populated with the remote endpoint data.
- 5 Repeat step 4 and add a second remote endpoint.
- 6 Click on the Apply button in the MME Instance (Edit) form. A dialog box appears.
- 7 Click on the Yes button. The changes are saved.
- 8 Close the MME Instance (Edit) form, if required.
- 

#### Procedure 7-67 To configure an emergency number list

---

- 1 Perform step 1 of Procedure 7-42 in order to open the instance properties form of a 9471 MME, if required.
  - 2 Right-click on the Emergency Number List object and choose Create Emergency Number from the contextual menu. The Emergency Number (Create) form opens.
  - 3 Configure the parameters:
    - Emergency Number Table ID
    - Emergency Digits
    - Police
    - Ambulance
    - Fire Brigade
    - Marine Guard
    - Mountain Rescue
  - 4 Click on the OK button. The Emergency Number (Create) form closes.
  - 5 Click on the Apply button in the MME Instance (Edit) form. A dialog box appears.
  - 6 Click on the Yes button. The changes are saved.
  - 7 Close the MME Instance (Edit) form, if required.
-

### Procedure 7-68 To configure an emergency profile (LM4.0)

- 1 Perform step 1 of Procedure 7-42 in order to open the instance properties form of a 9471 MME, if required.
- 2 Right-click on the Emergency Profile object and choose Create Emergency Profile from the contextual menu. The Emergency Profile (Create) form opens.
- 3 Configure the parameters:
  - Emergency Profile ID
  - APN Network Identifier
- 4 Click on the Select button for the Emergency Number Table ID parameter. The Select Emergency Number Table ID - Emergency Profile list form opens.



**Note** — You can click on the Create button and configure an emergency number table (also referred to as an emergency number list), if required. See Procedure 7-67 for more information.

- 5 Select an emergency number table from the list and click on the OK button. The form closes and the Emergency Profile (Create) form is populated with the emergency number table data.
- 6 Configure the parameters in the Packet Data Network Gateway panel:
  - PGW IPv4
  - PGW IPv6
  - PGW Fully Qualified Domain Name
- 7 Configure the parameters in the Emergency Profile Details panel:
 

<ul style="list-style-type: none"> <li>• AMBR Uplink in bit/s</li> <li>• Emergency QCI</li> <li>• Preemption Capability</li> <li>• Service for Black Listed UE</li> <li>• Initiate LCS Request</li> <li>• Horizontal Accuracy</li> <li>• Vertical Requested</li> </ul>	<ul style="list-style-type: none"> <li>• AMBR Downlink in bit/s</li> <li>• Emergency ARP</li> <li>• Preemption Vulnerability</li> <li>• Service Behavior</li> <li>• Vertical Accuracy</li> <li>• Response Time</li> </ul>
--	---
- 8 Configure the parameters in the Gateway Mobile Location Center panel:
  - Emergency GMLC Primary
  - Emergency GMLC Alternate
- 9 Click on the OK button. The Emergency Profile (Create) form closes.
- 10 Click on the Apply button in the MME Instance (Edit) form. A dialog box appears.

- 11 Click on the Yes button. The changes are saved.
  - 12 Close the MME Instance (Edit) form, if required.
- 

### **Procedure 7-69 To configure the MME zone code**

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- 1 Perform step 1 of Procedure 7-42 in order to open the instance properties form of a 9471 MME, if required.
  - 2 Right-click on the Zone Code object and choose Create Zone Code from the contextual menu. The Zone Code (Create) form opens.
  - 3 Configure the parameters:
    - Zone Code
    - Zone Code Type
  - 4 Click on the Select button for the Mobile Country Code parameter. The Select Mobile Node Region (PLMN) Information - Zone Code form opens.
  - 5 Configure the filter criteria, if required, and click on the Search button. A list of mobile country codes is displayed.
  - 6 Select an entry from the list and click on the OK button. The Select Mobile Node Region (PLMN) Information - Zone Code form closes and the Zone Code (Create) form is updated with the mobile node region information.
  - 7 If you set the Zone Code Type to Limited TAI, perform the following. Otherwise, go to step 8.
    - i Select one or more Mobile Network Codes from the Unassigned TAI panel.
    - ii Click on the right-arrow button to move the selected entry or entries to the Assigned TAI panel.
  - 8 Click on the OK button. The Zone Code (Create) form closes.
  - 9 Click on the Apply button in the MME Instance (Edit) form. A dialog box appears.
  - 10 Click on the Yes button. The changes are saved.
  - 11 Close the MME Instance (Edit) form.
-



### Procedure 7-70 To configure a mobile switching center server (MSC)

---

This procedure describes the steps for creating a mobile switching center server only. See Procedure 7-71 for more information about configuring LAI to MSC mappings.

- 1 Perform step 1 of Procedure 7-42 in order to open the instance properties form of a 9471 MME, if required.
- 2 Right-click on the Mobile Switching Center Server (MSC) object and choose Create Mobile Switching Center Server from the contextual menu. The Mobile Switching Center Server (Create) form opens.
- 3 Configure the parameters:
  - MSC ID
  - MSC Name
- 4 Click on the Select button SCTP Profile ID parameter. The Select SCTP Profile - Mobile Switching Center Server list form opens.
- 5 Configure the filter criteria, if required, and click on the Search button. A list of SCTP profiles is displayed.
- 6 Select an SCTP profile from the list and click on the OK button. The form closes and the Mobile Switching Center Server (Create) form is populated with the SCTP profile data.
- 7 To add a remote endpoint:
  - i Click on the Select button in a Remote Endpoint IP x panel. The Select Remote Endpoint IP x - Mobile Switching Center Server list form opens.
  - ii Select a remote endpoint from the list and click on the OK button. The form closes and the Mobile Switching Center Server (Create) form is populated with the remote endpoint data.
- 8 Repeat step 7 to add more remote endpoints, as required.
- 9 Click on the OK button. The Mobile Switching Center Server (Create) form closes.
- 10 Click on the Apply button in the MME Instance (Edit) form. A dialog box appears.
- 11 Click on the Yes button. The changes are saved.



**Note** — You can configure LAT to MSC mapping objects on a Mobile Switching Center Server (MSC) object. See Procedure 7-71 for more information.

- 12 Close the MME Instance (Edit) form, if required.
-

### Procedure 7-71 To configure LAI to MSC mapping

---

You must have an existing Mobile Switching Center Server (MSC) object before you can perform this procedure. See Procedure 7-70 for more information.

- 1 Perform step 1 of Procedure 7-42 in order to open the instance properties form of a 9471 MME, if required.
  - 2 Expand the Mobile Switching Center Server (MSC) object to display child objects, if required.
  - 3 Right-click on a child object and choose Properties from the contextual menu. The Mobile Switching Center Server (Edit) form opens with the General tab displayed.
  - 4 Click on the LAI to MSC Mapping tab button.
  - 5 Click on the Create button. The LAI to MSC Mapping (Create) form opens.
  - 6 Click on the Select button. The Select Location Area Information - LAI to MSC Mapping list form opens.
  - 7 Configure the filter criteria, if required, and click on the Search button. A list of LAI objects is displayed.
  - 8 Select a LAI and click on the OK button. The form closes and the LAI to MSC Mapping (Create) form is updated with the LAI data.
  - 9 Repeat steps 5 to 8 to configure additional mappings, as required.
  - 10 Specify whether CSFB is supported for LAI objects:
    - i Click on the LAI to MSC Mapping tab button, if required.
    - ii Select a LAI to MSC mapping object from the list and click on the Properties button. The LAI to MSC Mapping (Edit) form opens.
    - iii Click on the Properties button in the Location Area Information panel. The Location Area Code (Edit) form opens with the General tab displayed.
    - iv Configure the Is CSFB Supported? parameter.
    - v Click on the OK button. The form closes.
    - vi Click on the OK button. The LAI to MSC Mapping (Edit) form closes.
    - vii Return to sub step ii and configure additional LAI objects, as required.
  - 11 Click on the OK button. The Mobile Switching Center Server (Edit) form closes.
  - 12 Click on the Apply button in the MME Instance (Edit) form. A dialog box appears.
  - 13 Click on the Yes button. The change are saved.
  - 14 Close the MME Instance (Edit) form, if required.
-

**Procedure 7-72 To configure the EPS encryption algorithm (EEA)**

---

Perform the following procedure to configure the encryption protection algorithms to support NAS signaling security.

- 1 Perform step 1 of Procedure 7-42 in order to open the instance properties form of a 9471 MME, if required.
  - 2 Expand the EPS Encryption Algorithm (EEA) object in the MME Instance navigation tree. A list of EEA priorities is displayed.
  - 3 Right-click on a priority object and choose Properties from the contextual menu. The EEA Algorithm - EEA Priority (Edit) form opens.
  - 4 Configure the EEA Value parameter.
  - 5 Click on the OK button. The EEA Algorithm - EEA Priority (Edit) form closes.
  - 6 Click on the Apply button in the MME Instance (Edit) form. A dialog box appears.
  - 7 Click on the Yes button. The changes are saved.
  - 8 Close the MME Instance (Edit) form.
- 

**Procedure 7-73 To configure the EPS integrity protection algorithm (EIA)**

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- 1 Perform step 1 of Procedure 7-42 in order to open the instance properties form of a 9471 MME, if required.
  - 2 Expand the EPS Integrity Protection Algorithm (EIA) object in the MME Instance navigation tree. A list of EIA priorities is displayed.
  - 3 Right-click on a priority object and choose Properties from the contextual menu. The EIA Algorithm - EIA Priority (Edit) form opens.
  - 4 Configure the EIA Value parameter.
  - 5 Click on the OK button. The EIA Algorithm - EIA Priority (Edit) form closes.
  - 6 Click on the Apply button in the MME Instance (Edit) form. A dialog box appears.
  - 7 Click on the Yes button. The changes are saved.
  - 8 Close the MME Instance (Edit) form.
-

### Procedure 7-74 To configure EPS mobility management information

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- 1 Perform step 1 of Procedure 7-42 in order to open the instance properties form of a 9471 MME, if required.
  - 2 Expand the EPS Mobility Management Information (EMM) object. Right-click on a child object and choose Properties from the contextual menu. The EPS Mobility Management Information (Edit) form opens.
  - 3 Configure the parameters:
    - Send Network Name
    - Send Country Init
    - Network Name
    - Network Short Name
    - Send Time Zone OffSet
    - Encoding Name
  - 4 Click on the OK button. The EPS Mobility Management Information (Edit) form closes.
  - 5 Click on the Apply button in the MME Instance (Edit) form. A dialog box appears.
  - 6 Click on the Yes button. The changes are saved.
  - 7 Close the MME Instance (Edit) form.
- 

### Procedure 7-75 To configure global parameters

---

You can use the bulk operations function of the 5620 SAM to configure 9471 MME global parameters objects. See the *5620 SAM User Guide* for more information about bulk operations.

- 1 Perform step 1 of Procedure 7-42 in order to open the instance properties form of a 9471 MME, if required.
  - 2 Expand the Global Parameters object in the MME Instance (Edit) form navigation tree.
  - 3 Click on a child object. The MME Instance (Edit) form is populated with the properties data of the object.
  - 4 Configure the Parameter Value parameter.
  - 5 Click on the Apply button in the MME Instance (Edit) form. A dialog box appears.
  - 6 Click on the Yes button. The changes are saved.
  - 7 Close the MME Instance (Edit) form, if required.
-

### Procedure 7-76 To configure timers

---

You can use the bulk operations function of the 5620 SAM to configure 9471 MME timer objects. See the *5620 SAM User Guide* for more information about bulk operations.

- 1 Perform step 1 of Procedure 7-42 in order to open the instance properties form of a 9471 MME, if required.
  - 2 Expand the Timer object in the MME Instance (Edit) form navigation tree.
  - 3 Click on a child object. The MME Instance (Edit) form is populated with the properties data of the object.
  - 4 Configure the Timer Value parameter.
  - 5 Click on the Apply button in the MME Instance (Edit) form. A dialog box appears.
  - 6 Click on the Yes button. The changes are saved.
  - 7 Close the MME Instance (Edit) form, if required.
- 

### Procedure 7-77 To configure message retransmissions

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You can use the bulk operations function of the 5620 SAM to configure 9471 MME message retransmissions objects. See the *5620 SAM User Guide* for more information about bulk operations.

- 1 Perform step 1 of Procedure 7-42 in order to open the instance properties form of a 9471 MME, if required.
  - 2 Expand the Message Retransmissions object in the MME Instance (Edit) form navigation tree.
  - 3 Click on a child object. The MME Instance (Edit) form is populated with the properties data of the object.
  - 4 Configure the Number of Retransmissions parameter.
  - 5 Click on the Apply button in the MME Instance (Edit) form. A dialog box appears.
  - 6 Click on the Yes button. The changes are saved.
  - 7 Close the MME Instance (Edit) form, if required.
-

### Procedure 7-78 To configure QoS Mapping 2G/3G

---

You can use the bulk operations function of the 5620 SAM to configure 9471 MME QoS Mapping 2G/3G objects. See the *5620 SAM User Guide* for more information about bulk operations.

- 1 Perform step 1 of Procedure 7-42 in order to open the instance properties form of a 9471 MME, if required.
- 2 Expand the QoS Mapping 2G/3G object in the MME Instance (Edit) form navigation tree.
- 3 Select one of the following child objects:
  - Traffic Class: Background
  - Traffic Class: Conversational
  - Traffic Class: Interactive
  - Traffic Class: Streaming

The properties data of the child object is displayed in the MME Instance (Edit) form.

- 4 Configure the parameters:
    - Delivery Order
    - Maximum SDU Size
    - Residual Bit Error Ratio
    - Delivery of Error SDU
  - 5 Return to step 3 and configure the parameters for the other traffic classes, as required.
  - 6 Click on the Apply button in the MME Instance (Edit) form. A dialog box appears.
  - 7 Click on the Yes button. The changes are saved.
  - 8 Close the MME Instance (Edit) form, if required.
- 

### Procedure 7-79 To configure a UE roaming TAI and LAI restriction list (LM4.0)

---

- 1 Perform step 1 of Procedure 7-42 in order to open the instance properties form of a 9471 MME, if required.
- 2 Right-click on the UE Roaming Restriction object and choose Create UE Roaming TAI and LAI Restriction List from the contextual menu. The UE Roaming TAI and LAI Restriction List (Create) form opens.

- 3 Specify the mobile node region association.
    - i Click on the Select button for the Mobile Country Code parameter. The Select Mobile Node Region (PLMN) Information - UE Roaming TAI and LAI Restriction List form opens.
    - ii Configure the filter criteria, if required, and click on the Search button. A list of mobile node regions is displayed.
    - iii Select an entry from the list and click on the OK button. The form closes and the UE Roaming TAI and LAI Restriction List form is updated with the mobile node region information.
  - 4 Configure the List Type parameter.
  - 5 Choose one of the following:
    - a If you set the List Type parameter to TAI List:
      - i Click on the Select button for the Mobile Country Code parameter in the Tracking Area Information panel. The Select Tracking Area Information -UE Roaming TAI and LAI Restriction List form opens.
      - ii Configure the filter criteria, if required, and click on the Search button. A list of tracking area codes is displayed.
      - iii Select an entry from the list and click on the OK button. The Select Tracking Area Information - UE Roaming TAI and LAI Restriction List form closes and the UE Roaming TAI and LAI Restriction List (Create) form is updated with the tracking area information.
    - b If you set the List Type parameter to LAI List:
      - i Click on the Select button for the Mobile Country Code parameter in the Location Area Information panel. The Select Location Area Information -UE Roaming TAI and LAI Restriction List form opens.
      - ii Configure the filter criteria, if required, and click on the Search button. A list of tracking area codes is displayed.
      - iii Select an entry from the list and click on the OK button. The Select Location Area Information - UE Roaming TAI and LAI Restriction List form closes and the UE Roaming TAI and LAI Restriction List (Create) form is updated with the tracking area information.
  - 6 Click on the OK button. The UE Roaming TAI and LAI Restriction List (Create) form closes.
  - 7 Click on the Apply button in the MME Instance (Edit) form. A dialog box appears.
  - 8 Click on the Yes button. The changes are saved.
  - 9 Close the MME Instance (Edit) form.
-

**Procedure 7-80 To configure a TAI to LAI mapping**

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- 1 Perform step 1 of Procedure 7-42 in order to open the instance properties form of a 9471 MME, if required.
  - 2 Right-click on the TAI to LAI Mapping object and choose Create TAI To LAI Mapping from the contextual menu. The TAI To LAI Mapping (Create) form opens.
  - 3 Define the tracking area information mapping:
    - i Click on the Select button in the Tracking Area Information panel. The Select Tracking Area Information - TAI To LAI Mapping list form opens.
    - ii Configure the filter criteria, if required, and click on the Search button. A list of TAI objects is displayed.
    - iii Select a TAI from the list and click on the OK button. The list form closes and the TAI To LAI Mapping (Create) form is populated with the TAI object data.
  - 4 Define the location area information mapping:
    - i Click on the Select button in the Location Area Information panel. The Select Location Area Information - TAI To LAI Mapping list form opens.
    - ii Configure the filter criteria, if required, and click on the Search button. A list of LAI objects is displayed.
    - iii Select a LAI from the list and click on the OK button. The list form closes and the TAI To LAI Mapping (Create) form is populated with the LAI object data.
  - 5 Click on the Apply button in the MME Instance (Edit) form. A dialog box appears.
  - 6 Click on the Yes button. The changes are saved.
  - 7 Close the MME Instance (Edit) form, if required.
- 

## 7.7 9471 MME load balancing

The 5620 SAM allows you to perform and view the status of load balancing on the 9471 MME.

**Procedure 7-81 To perform load balancing on the 9471 MME**

---

- 1 Choose Equipment from the view selector in the navigation tree. The navigation tree displays the Equipment view.
- 2 Right-click on a 9471 MME in the Equipment view and choose Properties. The Network Element (Edit) form opens with the General tab displayed.



- 3 In the MME Service Dashboard panel, choose an MME instance, and click on the Properties button. The MME Instance (Edit) form opens with the General tab displayed.



**Note** — Alternatively, choose Manage→Mobile Core→LTE UE Relocation/Load Balancing. Specify a filter to search for an MME instance. Select an MME instance in the filtered list and click on the Properties button. The MME Instance (Edit) form opens with the General tab displayed.

- 4 Click on the Load Balancing tab button.

- 5 To perform:

- load balancing between 9471 MMEs, go to step [a](#)
- load balancing within a 9471 MME, go to step [b](#)

- a To perform load balancing between 9471 MMEs:

- i Set the Operation Type parameter to Inter-MME in the Load Balancing Operation panel.
- ii In the Load Balancing Operation panel, configure the following parameters:
  - Camp-On Interval (seconds)
  - Registered UEs to Move (%)



**Note 1** — When you move 100% of the registered UEs, the 9471 MME is automatically put into a locked state when the operation is completed. If the 9471 MME is not automatically locked, it is because emergency calls are still present in the system. Once you have verified that there are no longer any registered UEs (by examining the registered UEs attribute on the MME Instance properties form), then you can manually lock the 9471 MME to prevent it from accepting new UE connections. To lock the 9471 MME, click on the More Actions button and choose Lock MME.

**Note 2** — You must have an Administrator or EPC Operator scope of command role to be able to lock or unlock a 9471 MME. See the *5620 SAM User Guide* for more information about scope of command roles, profiles, and permissions.

- b To perform load balancing within a 9471 MME:

- i Set the Operation Type parameter to Intra-MME in the Load Balancing Operation panel.
- ii In the Load Balancing Operation panel, configure the following parameters:
  - Camp-On Interval (seconds)
  - Registered UEs to Move (%)
  - De-registered UEs to Move (%)

- iii Click on the Select button for the MAF service group in the Destination MAF Service Group panel. The Select Destination MAF Service Group - MME Instance form opens.
- iv Configure the filter criteria, if required, and click on the Search button.
- v Choose a destination MAF service group from the results list and click on the OK button. The Select Destination MAF Service Group - MME Instance form closes and the selected MAF service group is displayed in the Name and ID fields.



**Note** — Click on the More Actions button and choose Abort MME Load Balance to cancel the load balancing operation, if required.

- 6 Click on the OK button to save the changes and close the form.
- 

#### **Procedure 7-82 To view the status of load balancing of the 9471 MME**

---

- 1 Choose Equipment from the view selector in the navigation tree. The navigation tree displays the Equipment view.
- 2 Right-click on a 9471 MME in the Equipment view and choose Properties. The Network Element (Edit) form opens with the General tab displayed.
- 3 In the MME Service Dashboard panel, choose an MME instance, and click on the Properties button. The MME Instance (Edit) form opens with the General tab displayed.

- 4 Click on any of the following tabs for load balancing information:
    - a General—to view the number of UEs currently on the MME, as shown in the Capacity panel.
    - b Load Balancing—to view the status of the most recent inter- and intra-MME load balancing operation.
    - c MME Application Function—to view the UEs currently in the MAF service group, perform the following:
      - i On the MME Application Function tab, specify a filter to search for an existing MME, if required. Select an MME in the filtered list and click on the Properties button. The MME Application form opens with the General tab displayed.
      - ii Click on the MME Application Function Service Group tab button.
      - iii Specify a filter to search for an existing MAF service group, if required. Select a MAF service group in the filtered list and click on the Properties button. The MME Application Function Service Group form opens with the General tab displayed. In the Capacity panel, you can view the UEs that are currently in the MAF service group. The data is retrieved from the MME performance management files, so performance management must be enabled, and the data may be at least 15 min old.
  - 5 Close the forms.
- 

## 7.8 9471 MME inventory management

The following procedures describe how to view inventory information for the 9471 MME. See the *5620 SAM User Guide* for more information about inventory management tasks, including generating inventory reports in HTML or CSV format.

### **Procedure 7-83 To view 9471 MME network element inventory**

---

This procedure describes steps for viewing and saving inventory data for the 9471 MME. See Procedure [7-42](#) for more information about configuring 9471 MME objects and parameters by using the MME Instance properties form.

- 1 Choose Manage→Equipment→Equipment from the 5620 SAM main menu. The Manage Equipment list form opens.
- 2 Choose Network Element (Network) from the object type drop-down list.
- 3 Configure the filter criteria, if required, and click on the Search button. A list of NEs is displayed.
- 4 Select a 9471 MME from the list and click on the Properties button. The Network Element (Edit) form opens with the General tab displayed.
- 5 Click on the Inventory tab button.

- 6 Choose an object from the object type drop-down list. For example:
    - To display the ATCA card, expand the Card object and select ATCA Card (Physical Equipment)
    - To display all ports, select the Port (Physical Equipment) object
  - 7 To save an inventory display in HTML or CSV format:
    - i Right-click on a column title, such as Site ID, and choose Save To File from the contextual menu. The Save As form opens.
    - ii Specify a path, file name, and file format for the report.
    - iii Click on the Save button. The Save As form closes and the report is saved.
  - 8 Close the Network Element (Edit) form.
- 

#### **Procedure 7-84 To view 9471 MME shelf, card, fan tray, card slot, and port properties**

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- 1 Choose Manage→Equipment→Equipment from the 5620 SAM main menu. The Manage Equipment list form opens.
- 2 Choose Shelf (Physical Equipment) from the object type drop-down list.
- 3 Configure the filter criteria, if required, and click on the Search button. A list of NE shelves is displayed.
- 4 Select a shelf from the list and click on the Properties button. The Shelf (Edit) form opens with the General tab displayed.
- 5 View the properties of the shelf under the following tabs:
  - General
  - Display
  - Fan Trays
  - Card Slots
  - Ports
  - Faults
- 6 To view ATCA card properties:
  - i Click on the General tab button, if required.
  - ii In the Equipment Dashboard panel, select an ATCA card from the list and click on the Properties button. The Card (Edit) form opens with the General tab displayed.

iii View the properties of the ATCA card under the following tabs:

- General
- Inventory
- Ports
- OAM Service Members
- AMC
- Hosts
- Statistics
- TCA
- Faults

iv Close the Card (edit) form.

7 To view fan tray properties:

i In the Equipment Dashboard panel, choose a fan tray from the list and click on the Properties button. The Fan Tray (edit) form opens with the General tab displayed.

ii View the properties of the fan tray under the following tabs:

- General
- Faults

You can also view a list of fan trays under the Fan Tray tab of the Shelf (Edit) form. Choose a fan try from the list and click on the properties button to view the fan tray properties.

iii Close the Fan Tray (Edit) form.

8 To view card slot properties:

i Click on the Card Slots tab button.

ii Select a card slot from the list and click on the Properties button. The Card Slot (Edit) form opens with the General tab displayed.

iii View the properties of each card slot under the following tabs:

- General
- Cards
- TCA
- Faults

iv Close the Card Slot (Edit) form.

9 To view port properties:

i Click on the Ports tab button.

ii Select a port from the list and click on the Properties button. The Port (Edit) form opens with the General tab displayed.

- iii View the properties of a port under the following tabs:
    - General
    - Physical Links
    - Faults
  - iv Close the Port (Edit) form.
- 10 Close the Shelf (Edit) form.
- 

---

#### **Procedure 7-85 To view 9471 MME interface function properties**

---

- 1 Perform step 1 of Procedure 7-42 in order to open the instance properties form of a 9471 MME, if required.
  - 2 Click on the MME Interface Function tab button.
  - 3 Select the interface function from the list and click on the Properties button. The MME Interface Function form opens with the General tab displayed.
  - 4 View the properties of the MME interface function under the following tabs:
    - General
    - Components
    - MME Interface Function Service Group
    - Faults
  - 5 Close the MME Interface Function form.
  - 6 Close the MME Instance (Edit) form.
- 

---

#### **Procedure 7-86 To view 9471 MME application function properties**

---

- 1 Perform step 1 of Procedure 7-42 in order to open the instance properties form of a 9471 MME, if required.
- 2 Click on the MME Application Function tab button.
- 3 Select the application function from the list and click on the Properties button. The MME Application Function form opens with the General tab displayed.
- 4 View the properties of the MME application function under the following tabs:
  - General
  - Components
  - MME Application Function Service Group
  - Faults

- 5 Close the MME Application Function form.
  - 6 Close the MME Instance (Edit) form.
- 

---

**Procedure 7-87 To view 9471 MME packet handler properties**

---

- 1 Perform step 1 of Procedure 7-42 in order to open the instance properties form of a 9471 MME, if required.
  - 2 Click on the MME Packet Handler tab button.
  - 3 Select the MME application function from the list and click on the Properties button. The MME Packet Handler form opens with the General tab displayed.
  - 4 View the properties of the MME packet handler under the following tabs:
    - General
    - Components
    - MME Packet Handler Service Group
    - Faults
  - 5 Close the MME Packet Handler form.
-





## **8 — *Viewing 5780 DSC properties***

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**8.1 Viewing 5780 DSC properties overview    8-2**

**8.2 5780 DSC viewing procedures    8-2**

## 8.1 Viewing 5780 DSC properties overview

The 5620 SAM allows you to view the properties for the equipment, instance, diameter proxy agent, and policy charging rules for the 5780 DSC. The 5780 DSC equipment properties are represented in the 5620 SAM equipment navigation tree. The instance, diameter proxy agent, and policy charging rules properties are accessed from the main menu in the 5620 SAM GUI by choosing Manage→Mobile Core→Dynamic Services Controller (DSC).

## 8.2 5780 DSC viewing procedures

The following procedures describe how to view the 5780 DSC properties.

### Viewing 5780 DSC equipment properties

You can use the equipment navigation tree to monitor 5780 DSC components. The equipment navigation tree identifies the 5780 DSC by the deployment type:


- ATCA
- non-ATCA

The 5620 SAM equipment navigation tree models both deployment types with the same component hierarchy. Similarly, the properties forms that you can open from each level of the component hierarchy contain the same tabs and fields for both deployment types. Perform Procedure 8-1 to view the properties of the 5780 DSC NE.

#### Procedure 8-1 To view 5780 DSC network element properties

---

- 1 In the 5620 SAM equipment navigation tree, double-click on the 5780 DSC-ATCA or 5780 DSC-Non-ATCA component to expand the view.
- 2 Right-click on a 5780 DSC NE icon and choose Properties from the contextual menu. The Network Element (Edit) form opens with the General tab displayed. The tab displays read-only parameters.

- 3 For information about a specific instance of a 5780 DSC, perform the following:
    - i In the DSC Service Dashboard panel, choose a 5780 DSC instance.
    - ii Click on the Properties button. The DSC Instance (Edit) form opens with the General tab displayed. You can view additional properties for the 5780 DSC instance under the following tabs:
      - Components
        - DSC Diameter Proxy Agent
        - DSC Policy Charging Rules Function
        - Service Group
        - Service Member
      - Diameter Peers
      - ISU State
      - Faults
-  **Note** — You can view the availability status of a 5780 DSC instance, DSC DPA, DSC PCRF, and DSC PCRF group object on the General tab of the related Properties (Edit) form. The availability status is:
- Degraded—if any child is down and the parent operational status is up, or if all children are down and the parent operational status is down
  - Normal—when all children are up, and the parent operational status is up
- iii Click on the Cancel button to close the DSC Instance (Edit) form.
- 4 Click on any of the following tabs in the Network Element (Edit) form for more information about the 5780 DSC NE:
  - Polling
  - Physical Links
  - Spans
  - Faults
- 5 Close the Network Element (edit) form.
- 

### **Procedure 8-2 To view 5780 DSC shelf, card, fan tray, power supply, card slot, and port properties**

---

- 1 Choose Equipment from the view selector in the equipment navigation tree. The equipment navigation tree displays the Equipment view.
- 2 Right-click on a 5780 DSC shelf object and choose Properties from the contextual menu. One of the following forms appears with the General tab displayed, depending on the deployment model:
  - Shelf - 5780 DSC - ATCA (Edit)
  - Shelf - 5780 DSC - Non-ATCA (Edit)

- 3 For information about the specific equipment that is provisioned in the shelf, perform the following:
  - i In the Equipment Dashboard panel, choose a card and click on the Properties button. The Card (Edit) form opens with the General tab displayed.
  - ii Click on any of the following tab buttons for more information about the 5780 DSC card:
    - Inventory
    - Ports
    - OAM Service Members
    - CPUs
    - Disks
    - Faults
  - iii Close the Card (Edit) form.
- 4 Click on the Fan Trays tab button in the Shelf (Edit) form to display a list of the fan trays.



**Note** — The Fan Tray tab button is only available for an ATCA-based 5780 DSC.

- 5 Choose a fan tray and click on the Properties button. The Fan Tray (Edit) form opens with the General tab displayed.
- 6 Click on any of the following tab buttons for more information about the fan tray:
  - Fan
  - Faults
- 7 Close the Fan Tray (Edit) form.
- 8 Click on the Power Supply tab button in the Shelf (Edit) form to display a list with Power Supply A and Power Supply B.



**Note** — The Power Supply tab button is only available for an ATCA-based 5780 DSC.

- 9 Choose a power supply and click on the Properties button. The Power Supply (Edit) form opens with the General tab displayed.
- 10 Click on the Faults tab button for more information about the power supply.
- 11 Close the Power Supply (Edit) form.
- 12 Click on the Card Slots tab button in the Shelf (Edit) form to display a list of the shelf card slots. The number of blades that appear depend on the deployment model.

- 13 Choose a card slot and click on the Properties button. The Card Slot (Edit) form opens with the General tab displayed.
  - 14 Click on any of the following tab buttons for additional information about the card:
    - Cards
    - Terminations
    - Faults
  - 15 Close the Card Slot (edit) form.
  - 16 Click on the Ports tab button in the Shelf (Edit) form to display a list of ports.
  - 17 Choose a port from the list and click on the Properties button. The Port (Edit) form opens with the General tab displayed.
  - 18 Click on any of the following tab buttons for more information about the port:
    - IP Addresses
    - Physical Links
    - Faults
  - 19 Close the Port (Edit) form.
  - 20 Click on the Faults tab button in the Shelf (Edit) form.
  - 21 Click on any of the following tab buttons to view any shelf faults:
    - Object Alarms
    - Affecting Alarms
    - Aggregated Alarms
    - Alarms on Related Objects
  - 22 Close the Shelf (Edit) form.
- 

### **Procedure 8-3 To view 5780 DSC instance properties**

---

- 1 Choose Manage→Mobile Core→DSC Instances from the 5620 SAM main menu. The Manage Dynamic Services Controller Entities (DSC) form opens.
- 2 Choose DSC Instance (LTE) from the object drop-down list.
- 3 Configure the filter criteria, if required, and click on the Search button.
- 4 Choose a 5780 DSC instance from the results list and click on the Properties button. The DSC Instance (Edit) form opens with the General tab displayed.

5 View the properties of the 5780 DSC instance under the following tabs:

- General
- Components
  - DSC Diameter Proxy Agent
  - DSC Policy Charging Rules Function
  - Service Group
  - Service Member
- Diameter Peers
- ISU State
- Faults



**Note** — You can view the availability status of a 5780 DSC instance, DSC DPA, DSC PCRF, and DSC PCRF group object on the General tab of the related Properties (Edit) form. The availability status is:

- Degraded—if any child is down and the parent operational status is up, or if all children are down and the parent operational status is down
- Normal—when all children are up, and the parent operational status is up

6 Close the DSC Instance (Edit) form.

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#### Procedure 8-4 To view diameter proxy agent properties

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- 1 Choose Manage→Mobile Core→DSC Instances from the 5620 SAM main menu. The Manage Dynamic Services Controller Entities (DSC) form opens.
- 2 Choose Diameter Proxy Agent (LTE) from the object drop-down list.
- 3 Configure the filter criteria, if required, and click on the Search button.
- 4 Choose a diameter proxy agent from the results list and click on the Properties button. The Diameter Proxy Agent (Edit) form opens with the General tab displayed.

5 View the properties of the diameter proxy agent under the following tabs:

- General
- Components
  - Diameter Proxy Agent
  - Service Member
- Faults



**Note** — You can view the availability status of a 5780 DSC instance, DSC DPA, DSC PCRF, and DSC PCRF group object on the General tab of the related Properties (Edit) form. The availability status is:

- Degraded—if any child is down and the parent operational status is up, or if all children are down and the parent operational status is down
- Normal—when all children are up, and the parent operational status is up

6 Close the Diameter Proxy Agent (Edit) form.

---

### Procedure 8-5 To view policy charging rules properties

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- 1 Choose Manage→Mobile Core→DSC Instances from the 5620 SAM main menu. The Manage Dynamic Services Controller Entities (DSC) form opens.
- 2 Choose Policy Charging Rules (LTE) from the object drop-down list.
- 3 Configure the filter criteria, if required, and click on the Search button.
- 4 Choose a policy charging rule from the results list and click on the Properties button. The Policy Charging Rules (Edit) form opens with the General tab displayed.

5 View the properties of the policy charging rules under the following tabs:

- General
- Components
  - Policy Charging Rules
  - Service Group
  - Service Member
- Faults



**Note** — You can view the availability status of a 5780 DSC instance, DSC DPA, DSC PCRF, and DSC PCRF group object on the General tab of the related Properties (Edit) form. The availability status is:

- Degraded—if any child is down and the parent operational status is up, or if all children are down and the parent operational status is down
- Normal—when all children are up, and the parent operational status is up

6 Close the Policy Charging Rules (Edit) form.

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### Procedure 8-6 To view policy charging rules group properties

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- 1 Choose Manage→Mobile Core→DSC Instances from the 5620 SAM main menu. The Manage Dynamic Services Controller Entities (DSC) form opens.
- 2 Choose Policy Charging Rules Group (LTE) from the object drop-down list.
- 3 Configure the filter criteria, if required, and click on the Search button.
- 4 Choose a policy charging rule group from the results list and click on the Properties button. The Policy Charging Rules Group (Edit) form opens with the General tab displayed.



5 View the properties of the PCR group under the following tabs:

- General
- Components
  - Policy Charging Rules
  - Service Member
- Faults



**Note** — You can view the availability status of a 5780 DSC instance, DSC DPA, DSC PCRF, and DSC PCRF group object on the General tab of the related Properties (Edit) form. The availability status is:

- Degraded—if any child is down and the parent operational status is up, or if all children are down and the parent operational status is down
- Normal—when all children are up, and the parent operational status is up

6 Close the Policy Charging Rules Group (Edit) form.

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## **9 — *Configuring LTE ePC mobile regions***

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- 9.1 LTE ePC mobile region overview    9-2**
- 9.2 Workflow to configure a mobile region    9-2**
- 9.3 Mobile region configuration procedures    9-2**

## 9.1 LTE ePC mobile region overview

The 5620 SAM allows you to configure and view mobile regions. The region is configured with a region name, an MCC, and an MNC. The values are used in combination to identify SGW and PGW instances, and to create a PLMN for an MME instance. The MCC and MNC settings are based on ITU-T Recommendation E.212.

The Mobile Node Name parameter, which is in the Mobile Node ID panel of the PDN Gateway (Edit) and Serving Gateway (Edit) forms, is derived in part from mobile node region name.

## 9.2 Workflow to configure a mobile region

- 1 Create the mobile region. See Procedure 9-1 for more information.
- 2 Assign a mobile region to one of the following:
  - SGW. See Procedure 9-2 for more information.
  - PGW. See Procedure 9-2 for more information.
  - MME. See Procedure 7-1 for more information.
- 3 As required, view the properties of the mobile region. See Procedure 9-3 for more information.

## 9.3 Mobile region configuration procedures

The following procedures describe how to configure an LTE ePC mobile region. You can create multiple mobile regions in the LTE network.



**Note** — After you configure a mobile region, you must assign the region to an appropriate SGW, PGW, or MME.

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### Procedure 9-1 To create a mobile region

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- 1 Choose Manage→Mobile Core→Mobile Regions/Public Land Mobile Networks (PLMNs) from the 5620 SAM main menu. The Manage Mobile Regions/Public Land Mobile Networks (PLMNs) form opens.
- 2 Click on the Create button. The Mobile Node Regions/Public Land Mobile Networks (PLMN) (Create) form opens with the General tab displayed.

**3** Configure the parameters:

- Region ID
- Region Name
- Mobile Network Code
- Auto-Assign ID
- Used as PLMN
- Mobile Country Code



**Note 1** — The Region ID parameter is read-only when you configure the Auto-Assign ID parameter. When you select Auto-Assign ID, the Region ID is assigned by the system when you save or apply the mobile region parameters.

**Note 2** — For the 9471 MME, the Used as PLMN attribute must be set to Enabled.

- 4** Click on the OK button to save the parameter settings. The Mobile Node Regions/Public Land Mobile Networks (PLMN) (Create) form closes. The Manage Mobile Regions/Public Land Mobile Networks (PLMNs) form reappears and displays the newly configured region in the Mobile Node Region (LTE) list.
  - 5** Close the Manage Mobile Regions/Public Land Mobile Networks (PLMNs) form.
- 

---

**Procedure 9-2 To assign a mobile region to an SGW or a PGW**

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- 1** Perform one of the following:
  - a** To assign a mobile region to an SGW, go to step [2](#).
  - b** To assign a mobile region to a PGW, go to step [3](#).
- 2** Assign a mobile region to an SGW.
  - i** Choose Manage→Mobile Core→SGW Instances from the 5620 SAM main menu. The SGW Instances form opens and displays the available SGWs.
  - ii** Choose a SGW instance from the list and click on the Properties button. The Serving Gateway (Edit) form opens with the General tab displayed.
  - iii** In the Mobile Node Region panel, click on the Select button. The Select Mobile Node Region form appears. The form lists the mobile regions that are configured, as described in Procedure [9-1](#).
  - iv** Choose a mobile region and click on the OK button. The Serving Gateway (Edit) form closes. The name of the mobile region appears in the Region Name field of the Serving Gateway (Edit) form.
  - v** Configure the parameters:
    - Group ID
    - Node ID
  - vi** Click on the Apply button. A dialog box opens.

- vii Click on the Yes button. The mobile name appears in the Mobile Node Name field in the Mobile Node ID panel.
  - viii Close the Serving Gateway (Edit) form.
  - ix Close the SGW Instances form.
  - 3 Assign a mobile region to a PGW.
    - i Choose Manage→Mobile Core→PGW/GGSN Instances from the 5620 SAM main menu. The PGW/GGSN Instances form opens and displays the available PGWs.
    - ii Choose a PDN instance from the list and click on the Properties button. The PDN Gateway (Edit) form opens with the General tab displayed.
    - iii Choose a mobile region and click on the OK button. The Select Mobile Node Region - PDN Gateway form closes. The name of the mobile region appears in the Region Name field of the PDN Gateway (Edit) form.
    - iv Configure the parameters:
      - Group ID
      - Node ID
    - v Click on the Apply button. A dialog box opens.
    - vi Click on the Yes button. The mobile name appears in the Mobile Node Name field in the Mobile Node ID panel.
    - vii Close the PDN Gateway (Edit) form.
    - viii Close the PGW/GGSN Instance form.
- 

### Procedure 9-3 To view the properties of a mobile region

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- 1 Choose Manage→Mobile Core→Mobile Regions/Public Land Mobile Networks (PLMNs) from the 5620 SAM main menu. The Manage Mobile Regions/Public Land Mobile Networks (PLMNs) form opens. The regions appear in the Mobile Node Region list.
- 2 Choose a mobile region or configure a filter to search for the mobile region that you need to view and click on the Properties button. The Mobile Node Region/Public Land Mobile Networks (PLMNs) (Edit) form appears.
- 3 Click on the Properties button. The Mobile Regions/Public Land Mobile Networks (PLMNs) (Edit) form opens with the General tab displayed.
- 4 View the properties under the following tabs:
  - General—View the parameters configured for the mobile region.
  - EPC Gateway—View the gateways that are associated with the mobile region.
  - eNodeB—View the eNodeB's that are associated with the mobile region.
  - MME —View the 9471 MME's that are associated with the mobile region.

- 5 Close the Mobile Regions/Public Land Mobile Networks (PLMNs) (Edit) form.
  - 6 Close the Manage Mobile Regions/Public Land Mobile Networks (PLMNs) (Edit) form.
-





## ***10 – 9471 MME complex operations***

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- 10.1 9471 MME complex operations overview    10-2**
- 10.2 Workflow for configuring 9471 MME complex operations    10-3**
- 10.3 9471 MME complex operations procedures    10-3**

## 10.1 9471 MME complex operations overview

The 5620 SAM supports bulk provisioning by allowing you to perform complex operations with LTE pools, global tracking areas and RAN profiles. You can monitor the progress of complex operations by viewing the activation session information.

### MME pools

The 5620 SAM uses MME pools to group 9471 MMEs that serve the same geographical area. An eNodeB in the area can be associated with the MME pool; that eNodeB can then be served by multiple 9471 MMEs. You can use the 5620 SAM to move a 9471 MME (Release LM4.0.2 or later) between MME pools. You can place up to 8 NEs in an MME pool.

### SGW pools

The 5620 SAM uses SGW pools to group S11 peers and LAIs of an 9471 MME.

### Tracking areas

Tracking areas are groups of eNodeBs that a 9471 MME can use to track the location of a UE. The 5620 SAM collects tracking area information from tracking area updates sent by 9471 MMEs. The 5620 SAM uses this information to construct a global tracking area object which the 9471 MME can use to associate MME pools with tracking areas.

### RAN profiles

The 5620 SAM allows you to create RAN profiles to configure the association between 9471 MMEs and eNodeBs for complex configuration change deployments. You can configure RAN S1-MME profiles and RAN SCTP profiles

#### RAN S1-MME profiles

The 5620 SAM uses a RAN S1-MME profile to rehome an eNodeB by reconfiguring its association to a new 9471 MME. By default, a RAN S1-MME profile is configured with an associated RAN SCTP profile. However, you can also configure a RAN S1-MME profile as a standalone profile.

#### RAN SCTP profiles

A RAN SCTP profile is applied to an eNodeB to provision SCTP. SCTP defines data transmission parameters for an association between an eNodeB and a 9471 MME.

## 10.2 Workflow for configuring 9471 MME complex operations

- 1 Configure a mobile region. See chapter 9 for more information about mobile regions.
- 2 To move a 9471 MME to an MME pool, perform the following:
  - i Ensure the 9471 MME is locked.
  - ii Remove all SGW pool, TAI mapping, and S11 peer associations from the 9471 MME.
  - iii Create an MME pool. See Procedure 10-1 for more information.
  - iv Move a 9471 MME to the new pool. See Procedure 10-3 for more information.
  - v As required, recreate S10 peer and other previously deleted associations.
  - vi If the move operation fails, restore the 9471 MME. See Procedure 10-4 for more information.
- 3 To move an eNodeB to a global tracking area, perform the following:
  - i Configure a global tracking area. See Procedure 10-7 for more information.
  - ii Move an eNodeB to a new global tracking area, as required. See Procedure 10-9 for more information.
  - iii Assign a global tracking area to a 9471 MME, as required. See Procedure 10-10 for more information.
- 4 To rehome an eNodeB to a different 9471 MME, perform the following:
  - i Configure a RAN S1-MME profile with an associated RAN SCTP profile. See procedure 10-11 for more information.
  - ii Assign the profile to an eNodeB.
  - iii Modify and redistribute the profile, if required. See the *5620 SAM User Guide* for more information.
- 5 Monitor the progress of the complex operation, as required.

## 10.3 9471 MME complex operations procedures

The following procedures describe how to configure 9471 MME complex operations.

### Procedure 10-1 To create an MME pool

- 1 Choose Manage→Mobile Core→LTE Pools from the 5620 SAM main menu. The Manage LTE Pools form opens.
- 2 Choose MME Pool (LTEPOOL) from the Select Object Type drop-down list.

- 3 Click on the Create button. The MME Pool (Create) form opens with the General tab displayed.
  - 4 Configure the parameters:
    - Pool Name
    - Pool ID
    - Description
  - 5 Choose a mobile region.
    - i Click on the Select button in the Mobile Node Region (PLMN) Information panel. The Select Mobile Node Region (PLMN) Information - MME Pool form opens.
    - ii Configure the filter criteria, if required, and click on the Search button.
    - iii Choose a mobile region from the list and click on the OK button. The Select Mobile Node Region (PLMN) Information - MME Pool form closes.
  - 6 Click on the OK button. The MME Pool (Create) form closes.
  - 7 Close the Manage LTE Pools form.
- 

#### **Procedure 10-2 To view an MME pool**

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- 1 Choose Manage→Mobile Core→LTE Pools from the 5620 SAM main menu. The Manage LTE Pools form opens.
- 2 Choose MME Pool (LTEPOOL) from the Select Object Type drop-down list.
- 3 Configure the filter criteria, if required, and click on the Search button. The form lists the available MME pools.
- 4 Choose an MME pool and click on the Properties button. The MME Pool (Edit) form opens with the General tab displayed.

- 5 Click on the following tab buttons in the MME Pool (Edit) form to view the properties of the MME pool, and the associated NEs, entities and faults.
    - General – displays mobile region information, containment and utilization statistics, and activation session details
    - Associated SGW Pools – lists the associated SGW pools
    - Associated MMEs – lists the associated 9471 MMEs
    - Home MMEs – lists the 9471 MMEs which are in the pool
    - Associated TAI List – lists the associated tracking area identity lists
    - Associated Neighbor TAI List – lists the associated neighbor tracking area identity lists
    - Faults – lists the faults associated with the MME pool according to the following alarm types:
      - Object Alarms
      - Affecting Alarms
      - Aggregated Alarms
      - Alarms on Related Objects
  - 6 Close the MME Pool (Edit) form.
  - 7 Close the Manage LTE Pools form.
- 

### Procedure 10-3 To move a 9471 MME to an MME pool

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**Note 1** – You can only move a 9471 MME between MME pools that are in the same PLMN.

**Note 2** – Before attempting to move a 9471 MME to an MME pool, ensure that the 9471 MME is locked.

**Note 3** – Before attempting to move a 9471 MME to an MME pool, ensure that all SGW pool, TAI mapping, and S11 peer associations are deleted.

**Note 4** – An MME pool can be involved in only one move operation at a time. A 9471 MME can be involved in only one move operation at a time.

**Note 5** – After a 9471 MME is moved to a new MME pool, it will have a new ID.

- 1 Choose Manage→Mobile Core→LTE Pools from the 5620 SAM main menu. The Manage LTE Pools form opens.
- 2 Choose MME Pool (LTEPOOL) from the Select Object Type drop-down list.
- 3 Configure the filter criteria, if required, and click on the Search button. A list of available MME pools is displayed.
- 4 Select an MME pool from the list and click on the Properties button. The MME Pool (Edit) form opens with the General tab displayed.

- 5 Click on the More Actions button and choose Add MME Node. The Add MME Node form opens.
- 6 Click on the Select button to choose a 9471 MME node. The Select MME Node form opens.
- 7 Configure the filter criteria, if required, and click on the Search button. A list of available 9471 MMEs is displayed.
- 8 Select a 9471 MME from the list and click on the OK button. The Select MME Node form closes.
- 9 Configure the New MME Code parameter, if required.
- 10 Click on the OK button. The Add MME Node form closes and the MME Pool (Edit) form refreshes to include the Add MME to Pool Status panel.
- 11 Monitor the progress of the activation session, as required.

The Status field changes from Add MME in progress to Add MME Succeeded or Add MME Failed when the operation is complete.



**Caution** — The 5620 SAM does not update S10 peer information. After performing an move operation, you must recreate S10 peer associations.



**Note** — If the move operation fails, you must restore the 9471 MME. See Procedure [10-4](#) for more information.

- 12 Close the MME Pool (Edit) form.
  - 13 Close the Manage LTE Pools form.
- 

#### **Procedure 10-4 To restore a 9471 MME after a failed MME pool move**

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Perform this procedure to restore a 9471 MME after a failed MME pool move operation. An MME pool move operation failed if the Status field changed to Add MME Failed in step [11](#) of Procedure [10-3](#).

- 1 Choose Manage→Mobile Core→LTE Pools from the 5620 SAM main menu. The Manage LTE Pools form opens.
- 2 Choose MME Pool (LTEPOOL) from the Select Object Type drop-down list.
- 3 Configure the filter criteria, if required, and click on the Search button. The form lists the available MME pools.
- 4 Choose an MME pool and click on the Properties button. The MME Pool (Edit) form opens with the General tab displayed.

- 5 Click on the More Actions button and choose Restore MME Node.

The Status field changes to MME Restore Succeeded when the operation is complete.



**Note** — After restoring a 9471 MME, some objects such as TAI Neighbor lists may be lost. You must manually recreate those object associations.

- 6 Close the MME Pool (Edit) form.
  - 7 Close the Manage LTE Pools form.
- 

### Procedure 10-5 To create an SGW pool

---

- 1 Choose Manage→Mobile Core→LTE Pools from the 5620 SAM main menu. The Manage LTE Pools form opens.
  - 2 Choose SGW Pool (LTEPOOL) from the Select Object Type drop-down list.
  - 3 Click on the Create button. The SGW Pool (Create) form opens with the General tab displayed.
  - 4 Configure the parameters:
    - Pool Name
    - Pool ID
    - Description
  - 5 Click on the OK button. The SGW Pool (Create) form closes.
  - 6 Close the Manage LTE Pools form.
- 

### Procedure 10-6 To view an SGW pool

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- 1 Choose Manage→Mobile Core→LTE Pools from the 5620 SAM main menu. The Manage LTE Pools form opens.
- 2 Choose SGW Pool (LTEPOOL) from the Select Object Type drop-down list.
- 3 Configure the filter criteria, if required, and click on the Search button. The form lists the available SGW pools.
- 4 Choose an SGW pool and click on the Properties button. The SGW Pool (Edit) form opens with the General tab displayed.

- 5 Click on the following tab buttons in the SGW Pool (Edit) form to view the properties of the SGW pool, and the associated NEs, entities and faults.
    - General – displays the pool name, ID, and description
    - Associated MME Pools – lists the associated MME pools
    - Associated Neighbor TAI List – lists the associated neighbor tracking area identity lists
    - Serving Gateway – lists the SGWs in the pool
    - Serving Gateway to TAI List – lists the associated SGW tracking area identity lists
    - Faults – lists the faults associated with the SGW pool according to the following alarm types:
      - Object Alarms
      - Affecting Alarms
      - Aggregated Alarms
      - Alarms on Related Objects
  - 6 Close the SGW Pool (Edit) form.
  - 7 Close the Manage LTE Pools form.
- 

#### **Procedure 10-7 To create a global tracking area**

---

- 1 Choose Manage→Mobile Core→LTE Tracking Area Objects from the 5620 SAM main menu. The LTE Tracking Area Objects form opens.
  - 2 Choose Tracking Area (LTEPOOL) from the Select Object Type drop-down list.
  - 3 Click on the Create button. The Tracking Area (Create) form opens.
  - 4 Configure the parameters:
    - Tracking Area Code
    - Close Session On First Failure
    - Delete Earlier Session Before Creating New Session
  - 5 Choose a mobile region.
    - i Click on the Select button beside the Mobile Country Code field. The Select Mobile Node Region (PLMN) Information - Tracking Area form opens.
    - ii Configure the filter criteria, if required, and click on the Search button.
    - iii Choose a mobile region from the list and click on the OK button. The Select Mobile Node Region (PLMN) Information - Tracking Area form closes.
  - 6 Click on the OK button. The Tracking Area (Create) form closes.
  - 7 Close the LTE Tracking Area Objects form.
-



**Procedure 10-8 To view a global tracking area**

---

- 1 Choose Manage→Mobile Core→LTE Tracking Area Objects from the 5620 SAM main menu. The LTE Tracking Area Objects form opens.
  - 2 Choose Tracking Area (LTEPOOL) from the Select Object Type drop-down list.
  - 3 Configure the filter criteria, if required, and click on the Search button.
  - 4 Choose a tracking area from the list and click on the Properties button. The Tracking Area (Edit) form opens with the General tab displayed.
  - 5 Click on the following tab buttons in the Tracking Area (Edit) form to view the properties of the tracking area, and the associated NEs, entities and faults.
    - General – displays mobile region and activation session information
    - Associated eNodeBs – lists the eNodeBs associated with the tracking area
    - MME Based Tracking Area – lists the MME-based tracking areas associated with the tracking area
    - MME Instance – lists the MME instances associated with the tracking area
    - Faults – lists the faults associated with the MME pool according to the following alarm types:
      - Object Alarms
      - Affecting Alarms
      - Aggregated Alarms
      - Alarms on Related Objects
  - 6 Close the Tracking Area (Edit) form.
  - 7 Close the LTE Tracking Area Objects form.
- 

**Procedure 10-9 To move an eNodeB to a global tracking area**

---

- 1 Choose Manage→Mobile Core→LTE Tracking Area Objects from the 5620 SAM main menu. The LTE Tracking Area Objects form opens.
- 2 Choose Tracking Area (LTEPOOL) from the Select Object Type drop-down list.
- 3 Configure the filter criteria, if required, and click on the Search button.
- 4 Choose a tracking area from the list and click on the Properties button. The Tracking Area (Edit) form opens with the General tab displayed.
- 5 Click on the More Actions button and choose Assign to eNodeBs. The Assign to eNodeBs form opens.

- 6 Configure the filter criteria, if required, and click on the Search button. The form lists the available eNodeBs.



**Note** — You can only move an eNodeB between tracking areas within the same PLMN.

- 7 Choose an eNodeB from the list and click on the OK button. The Assign to eNodeBs form closes and an information box opens.
  - 8 Click on the OK button. The Tracking Area (Edit) form updates with more information in the Activation Session Information for eNodeB Tracking Area Assignments panel.
  - 9 Click on the Properties button next to the Activation Session ID field. The Activation Session (Edit) form opens with the General tab displayed.
  - 10 Monitor the progress of the activation session, as required. The Status field changes from Active to Idle once the activation session is complete.
  - 11 Close the Activation Session (Edit) form.
  - 12 Close the Tracking Area (Edit) form.
  - 13 Close the LTE Tracking Area Objects form.
- 

#### **Procedure 10-10 To assign a 9471 MME to a global tracking area**

---

- 1 Choose Manage→Mobile Core→LTE Tracking Area Objects from the 5620 SAM main menu. The LTE Tracking Area Objects form opens.
- 2 Choose Tracking Area (LTEPOOL) from the Select Object Type drop-down list.
- 3 Configure the filter criteria, if required, and click on the Search button.
- 4 Choose a tracking area from the list and click on the Properties button. The Tracking Area (Edit) form opens with the General tab displayed.
- 5 Click on the More Actions button and choose Assign to MMEs. A confirmation box appears.
- 6 Click on the Yes button to confirm the action. The Assign Filter form opens.
- 7 Configure an advanced search. See the *5620 SAM User Guide* for more information about advanced searches.
- 8 Close the Assign 1 Filter form. The Assign 1 form appears with the filtered 9471 MME nodes displayed.
- 9 Select an NE from the Unassigned MME panel and click on the right arrow button. The NE moves to the Assigned MME panel.
- 10 Click on the OK button. The Assign form closes.

- 11 Close the Tracking Area (Edit) form.
  - 12 Close the LTE Tracking Area Objects form.
- 

### **Procedure 10-11 To configure a RAN S1-MME profile**

---

- 1 Choose Policies→Mobile→RAN Profiles and Policies from the 5620 SAM main menu. The RAN Profiles and Policies form opens.
- 2 Choose RAN S1-MME Profile (LTES1MME) from the Select Object Type drop-down list.
- 3 Perform one of the following:
  - a Specify a filter to search for a profile. Choose the profile to modify and click on the Properties button. The RAN S1-MME Profile (Edit) form opens with the General tab displayed.
  - b Click on the Create button. The RAN S1-MME Profile (Create) form opens with the General tab displayed.
- 4 Configure the parameters:
  - Profile Name
  - Description
  - Is Stand Alone
  - Priority
  - Close Session On First Failure
  - Delete Earlier Session Before Creating New Session
  - SCTP Association Remote Address 1
  - SCTP Association Remote Address 2
- 5 Choose a mobile region.
  - i Click on the Select button beside the Mobile Country Code field. The Select Mobile Node Region (PLMN) Information -RAN S1-MME Profile form opens.
  - ii Configure the filter criteria, if required, and click on the Search button.
  - iii Choose a mobile region from the list and click on the OK button. The Select Mobile Node Region (PLMN) Information - RAN S1-MME Profile form closes.
- 6 Perform one of the following:
  - a If you enabled the Is Stand Alone parameter in step 4, go to step 10.
  - b If you did not enable the Is Stand Alone parameter in step 4, go to step 7.
- 7 Click on the Associated RAN SCTP Profile tab button.

**8** Configure the parameters:

- Description
- Access Association Maximum Retransmissions
- Access Establishment Maximum Retries
- Access Establishment Retry Interval (ms)
- Access Maximum INIT Retransmissions
- Access Path Maximum Retransmissions
- Association Heartbeat Interval (ms)
- Access Link Failure Maximum Retries
- Access Link Failure Retry Interval (ms)
- RTO Initial Value (ms)
- Alpha Divisor
- Beta Divisor
- RTO Maximum Time (ms)
- RTO Minimum Time (ms)
- SACK Timer (ms)



**Note** — The PLMN information for a RAN SCTP profile must be the same as the PLMN information for the associated S1-MME profile. The Mobile Node Region (PLMN) Information panel on the Associated RAN SCTP Profile tab contains the matching PLMN information by default. Although you can configure the information, the values automatically revert to the PLMN information specified on the General tab when you apply the changes.

- 9** Click on the General tab button.
- 10** Click on the Apply button. The RAN S1-MME Profile (Edit) form opens with the General tab displayed.
- 11** Assign the profile to eNodeBs.
  - i** Click on the More Actions button and choose Assign to eNodeBs. The Assign to eNodeBs form opens.
  - ii** Configure the filter criteria, if required, and click on the Search button.
  - iii** Choose one or more eNodeBs from the list and click on the OK button. The Assign to eNodeBs form closes and a warning dialog opens.
  - iv** Select the I understand the implications of this action checkbox and click on the Yes button. The RAN S1-MME profile (Edit) window updates with more information in the Session Information panel.
- 12** Click on the Properties button next to the Activation Session ID field. The Activation Session (Edit) form opens with the General tab displayed.
- 13** Monitor the progress of the operation, as required.

The Status will update from Active to Idle when the operation is complete.
- 14** Close the Activation Session (Edit) form.

- 15 Close the RAN S1-MME Profile (Edit) form.
- 16 Close the RAN Profiles and Policies form.

---

### Procedure 10-12 To configure a RAN SCTP profile

---

- 1 Choose Policies→Mobile→RAN Profiles and Policies from the 5620 SAM main menu. The RAN Profiles and Policies form opens.
- 2 Choose RAN SCTP Profile (LTE S1-MME) from the Select Object Type drop-down list.
- 3 Perform one of the following:
  - a Specify a filter to search for a profile. Choose the profile to modify and click on the Properties button. The RAN SCTP Profile (Edit) form opens with the General tab displayed.
  - b Click on the Create button. The RAN SCTP Profile (Create) form opens with the General tab displayed.
- 4 Configure the parameters:
 

• Profile Name	• Access Link Failure Maximum Retries
• Description	• Access Link Failure Retry Interval (ms)
• Access Association Maximum Retransmissions	• RTO Initial Value (ms)
• Access Establishment Maximum Retries	• Alpha Divisor
• Access Establishment Retry Interval (ms)	• Beta Divisor
• Access Maximum INIT Retransmissions	• RTO Maximum Time (ms)
• Access Path Maximum Retransmissions	• RTO Minimum Time (ms)
• Association Heartbeat Interval (ms)	• SACK Timer (ms)
	• Close Session On First Failure
	• Delete Earlier Session Before Creating New Session
- 5 Choose a mobile region.
  - i Click on the Select button in the Mobile Node Region (PLMN) Information panel. The Select Mobile Node Region (PLMN) Information - RAN SCTP Profile form opens.
  - ii Configure the filter criteria, if required, and click on the Search button.
  - iii Choose a mobile region from the list and click on the OK button. The Select Mobile Node Region (PLMN) Information - RAN SCTP Profile form closes.
- 6 Click on the Apply button. The RAN SCTP Profile (Edit) form opens with the General tab displayed.

- 7 Assign the profile to eNodeBs.
    - a Click on the More Actions button and choose Assign to eNodeBs. The Assign to eNodeBs form opens.
    - b Configure the filter criteria, if required, and click on the Search button.
    - c Choose one or more eNodeBs from the list and click on the OK button. The Assign to eNodeBs form closes and a warning dialog opens.
    - d Select the I understand the implications of this action checkbox and click on the Yes button. The RAN S1-MME profile (Edit) window updates with more information in the Session Information panel.
  - 8 Click on the Properties button next to the Activation Session ID field. The Activation Session (Edit) form opens with the General tab displayed.
  - 9 Monitor the progress of the operation, as required.

The Status will update from Active to Idle when the operation is complete.
  - 10 Close the Activation Session (Edit) form.
  - 11 Close the RAN SCTP Profile (Edit) form.
  - 12 Close the RAN Profiles and Policies form.
-

# ***LTE ePC path and mobile service management***

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- 11 – EPS path topology map
- 12 – Viewing LTE ePC peers and paths
- 13 – Transport layer correlation for EPS paths
- 14 – Mobile service management





# ***11 – EPS path topology map***

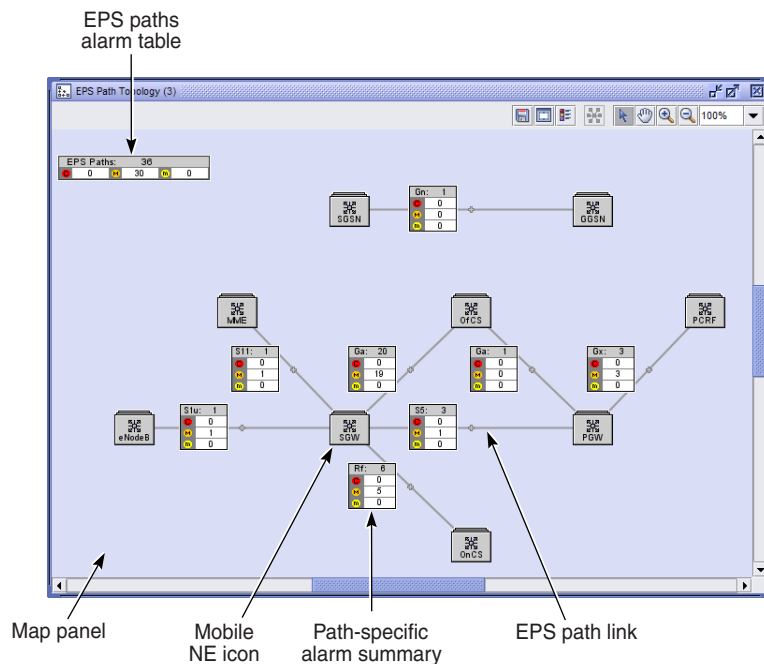
---

- 11.1 EPS path topology map overview    11-2**
- 11.2 EPS path topology menu    11-5**
- 11.3 EPS path topology map management procedures    11-6**

## 11.1 EPS path topology map overview

The EPS path topology map displays a static representation of mobile network objects and EPS paths. Each network object icon represents an aggregate of all network objects of that type. For SGWs and PGWs, the icon represents an aggregate of all instances of that gateway type and all network objects that contain instances of that type. Each EPS path link represents an aggregate of all EPS paths of a specific type. Figure 11-1 shows the main elements of the mobility topology map.

Figure 11-1 EPS path topology map elements



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### EPS path topology map window

The EPS path topology map window consists of:

- a titlebar
- a map panel that displays the network objects
- a map toolbar which consists of a collection of buttons that are used to manage the map view

The titlebar of the map window displays the following information:

- map type, which is EPS Path Topology in this case
- map number, which indicates the order in which the map was opened; for example, whether it is the first or the tenth map opened. There is no limit to the number of topology maps that you can have open at the same time.

## EPS path topology map panel

The EPS path topology map panel displays a static map of the mobile network that contains:

- icons that represent an aggregate of the unmanaged mobile NEs and gateways
- icons that represent an aggregate of a mobile NE type or instance
- links between network elements that represent an aggregate of the EPS paths, such as S5 and S8
- an EPS path aggregated alarm table for each type of path
- an EPS aggregated alarm table for all EPS paths in the network; the table displays the total number of EPS paths and the number of paths that have at least one critical, major, and minor alarm
- icons that represent functions, such as the OfCS or OnCS

### Selecting map objects

Click on the Select Tool button to select an object on the map. You can select multiple objects by pressing the Shift key and clicking on each object you need to select, or by drawing a selection rectangle around all of the objects you need to select on the topology map. You can select all of the NEs that are attached to an NE by selecting one or more NEs, right-clicking, and choosing Select Attached from the contextual menu. You can deselect a selected NE by pressing the CTRL key and clicking on the NE you need to deselect.

### Moving map objects

You cannot move the map objects.

### EPS path links

The map displays links that represent all EPS paths of a specific type between two mobile NEs or instances. You can right-click on a link to display a list of EPS paths.

### Alarm tables

Each EPS path link is associated with an alarm table. There is also a path alarm table for the mobile network.

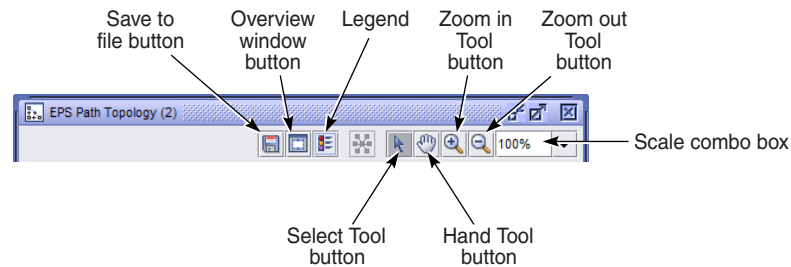
## Zoom in and out using a mouse

The ability to zoom in and out on a map allows you to increase or decrease the size of the map. Use the mouse wheel to zoom in and zoom out of the map. Click on the map and roll the mouse wheel forward to zoom in or roll the mouse wheel backward to zoom out. Each roll of the mouse wheel brings the map objects closer or farther.

## EPS path topology map toolbar

The EPS path topology map toolbar allows you to manage the view of the map. The toolbar appears above the map panel in the map window. Figure 11-2 shows the map toolbar and its elements.

**Figure 11-2 Map toolbar elements**



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### Save To File button

Click on the Save To File button to save the map view or the full map. You can choose the location to save the map image and the file type. See Procedure 11-3 for more information about using the Save To File button. Figure 11-3 shows the Save To File button.

**Figure 11-3 Save To File button**



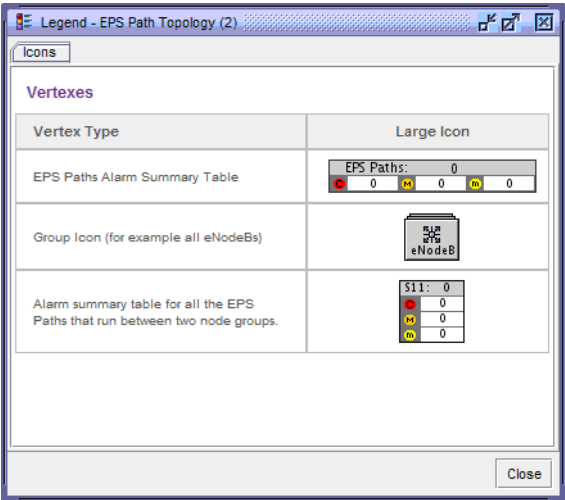
### Overview Window button

Click on the Overview Window button to open the Overview window. Use the Overview window to pan the entire map and the area that you want to view.

### Legend Tool button

Click on the Legend Tool button to open the Legend - EPS Path Topology window. The window contains a table that explains the meaning of the topology map icons. Figure 11-4 shows the Legend - EPS Path Topology display.

Figure 11-4 Legend - EPS Path Topology



**Select Tool button**

Click on the Select Tool button to select an object on the map. You can select multiple objects by pressing the Shift key and clicking on each object you want to select, or by drawing a selection rectangle around all the objects you want to select on the mobility topology map.

**Hand Tool button**

Click on the Hand Tool button to switch to a pan mode. Click on the background to move the contents of the map in any direction.

**Zoom in and zoom out using a Mouse or Tool buttons**

The ability to zoom in and out on a map allows you to view details of the map. Click on the Zoom in Tool and Zoom out Tool buttons, and click on the map to resize the objects in a map or use the mouse wheel to zoom in and zoom out of topology maps. Click on the map and roll the mouse wheel forward to zoom in or roll the mouse wheel backward to zoom out. Each roll of the mouse wheel brings the map objects closer or farther.

**Scale combo box**

Use the scale combo box to increase or decrease the zoom in the map. You can choose a zoom percentage value from 25% to 300%, or fit all objects in the window from the drop-down menu. The scale combo box displays the current scale of the map.

**11.2 EPS path topology menu**

Table 11-1 lists the EPS path topology menu item and its function.

**Table 11-1 5620 SAM map management menu**

Menu option	Function
Application→EPS Path Topology	View the EPS path topology map

## 11.3 EPS path topology map management procedures

Perform the following procedures to perform map management tasks.

### Procedure 11-1 To open the EPS path topology map

- 1 Choose Application→EPS Path Topology from the 5620 SAM main menu.
- 2 The EPS path topology map appears.  
  
See Procedure 11-2 for information about the map elements. See section 11.1 for information about the map view.

### Procedure 11-2 To view EPS path topology map elements

- 1 Open an EPS path topology map, as described in Procedure 11-1. Figure 11-1 shows the map main elements.
- 2 View the NEs, links, and alarm tables, as required:
  - a View the EPS path topology map icons that represent mobile network NEs. Table 11-2 describes the map icons.

**Table 11-2 EPS path topology map icons**

Map icon type	Description
MME	Represents all of the managed MME devices and MME devices that have an EPS path to another NE. When you right-click on an MME icon, you can choose to display a list of all MME instances represented by the icon or all NEs that contain an MME instance. See chapter 7 for more information about viewing MME properties.
SGW	Represents all of the managed SGW instances and all of the managed network elements that contain SGW instances. When you right-click on an SGW icon, you can choose to display a list of all gateway instances represented by the icon or all NEs that contain an SGW instance. See chapter 6 for more information about configuring SGWs.
PGW	Represents all of the managed PGW instances and all of the managed network elements that contain PGW instances. When you right-click on a PGW icon, you can choose to display a list of all gateway instances represented by the icon or all NEs that contain a PGW instance. See chapter 6 for more information about configuring PGWs.

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Map icon type	Description
PCRF	Represents all of the managed PCRF devices in the network and the PCRF devices that have an EPS path to another NE. When you right-click on a PCRF icon, you can choose to display a list of all DSC instances represented by the icon or all NEs that contain a DSC instance. See chapter 8 for more information about viewing DSC properties.
GGSN	Represents the Gateway GPRS Support Node (GGSN) instances and all managed network elements that contain GGSN instances. When you right-click on a GGSN icon, you can choose to display a list of PGWs that are functioning as GGSNs.
SGSN	Represents the Serving GPRS Support Node (SGSN) instances. When you right-click on an SGSN icon, you can choose to display a list of all unmanaged elements of type SGSN.
eNodeB	Represents all of the network elements of type eNodeB.
OfCS	Represents the offline charging system, a charging system where charging information does not affect, in real-time, the service being delivered.
OnCS	Represents the online charging system, a charging system where charging information can affect, in real-time, the service being delivered.

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- b View the EPS path links. The EPS path links, which appear in the map between NEs, represent an aggregate of all of the EPS paths of a specific type. Right-click on a link and click on the menu item to display a list of all of the EPS paths that are represented by the link. You can choose a path from the list to view or modify the path properties.
- c View the EPS path alarm tables. Table 11-3 describes the EPS path alarm tables.

Table 11-3 EPS path alarm tables

Alarm table type	Description
EPS path-specific alarm tables	Each EPS path type is associated with an alarm table that is displayed over the path link on the map. Each alarm table displays the: <ul style="list-style-type: none"> <li>• path type</li> <li>• total number of paths represented by the link</li> <li>• rows that display the number of paths with at least one critical, major, or minor alarm</li> </ul>
EPS paths alarm table	There is one EPS paths alarm table associated with the topology map. The EPS paths alarm table displays the: <ul style="list-style-type: none"> <li>• total number of paths of all types in the mobile network</li> <li>• total number of paths of all types that have at least one critical, major, or minor alarm</li> </ul>

### Procedure 11-3 To save a map view to a file

---

You can use the Save to File button to save a portion of a map or the entire map to the local file system. You can save the file to JPEG, JPG, BMP, and PNG formats.

- 1 Open an EPS path topology map, as described in Procedure 11-1.
- 2 Click on the Save To File button. The save options are displayed in the drop-down menu.
- 3 Choose an option from the drop-down menu:
  - Choose Save Map View to save the current view.
  - Choose Save Full Map to save the entire map view.

The Save form appears.

- 4 Save the results.
    - i To choose a directory in which to save the listed information, configure the Save In parameter.
    - ii To create a filename, configure the File Name parameter.
    - iii Choose BMP, JPEG, JPG, or PNG from the File of Type drop-down menu.
    - iv Click on the Save button. The map view is saved to the specified file.
- 

### Procedure 11-4 To zoom in and zoom out of a map

---

- 1 Open an EPS path topology map, as described in Procedure 11-1.
  - 2 Perform one of the following:
    - a Use the mouse wheel to zoom in and zoom out. Click on the map. To zoom in, roll the mouse wheel forward. To zoom out, roll the mouse wheel backward.
    - b Click on the Zoom in Tool or Zoom out Tool button. Go to step 3.
  - 3 Move your cursor into the map panel. The icon changes to a magnifying glass that contains a + or - sign.
  - 4 Click on the area of the map you need to expand or contract. The map expands or contracts. Continue clicking until the required zoom level is reached.
  - 5 Use the opposite button and an equal number of clicks to return the map to the default setting.
  - 6 To return to the pointer icon, click on the Select Tool button in the toolbar.
-



**Procedure 11-5 To view and modify EPS path information**

---

- 1 Open an EPS path topology map, as described in Procedure 11-1.
  - 2 To list EPS paths, perform one of the following.
    - a Using an EPS path link:
      - i Right-click on the EPS path link for the type of path that you need to list.
      - ii Click on the displayed menu item. An EPS paths form opens that displays a list of paths.
      - iii Choose a path from the list and click on the Properties button. The properties edit form for the EPS path opens.
    - b Using the EPS path alarm table:
      - i Right-click on the EPS path alarm table at the top of the EPS path topology map.
      - ii Click on the menu item. The EPS Paths form opens.
      - iii Click on the Select Object Type button and choose the type of path from the list.
      - iv Click on the Search button. A list of paths appears.
      - v Choose a path from the list and click on the Properties button. The path type edit form opens.
  - 3 View and modify the path information, as required.
  - 4 Close the path edit form.
  - 5 Close the EPS paths form.
-



## ***12 – Viewing LTE ePC peers and paths***

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**12.1 Viewing EPS peers and paths overview    12-2**

**12.2 Viewing the properties of EPS peers and paths    12-3**

## 12.1 Viewing EPS peers and paths overview

The 5620 SAM allows you to view the status, statistics, state, and faults associated with the EPS peers and paths.

Each peer or path combines a pair of matching reference points and peer objects of two ePC nodes in a managed entity. Reference points are based on the LTE 3GPP standard, and are created automatically when you configure an LTE node such as an SGW or a PGW. EPS paths are created dynamically when LTE peer devices are signaled. After the 5620 SAM resynchronizes a control session, the EPS peers and EPS paths are discovered by the 5620 SAM.



**Note —** The signaling interfaces must be configured on the LTE ePC device before the 5620 SAM can discover EPS peers and paths. See Procedure 6-1 for information about how to configure signaling on an SGW and Procedure 6-6 for information about how to configure signaling on a PGW.

### EPS peers

EPS peers are neighboring nodes that share the endpoints of an EPS path. An example is S5 and S8 EPS paths: one endpoint is always an SGW and the other endpoint is always a PGW. The PGW and the SGW are EPS peers.

The 5620 SAM supports the following types of peers:

- diameter-based
- GTP/PMIP-based

### EPS paths

An EPS path is a point-to-point connection between LTE nodes that is used for bearer control. The 5620 SAM allows you to discover and list all of the EPS paths in the entire mobile network or on a specific node. You can filter using specific parameters, such as type, status, and IP address, to display specific bearer paths.

EPS paths are single-sided or double-sided. For single-sided EPS paths, the 5620 SAM manages one endpoint. Single-sided EPS paths include:

- S1-U path between the SGW and the eNodeB, where only the SGW is managed by the 5620 SAM
- S11 path between the SGW and the MME, where only the SGW is managed by the 5620 SAM
- Rf path between the SGW and the CCF, where only the SGW is managed by the 5620 SAM
- Gx path between the PGW and the PCRF, where only the PGW is managed by the 5620 SAM
- Ga path between the PGW and the OfCS, where only the PGW is managed by the 5620 SAM
- Ga path between the SGW and the OfCS, where only the SGW is managed by the 5620 SAM

- Gy path between the PGW and the OnCS, where only the PGW is managed by the 5620 SAM
- S2a path between the PGW and the HSGW, where only the PGW is managed by the 5620 SAM

Double-sided paths include:

- S5 path between the SGW and the PGW, which are both managed by the 5620 SAM
- S8 path between the SGW and the PGW, which are both managed by the 5620 SAM

## 12.2 Viewing the properties of EPS peers and paths

The following procedures describe how to view the properties of EPS peers and paths.

### **Procedure 12-1 To view the properties of EPS peers from the EPS Peers and Paths form**

---

- 1 Choose Manage→Mobile Core→EPS Peers and Paths from the 5620 SAM main menu. The Manage EPS Peers and Paths form opens.
- 2 Choose Evolved Packet Solution Peer (LTE) from the Select Object Type drop-down menu. The supported types of peers appear as subtending objects in the Evolved Packet Solution Peer (LTE) navigation tree.
- 3 Choose a type of peer from the drop-down menu:
  - a Evolved Packet Solution Peer with Port (LTE)
    - i Diameter Based Peer (LTE)
      - AGW Diameter Peer (LTE)
        - AGW Rf Peer (LTE)
        - SGW Rf Peer (LTE)
        - Gx PGW Peer (LTE)
        - Gy PGW Peer (LTE)
        - S6b Peer (LTE)
      - DSC Diameter Peer (LTE)

ii GTP/PMIP Based Peer (LTE)

- AGW GTP/PMIP Peer (LTE)
  - Gn Peer (LTE)
  - S11 SGW Peer (LTE)
  - S1u SGW Peer (LTE)
  - S2a Peer (LTE)
  - S5 AGW Peer (LTE)
  - S8 AGW Peer (LTE)
- MME GTP Peer (LTE)
  - Gn MME Peer (LTE)
  - GrMME Peer (LTE)
  - luPS MME Peer (LTE)
  - M3 MME Peer (LTE)
  - S10 MME Peer (LTE)
  - S11 MME Peer (LTE)
  - S13 MME Peer (LTE)
  - S1 mme MME Peer (LTE)
  - S3 MME Peer (LTE)
  - S6a MME Peer (LTE)
  - SBc MME Peer (LTE)
  - SGs MME Peer (LTE)
  - SLg MME Peer (LTE)
  - SLs MME Peer (LTE)
  - Sm MME Peer (LTE)
  - Sy MME Peer (LTE)
  - X1\_1 MME Peer (LTE)
  - X2 MME Peer (LTE)
- eNodeB GTP Peer (LTE)
  - S1-MME Peer (LTE)
  - X2 Peer (LTE)

iii Ga Peer (LTE)

- PDN Ga Peer (LTE)
- SGW Ga Peer (LTE)

b PDN RADIUS Peer (LTE)

- 4 Configure the filter criteria, if required, and click on the Search button. The form lists the available EPS peers.
- 5 Choose an EPS peer from the list and click on the Properties button. The EPS Peer form opens with the General tab displayed.

- 6 Click on the following tab buttons for additional information:
    - Diameter—lists the Diameter management state, detailed state, profile name, and profile index. This tab applies only to Gx, Gy and Rf peers.
    - Statistics—lists the statistics associated with the peer
    - Faults—lists the faults associated with the EPS peer according to the following alarm types:
      - Object Alarms
      - Affecting Alarms
      - Aggregated Alarms
      - Alarms on related Objects
  - 7 Click on the Cancel button to close the form.
- 

### **Procedure 12-2 To view the properties of EPS paths from the EPS Peers and Paths form**

---

- 1 Choose Manage→Mobile Core→EPS Peers and Paths from the 5620 SAM main menu. The Peers and Paths form opens.
- 2 Choose Evolved Packet Solution Path (LTE) from the Select Object Type drop-down menu. The supported paths appear as subtending objects in the Evolved Packet Solution Path (LTE) navigation tree.
- 3 Choose a path type from the following menu:
  - AGW Rf Path (LTE)
    - SGW Rf Path (LTE)
  - Ga Path (LTE)
    - PDN Ga Path (LTE)
    - SGW Ga Path (LTE)
  - Gn Path (LTE)
  - Gx Path (LTE)
  - Gy Path (LTE)
  - PDN RADIUS Path (LTE)
  - S1-MME Path (LTE)
  - S11 Path (LTE)
  - S1u Path (LTE)
  - S2a Path (LTE)
  - S5 Path (LTE)
  - S6b Path (LTE)
  - S8 Path (LTE)
  - X2 Path (LTE)
- 4 Configure the filter criteria, if required, and click on the Search button. The form lists the available EPS paths.
- 5 Choose an EPS path from the list and click on the Properties button. The EPS Path properties form opens with the General tab displayed.

- 6 Click on the following tab buttons for additional information:
    - Tree—lists the navigation tree that is associated with the path
    - Drill Down—see Procedure 13-3 for more information about how to perform the manual drill-down operation. Drill-down is not supported on the Rf EPS paths.
    - Components—this tab is populated only after the drill-down operation is performed
    - Discovery Log—a log appears if the drill-down operation fails
    - Faults—lists the faults associated with the EPS path according to the following alarm types:
      - Object Alarms
      - Affecting Alarms
      - Aggregated Alarms
      - Alarms on related Objects
  - 7 Click on the Cancel button to close the form.
-



# ***13 – Transport layer correlation for EPS paths***

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## 13.1 Transport layer correlation with EPS paths overview

This chapter describes how to use the 5620 SAM to manage the transport layer that underlies the EPS paths.

### EPS paths

EPS paths are created automatically when the 5620 SAM recognizes a discovered peer and a discovered reference point on a managed entity, such as an SGW. The EPS paths are classified by their symmetry. Symmetry for EPS paths is determined by whether both EPS path endpoints are fully managed by the 5620 SAM. The symmetry types are:

- single-sided—When the 5620 SAM recognizes only one side of an interface, the 5620 SAM creates a single-sided path.
- double-sided—When the 5620 SAM recognizes both sides of an interface, the 5620 SAM forms an entity with two peers and two reference points, known as a double-sided path.

### Transport segments of EPS paths

An EPS path encapsulates the connection between two endpoints within the LTE network. Each EPS path has at least one transport segment. Some EPS paths, such as an S1-U EPS path, can contain multiple transport segments. The drill-down operation correlates the alarms of each segment with the EPS paths and provides information to perform diagnostic analyses when an EPS path is down.

### EPS path drill-down hints

To diagnose and manage faults which may occur in the transport layer that underlies an EPS path, you must provision the 5620 SAM with a group of EPS path drill-down hints that represent the transport topology of the network. The 5620 SAM uses the hints to correlate the transport segments with the EPS paths.

A drill-down hint is a list of entries where each entry consists of a pair of entities: a segment and a connection. The possible types of segments are:

- eNodeB to NE—One of the endpoints of the segment is an eNodeB. The other endpoint is another NE that is managed by the 5620 SAM.
- NE to NE—Both of the endpoints of the segment are NEs that are managed by the 5620 SAM.
- NE to SGW—One of the endpoints of the segment is an SGW. The other endpoint is an NE that is managed by the 5620 SAM.
- SGW to PGW—Both of the endpoints of the segment are managed by the 5620 SAM.
- SGW to MME—One endpoint of the segment is an SGW that is managed by the 5620 SAM. The other endpoint is an MME.
- PGW to PCRF—One endpoint of the segment is a PGW that is managed by the 5620 SAM. The other endpoint is a PCRF.

The possible types of connections are:

- physical link
- managed spoke connector (applicable to the NE to NE segment)
- managed L2 transport (applicable to the NE to SGW segment)
- unmanaged L2 transport

### High-priority hints

Because you can have hundreds of hints configured for your network, it is advantageous from a performance perspective to limit the number of hint profiles that the 5620 SAM must process during the automatic correlation of the transport layer with the new EPS paths. To avoid delays in the correlation process, you can specify a set of hints that the 5620 SAM uses to correlate a new EPS path with the transport layer. These hints are referred to as high-priority hints. You can configure up to five high-priority hints for each path type. See Procedure [13-1](#) for more information about how to configure a hint using the High Priority parameter.

## EPS path drill-down operations

The drill-down operation uses the path drill-down hints to correlate the underlying transport layer with the EPS paths. The types of drill-down operations are:

- automatic
- manual

### Automatic drill-down operation

When the 5620 SAM creates an EPS path, the 5620 SAM parses the list of high-priority EPS path drill-down hints to identify the segments that comprise the underlying transport layer.



**Note** — Only high-priority hints are used for the automatic drill-down operation.

Because you have already configured the IP address of the endpoints for each peer of an EPS path, the 5620 SAM automatically attempts to traverse the path that you configured in the hint to determine whether there is connectivity with the IP address of the designated peer. The 5620 SAM attempts to apply each hint to the underlying network, starting with the first hint in the hint list. If the first high-priority hint fails, the 5620 SAM tries the second hint, if available. If any segment within a hint fails to discover components, an alarm is generated and the degree of success of the drill-down is indicated in the Hint Matching Level field. If the drill-down operation is successful, the list of underlying objects are listed in the Components tab on the EPS Path properties form.

### Manual drill-down operation

There are no real-time updates to the list of components that identify the underlying transport elements of an EPS path. If the network topology changes and the list of components changes, the 5620 SAM does not automatically update the components. The manual drill-down operation allows you to update the list of components.

The manual drill-down operation forces the 5620 SAM to try to correlate an EPS path with a discovered set of underlying components using one specified hint or a set of high-priority hints. Depending on the outcome of the operation, the 5620 SAM returns a success or failure notification. If a manual drill-down operation fails, the 5620 SAM does not attempt to apply another hint. You must manually choose a different hint and repeat the drill-down operation.

If you do not choose a hint for a specified path, the 5620 SAM applies the high-priority hints when you perform the manual drill-down operation. See Procedure 13-3 for more information about how to perform the manual drill-down operation.

### Hint matching level

The Hint Matching Level field indicates the degree of success for an EPS path drill-down operation. The hint matching level is an indication of the number of successfully discovered hint segments expressed as a percentage of the total number of hint segments. For example, if a drill-down hint contains three segments and the drill-down operation successfully discovers two of those segments, the hint matching level is 66%. The State field value is Failed for anything less than a 100% drill-down success.

## 13.2 Workflow for transport layer correlation for EPS paths

- 1 Review the supported hint criteria and restrictions. See section 13.1 for more information.
- 2 For automatic drill-down, create the EPS path drill-down hints before you configure a node for management. The drill-down operation is automatically performed when the node is discovered. See Procedure 13-1 for more information.
- 3 For manual drill-down, create the EPS path drill-down hints and perform the manual drill-down operation to correlate the EPS path with the transport layer. See Procedure 13-3 for more information.

## 13.3 EPS path drill-down hints

This section describes the hints, transport segments, and connections that are supported by the 5620 SAM for each EPS path type. The EPS path drill-down hints apply only to S1-U, S5, S11, and Gx paths.

### S1-U path drill-down hints

Table 13-1 lists the hints for S1-U paths that the 5620 SAM supports.

**Table 13-1 S1-U path hints, transport segments, and connections**

Hint	Segment	Connection
1	eNodeB to NE	Physical link
	NE to NE	Managed Spoke Connector <sup>(1)</sup>
	NE to SGW	Managed L2 Transport
2	eNodeB to NE	Physical link
	NE to NE	Managed Spoke Connector <sup>(1)</sup>
	NE to SGW	Unmanaged L2 Transport
3	eNodeB to NE	Physical link
	NE to NE	Managed Spoke Connector <sup>(1)</sup>
	NE to SGW	Physical link

Note

<sup>(1)</sup> The L2 VPN topology must be an Epipe SAP facing the eNodeB and spoked to a VPLS with a SAP facing the SGW. No other topology is supported for the NE to NE segment.

## S5 path drill-down hints

Table 13-2 lists the hints for S5 paths that the 5620 SAM supports.

**Table 13-2 S5 path hints, transport segments, and connections**

Hint	Segment	Connection
1	SGW to PGW	Physical link
2	SGW to PGW	Unmanaged L2 Transport

## S11 path drill-down hints

Table 13-3 lists the hints for S11 paths that the 5620 SAM supports.

**Table 13-3 S11 path hints, transport segments, and connections**

Hint	Segment	Connection
1	SGW to MME	Physical link
2	SGW to MME	Unmanaged L2 Transport

## Gx path drill-down hints

Table 13-4 lists the hints for Gx paths that the 5620 SAM supports.

**Table 13-4 Gx path hints, transport segments, and connections**

Hint	Segment	Connection
1	PGW to PCRF	Physical link
2	PGW to PCRF	Unmanaged L2 Transport

## 13.4 EPS path drill-down hint creation and validation

Perform Procedure [13-1](#) to create an EPS path drill-down hint.

### Procedure 13-1 To create an EPS path drill-down hint

---

- 1 Choose Manage→Mobile Core→LTE EPS Path Drill Down Hints from the 5620 SAM main menu. The Manage EPS Path Drill-Down Hints form appears.
- 2 Click on the Create button. The EPS Path Drill Down Hint (Create) form opens with the General tab displayed.
- 3 Configure the parameters:
  - ID (or Auto-Assign ID)
  - Description
  - Type—Choose the type of EPS path from the drop-down menu. The options are:
    - Gx
    - S11
    - S1-u
    - S5
  - High Priority
- 4 Click on the Segments tab button.
- 5 Click on the Create button. The EPS Path Segment (Create) form appears.
- 6 Configure the Order parameter. The Order parameter is an ordinal value that specifies the position of the segments in the hint. The Gx, S11, and S5 hints have only one segment: the value must be 1. The S1-U hint has three segments: the value must be 1, 2, or 3 depending on the segment type. See [Table 13-1](#) for more information.
- 7 Enter a name in the Description field.
- 8 Configure the Segment Type parameter. The segment types that are available depend on the path type that you specified in step 3. [Table 13-5](#) lists the available transport segment types for each EPS path type.

**Table 13-5 EPS path transport segment types**

EPS path type	Transport segment type
GX	PGW-PCRF
	unspecified
S1-U	NE-NE
	NE-SGW
	eNodeB-NE
	unspecified
S11	SGW-MME
	unspecified
S5	SGW-PGW
	unspecified

- 9 Configure the Connection Type parameter. The connection types that are available depend on the segment type that you specified in step 8. Table 13-6 lists the available connection types for each segment type.

**Table 13-6 EPS path connection types**

EPS path type	Segment type	Connection types				
		Unmanaged L2 Transport	Managed Spoke Connector	Managed L2 Transport	Physical link	Unspecified
GX	PGW-PCRF	✓			✓	✓
S1-U	NE-NE		✓			✓
	NE-SGW	✓		✓	✓	✓
	eNodeB-NE				✓	✓
S11	SGW-MME	✓			✓	✓
S5	SGW-PGW	✓			✓	✓
all	unspecified	✓	✓	✓	✓	✓

- 10 Configure the Encapsulation Values parameter. The parameters are available only for S1-U NE-NE segments with a managed spoke connector.

- Encapsulation Type
  - Null
  - Dot1 Q
  - Q in Q
- Inner Encapsulation Value
- Outer Encapsulation Value

The Outer Encapsulation Value parameter is configurable only when the encapsulation type is Dot1 Q or Q in Q. The Inner Encapsulation Value parameter is configurable only when the encapsulation type is Q in Q.

- 11 Click on the Apply button.
  - 12 Repeat steps 5 to 11 to add another segments, as required. The order of the hints must be configured according to the type of EPS path, as listed in Tables 13-1 to 13-4.
  - 13 Click on the OK button. The newly configured hint appears in the EPS Path Drill-Down Hint (Edit) form. If a Problems Encountered warning window opens, perform Procedure 13-2.
- 

## EPS path drill-down hint validation

When you create an EPS path drill-down hint, the hint is validated according to the following criteria:

- order of segments in a hint
- incorrect set of segments
- incorrect number of segments

If any of the validation checks fail, a Problems Encountered warning window opens to help you with troubleshooting.

## Troubleshooting EPS path drill-down hint creation errors

If the 5620 SAM cannot validate a hint when you attempt to create it, the create procedure fails and a Problems Encountered warning window opens.



**Procedure 13-2 To troubleshoot EPS path drill-down hint creation errors**

---

- 1 In the Problems Encountered warning window, double-click on the item in the list to view information about the failed hint. The error form displays the following information:
    - Operation—Describes the type of operation that has the error. The error pertains to the configuration of a network object that subtends the EPS path; for example, ConfigureChildInstance.
    - Request ID—The value is N/A.
    - Affected Object—for example, ddmgr:hint-*n*:*m*, where
      - n* represents the hint number
      - m* represents the segment number
    - Task Name—The value is N/A.
    - Class—The class of the object that failed. For example, lte.EPSPathDiscoveryHint.
    - Received Time—The time when the error occurred.
    - Description—includes information about the following:
      - Application—the application that failed. For example, app: EPSPath drill down hint.
      - Class—The class of the object that failed. For example, class: lte.EPSPathDiscoveryHint.
      - Instance—The object that failed. For example, instance: ddmgr: hint-1.
      - Description—A description of the error. For example, descr: The first segment must be eNodeB-to-NE, and the connection type has to be physical link.
  - 2 Review the information in the form, especially the Description field.
  - 3 Review the supported hint types, as described in section 13.3.
  - 4 Repeat Procedure 13-1 and ensure that the hint conforms to the supported hint types.
- 

## 13.5 Drill-down operation prerequisites and restrictions by path type

This section describes the prerequisites and restrictions that apply to the drill-down operation.

### General prerequisites and restrictions

The drill-down operation is supported only on S1-U, S5, S11, and Gx paths. The drill-down operation is not supported on Rf EPS paths.

For double-sided paths, the drill-down operation recognizes physical links that are created between the two managed NEs. For single-sided paths, the path does not have the site ID for the endpoint B; only the IP address that identifies the endpoint B. The drill-down operation can only recognize a physical link that is created between a managed NE (endpoint A) and an unmanaged NE or gateway identified by the IP address of endpoint B.

## **S1-U path drill-down operation prerequisites and restrictions**

The following prerequisites and restrictions apply to S1-U path correlation:

- The following prerequisites apply to hint 1:
  - An Epipe is created on the 7705 SAR node.
  - A VPLS is created on the 7750 SR node.
  - A manually created physical link must exist between the eNodeB and the port used in the SAP in the Epipe on the 7705 SAR node.
- The following prerequisites apply to hint 2:
  - An Epipe is created on the 7705 SAR node.
  - A VPLS is created on the 7750 SR node. For CCAG, the SAP in the VPLS must use a CCAG (sap-net or net-sap).
  - A manually created physical link exists between the eNodeB and the port used in the SAP in the Epipe on the 7705 SAR node.
- The following prerequisites apply to hint 3:
  - An Epipe is created on the 7705 SAR node.
  - A VPLS is created on the 7750 SR node.
  - A manually created physical link exists between the eNodeB and the port used in the SAP in the Epipe on the 7705 SAR node.
  - A manually created physical link exists between the 7750 SR node and SGW. The endpoints must be configured as NEs with site IP addresses and no port information.
- The automatic drill-down operation is not initiated when an S1-U EPS peer is discovered because an S1-U path requires a physical link that starts from the eNodeB.
- The automatic drill-down operation is initiated when a physical link is created, but only when the endpoint B is of type Unmanaged NE and the IP address matches an Unmanaged NE of type eNodeB known to the 5620 SAM.

## **S5 path drill-down operation prerequisites and restrictions**

The following prerequisites and restrictions apply to S5 path correlation:

- For hint 1, a manually configured physical link exists between the SGW and PGW.
- For hint 2, the SGW and the PGW must be on the same subnet for an unmanaged L2 transport connection.
- The automatic drill-down operation is initiated only for a new double-sided S5 EPS path.
- Only double-sided S5 EPS paths are supported.
- Single-sided S5 paths result in a failure.

## S11 path drill-down operation prerequisites and restrictions

The following prerequisites and restrictions apply to S11 path correlation:

- For hint 1, you must configure a physical link between the SGW and the MME before you can perform the drill-down operation on a physical link. If there is more than one physical link, the drill-down operation fails.
- For hint 2, the SGW and the MME must be on the same subnet for an unmanaged L2 Transport connection.
- The automatic drill-down operation is initiated when the 5620 SAM discovers a new single-sided S11.
- Only single-sided S11 EPS paths are supported because the 5620 SAM does not manage the connection on the MME side.

## Gx path drill-down operation prerequisites and restrictions

The following prerequisites and restrictions apply to Gx path correlation:

- For hint 1, you must configure a physical link between the PGW and the PCRF before you can perform the drill-down operation on a physical link. If there is more than one physical link, the drill-down operation fails.
- For hint 2, the PGW and the PCRF must be on the same subnet for an unmanaged L2 Transport connection.
- The automatic drill-down operation is initiated when the 5620 SAM discovers a new single-sided Gx.
- Only single-sided Gx EPS paths are supported because the 5620 SAM does not manage the connection on the PCRF side.

## 13.6 Performing a manual drill-down operation

Procedure 13-3 describes how to perform a manual drill-down operation.

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### Procedure 13-3 To perform a manual drill-down operation

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- 1 Open an EPS Path (Edit) properties form from one of the following:
  - EPS Peers and Paths form, as described in Procedure 12-2
  - EPS path topology map, as described in Procedure 11-1
- 2 Click on the Drill Down tab button.
- 3 Perform one of the following:
  - a To drill down with high-priority hints, go to step 6.
  - b To drill down with a specific hint, go to step 4.
- 4 Click on the Select button in the Hint panel to choose an EPS path drill-down hint. The Select Hint form for the specified path type opens.

- 5 Choose an EPS path drill-down hint from the list and perform one of the following:
  - a Click on the Properties button to view the properties of the hint, if required.
  - b Change the properties of the hint, as described in Procedure 13-1, if required.
  - c Click on the OK button.

The Select Hint form closes and the ID of the EPS path drill-down hint appears in the Hint panel of the Drill Down tab. The State field value is Not attempted, which indicates that the drill-down operation has not yet been performed. Go to step 7.

- 6 Verify that the value of the ID field in the Hint panel is 0. If the value is not 0, click on the Clear button.
- 7 Click on the Drill Down button in the bottom panel of the Drill Down tab.
- 8 Review the status of the operation in the State and Hint Matching Level fields. The status changes from Not attempted to one of the following:
  - Success—Go to step 9.
  - Failed—See section 13.7 or more information about how to monitor and troubleshoot failed drill-down operations.

The degree of drill-down success is indicated by the Hint Matching Level field.

- 9 Click on the Components tab button to view the segments that were correlated. Each line in the table represents one of the transport layer components of the EPS path instance and is identified by the following properties:
  - Name
  - Description
  - Component Type
  - Alarm Status
  - Aggregated Alarm Status

- 10 Double-click on an entry listed in the Components tab, or choose an entry and click the Properties button. The *EPSPathComponent\_TypeComponent (View)* form opens with the General tab displayed, where *Component\_Type* is the transport layer component, such as Link, Service, or Interface.

The fields that appear in the General tab depend on the type of component. Each form shows the associated subcomponents of the path type, such as a service, spoke, Layer 3 interface, or physical link, and each of these components has a Properties button.

- 11 Click on the Properties button to view information about the subcomponents, or click on the Faults tab button to view the alarms associated with the object.

You can continue to drill down into the underlying network components by opening successive properties forms, viewing the properties of the object, identifying any associated alarms, and troubleshooting any faults that may exist. See chapter 18 for more information about LTE ePC alarm management.

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## 13.7 Troubleshooting drill-down operations

This section describes how to troubleshoot drill-down operation failures. If a drill-down operation fails, the value of the State field in the Drill Down tab changes to Failed and the 5620 SAM generates an alarm on the EPS path.

The 5620 SAM generates an alarm on the EPS path for any of the following conditions:

- an automatic drill-down operation fails using the available high-priority hints
- a manual drill-down operation fails
- a partial match is established, that is, the 5620 SAM failed to correlate all of the segments of a path drill-down hint

### Drill-down operation failure logs and alarms

The 5620 SAM logs each drill-down request and generates an alarm if the drill-down operation on an EPS path fails. If the drill-down operation fails, you can use the Drill Down Log tab on the EPS paths properties form to obtain additional information about the failure. Possible reasons for a failure are:

- network architecture is incorrectly configured
- EPS path drill-down hint is configured incorrectly and does not represent the network architecture
- EPS path drill-down hint is configured correctly but the underlying transport layer has changed
- EPS path drill-down hint is missing

Perform Procedure 13-4 to troubleshoot a failed drill-down operation.

#### Procedure 13-4 To troubleshoot a drill-down operation

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- 1 Perform a drill-down operation, as described in Procedure 13-3.
- 2 In the EPS Path (Edit) properties form for the selected EPS path, click on the Drill Down Log tab button. The Drill Down Log tab displays a list of failure logs.

- 3 Choose a log entry in the list and click on the Properties button to obtain more information. The Drill Down Log (View) form opens with the General tab displayed. The General tab displays the following information:
    - Number
    - Error
    - Log Time
    - Object
    - Message
  - 4 Click on the Faults tab button. The Faults tab lists the alarms that affect the object.
-

## ***14 – Mobile service management***

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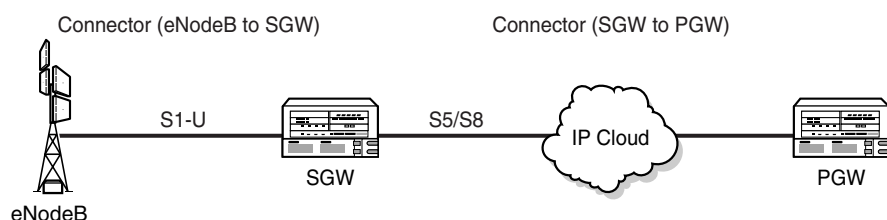
## 14.1 Mobile service overview

A mobile service allows a provider of an LTE network to better manage the mobile delivery distribution network from the IP core to the eNodeB access nodes. The mobile service represents the connectivity between network components and is comprised of the eNodeB, SGW, and PGW. The sites are joined by S1-U, S5 and S8 EPS paths, which are also referred to as connectors.

## 14.2 Sample mobile service

Figure 14-1 shows the components of a sample mobile service.

Figure 14-1 Sample mobile service



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## 14.3 Mobile service characteristics

The 5620 SAM automatically creates, updates, and deletes a mobile service as sites and paths are added to or removed from the service.

## 14.4 Mobile service creation and update process

- 1 A user call placed through an eNodeB triggers the creation of a S1-U path.
- 2 The 5620 SAM creates an eNodeB unmanaged mobile NE; the eNodeB serves as the anchor for the mobile service.
- 3 The creation of an eNodeB unmanaged mobile NE triggers the creation of a mobile service.
- 4 The 5620 SAM creates a partial mobile service if all of the components needed for a complete service have not been discovered.
- 5 The 5620 SAM dynamically updates a mobile service when components are added or deleted.

## 14.5 Mobile service management menu

Table 14-1 lists the 5620 SAM service management menu.



Table 14-1 Mobile service management menu

Menu option	Function
Manage→Mobile Core→Mobile Services	View and manage a mobile service

## 14.6 Mobile service management procedures

Perform the following procedures to view and manage a mobile service.

### Procedure 14-1 To view and modify mobile service properties



**Caution** — Modifying parameters can be service-affecting.

- 1 Choose Manage→Mobile Core→Mobile Services from the 5620 SAM main menu. The Manage Mobile Services form opens.
- 2 Configure the list filter criteria, and click on the Search button. A list of mobile services appears at the bottom of the Manage Mobile Services form.
- 3 Choose a mobile service and click on the Properties button. The eNodeB Mobile Service (Edit) form opens with the General tab displayed.

The following tabs list the service elements that can be individually or collectively selected and configured:

- General tab — displays information about the eNodeB based mobile service; click on the Properties button to view the properties of the service eNodeB NE
  - Components tab — displays the mobile service components in a tree format; right-click on a site or component and choose Properties to view the properties of the selected item
  - Model tab — displays a graphical representation of the mobile service components
  - EPC Gateways tab — lists the mobile service sites; choose a site and click on the Properties button to view the properties of the selected site
  - Unmanaged Network Elements tab — lists the mobile service unmanaged network elements; choose an unmanaged network element and click on the Properties button to view the properties
  - Unmanaged PDN Gateways — lists the mobile service unmanaged PDN gateways; choose an unmanaged PDN gateway and click on the Properties button to view the properties
  - EPS Paths — lists the mobile service EPS paths; choose a path and click on the Properties button to view the properties
  - Faults tab — displays the faults associated with the service
- 4 Modify the parameters for the service, as required.
  - 5 Click on the OK button. A dialog box appears.

- 6 Click on the Yes button to confirm the action. The eNodeB Mobile Service (Edit) form closes and the Manage Mobile Services form reappears.
  - 7 Click on the Close button to close the Manage Mobile Services form.
-

# ***LTE ePC profiles and policies configuration***

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15 – Configuring LTE profiles and policies

16 – RADIUS profile



## ***15 – Configuring LTE profiles and policies***

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## 15.1 LTE profiles and policies overview

The 5620 SAM supports the LTE-specific profiles and policies—all of which are modeled using the 5620 SAM policy framework. This chapter assumes that you are familiar with the following topics:

- general concepts about 5620 SAM policies
- policy distribution and scaling
- draft and release modes
- policy audits using the 5620 SAM Tools→Policies Audit menu
- mismatches between local and global policies
- other profile types supported by the 5620 SAM

See the policies overview in the *5620 SAM User Guide* for more information about routine tasks, such as how to distribute, modify, copy, synchronize, or delete a policy.

### DCCA profile

The DCCA profile is an application of the diameter profile used for real-time credit control of user services.

### Diameter peer profile

The diameter peer profile provides peer-related information to the diameter applications. A diameter peer profile cannot be deleted when the profile is referenced by a diameter application.

### Diameter profile

The diameter profile defines the parameters that are related to diameter connections. A diameter profile is referenced by the diameter peer profiles. Multiple diameter peer profiles can reference the same diameter profile. The diameter local configuration must be provisioned before you can provision the diameter profiles. A diameter profile can be referenced on the SGW or PGW signaling instance and on the diameter peer profile. A diameter profile cannot be deleted when the profile is referenced by a diameter application.

### GTP prime server group profile

A GTP prime server group profile defines the properties and members of a GTP server group. The policy is applied to the Ga interface on a PGW.

### GTP profile

The GTP profile can be used to configure the GTP control plane between the following entities:

- SGW and PGW signaling
- SGW and PGW over the S5 interface

- SGW and PGW over the S8 interface
- SGW and MME over the S11 interface

The GTP profile can be used to configure the GTP user plane between the following entities:

- eNodeB and SGW over the S1-U interface
- SGW and PGW over the S5 interface
- SGW and PGW over the S8 interface

## Lawful Intercept

LI describes the interception and monitoring of network subscriber traffic by authorized agencies for law enforcement purposes. For more information about LI, see the *5620 SAM User Guide*.

### LTE LI delivery function peer policy

An LTE LI delivery function peer policy can be applied to the SGW and PGW. The policy specifies the server that is used to collect the intercepted data, reformat the data according to industry standards, and forward the data to the law enforcement agency. The delivery functions relate to the 3GPP Technical Specifications 33.107 and 33.108.

- Delivery Function 2 distributes intercepted data, which is information associated with telecommunications services that involve the target, but that exclude the content of communications; for example, the number of unsuccessful communication attempts or target location.
- Delivery Function 3 distributes the intercepted content of communications, which is the data sent or received by the target, such as speech, fax, or data.

### LTE LI interception target policy

An LTE LI interception target policy specifies the target of interception. The policy can be applied to the SGW and PGW. The only target identity supported is IMSI.

### Workflow to configure LI on an SGW or PGW

Complete the following workflow to configure LI on an SGW or PGW:

- 1 Configure LI on the 5620 SAM. See the *5620 SAM User Guide* for more information.
- 2 As an LI user on the 5620 SAM, configure the LTE LI delivery function peer policy. See Procedure [15-22](#) for more information.
- 3 As an LI user on the 5620 SAM, configure the LTE LI interception target policy. See Procedure [15-23](#) for more information.

## MME profiles

MME profiles create corresponding objects on 9471 MME instances when the profiles are distributed to NEs.

**MME GTP profile**

An MME GTP profile specifies GTP configurations between S11 peers. An MME GTP profile is applied to a 9471 MME instance, on the S11 reference point as well as MME-specific reference points.

**MME SCTP profile**

An MME SCTP profile specifies SCTP configurations between S1-MME peers. An MME SCTP profile is applied to a 9471 MME instance, on the S1-MME reference point as well as MME-specific reference points.

**PGW charging profile**

A PGW charging profile specifies the charging rules that can be applied to a particular type of subscriber, such as home, visiting, or roaming. A PGW charging profile is applied to a PGW instance.

**PLMN list profile**

A PLMN list profile specifies the charging rules that can be applied to a PLMN. A PLMN list profile is applied to a PGW instance.

**PMIPv6 profile**

A PMIPv6 profile specifies configurable attributes with regards to communication between the PGW and the HSGW. It allows mobility control to be moved from the mobile node to a proxy in the network. A PMIPv6 profile is applied to a PGW.

**QCI policies**

A QCI policy profile configures the minimum level of QoS to be applied to the applications in multivendor deployments. The QCI policies can be applied to the SGW and PGW.

**RADIUS profiles**

A RADIUS profile supports the authentication and authorization of users to access the requested system. The profile is applied to a PGW instance. See chapter 16 for more information about RADIUS profiles.

**RAN profiles**

RAN S1-MME and RAN SCTP profiles allow you to rehome an eNodeB to a new 9471 MME using the bulk provisioning feature. RAN profiles are applied to an eNodeB instance. See chapter 10 for more information about RAN profiles.



## SGW charging profile

An SGW charging profile specifies the charging rules that can be applied to a particular type of subscriber, such as home, visiting, or roaming. An SGW charging profile is applied to an SGW instance.

## Trusted peer list policy

A trusted peer list policy specifies the EPS peers that are allowed to access a PGW or an SGW. A trusted peer list policy is applied to a PGW or an SGW instance.

## 15.2 Workflow to configure LTE profiles and policies

- 1 Review the information about profiles and policies in the *5620 SAM User Guide*.
- 2 Determine the LTE profiles and policies that are required. See section [15.1](#) for more information.
- 3 Create and distribute profiles and policies. Profiles and policies are applied during the configuration or modification of LTE devices and services. When and how you apply a policy depends on the policy type and the device on which the policy is to be applied. LTE policies are created for and can be applied to more than one reference point. See section [15.3](#) for more information about creating and distributing profiles and policies. See Table [15-1](#) for more information about where and when you can apply the profiles or policies.



**Note** — Policies do not need to be explicitly distributed; policies are distributed to a device when they are assigned to a resource on the device.

Table 15-1 Applying profiles and policies

Item	Applied to	When applied	See Procedure
DCCA policy	PGW reference points	During Gy reference point configuration	<a href="#">6-7</a>
Diameter	SGW signaling	During SGW configuration	<a href="#">6-1</a>
	PGW signaling	During PGW configuration	<a href="#">6-6</a>
Diameter peer	SGW reference points	During Rf reference point configuration	<a href="#">6-2</a>
	PGW reference points	During Gx and Gy reference point configuration	<a href="#">6-7</a>
GTP	SGW signaling	During SGW configuration	<a href="#">6-1</a>
	PGW signaling	During PGW configuration	<a href="#">6-6</a>
	SGW reference points	During S11, S1-U, S5, and S8 reference point configuration	<a href="#">6-2</a>
	PGW reference points	During S5 and S8 reference point configuration	<a href="#">6-7</a>
GTP prime server group	PGW reference point	During Ga reference point configuration	<a href="#">6-7</a>
LTE LI delivery function peer policy	PGW SGW	During LTE LI configuration	<a href="#">15-22</a>
LTE LI interception target policy	PGW SGW	During LTE LI configuration	<a href="#">15-23</a>
MME SCTP profile	9471 MME	During interface profile configuration	<a href="#">15-24</a>
MME GTP profile	9471 MME	During interface profile configuration	<a href="#">15-25</a>
PGW charging profile	PGW	During PGW configuration	<a href="#">6-10</a>
PLMN list policy	PGW	After PGW configuration	<a href="#">15-18</a>
PMIPv6	PGW reference points	During S2a reference point configuration	<a href="#">6-7</a>
QCI policy	APN	When adding an APN to an SGW	<a href="#">6-3</a>
	SGW	After SGW configuration	<a href="#">6-5</a>
	PGW	After PGW configuration	<a href="#">6-11</a>
RAN S1-MME profile	eNodeB	After eNodeB and 9471 MME configuration	<a href="#">10-11</a>
RAN SCTP profile	eNodeB	After eNodeB and 9471 MME configuration	<a href="#">10-12</a>
SGW charging profile	PGW	During SGW configuration	<a href="#">6-4</a>
Trusted peer list policy	PGW SGW	After PGW or SGW configuration	<a href="#">15-20</a>



**Warning 1** — Alcatel-Lucent recommends that you make all changes to policy configurations for the 5620 SAM-managed devices using the 5620 SAM or OSS clients that send configuration data to the 5620 SAM. The intent is to ensure that any policy ID—for example, an access ingress policy with ID 4—has the same configuration on each device managed by the 5620 SAM.

**Warning 2** — Creating or modifying policies using the CLI may cause inconsistencies in the configuration parameters of a policy throughout the network. See the *5620 SAM User Guide* for information about how to locate discrepancies in policies using a policy audit.

## 15.3 LTE profiles and policies configuration and viewing procedures

The following procedures describe how to configure and view LTE profiles and policies.

After you configure a profile or policy, additional tabs appear in the edit properties form that allow you to do the following:

- view where and how a profile or policy is used
- manage faults associated with the profile or policy

### Procedure 15-1 To configure a GTP profile

---

- 1 Choose Policies→Mobile→LTE Profiles and Policies from the 5620 SAM main menu. The LTE Profiles form opens.
- 2 Choose GTP Profile (LTE) from the Select Object Type drop-down list.
- 3 Perform one of the following:
  - a Specify a filter to search for and modify an existing policy. Select a policy in the filtered list and click on the Properties button. The GTP Profile, Global Policy (Edit) form opens with the General tab displayed.
  - b Click on the Create button. The GTP Profile, Global Policy (Create) form opens.
- 4 Configure the parameters:
  - Displayed Name
  - Description
  - Message Retransmit Timeout (s)
  - Keep-Alive Timeout (s)
  - Keep-Alive T3 Response Time (s)
  - IP DSCP
  - Message Retransmit Retry Count
  - Keep-Alive Retry Count
  - IP TTL

- 5 Click on the Apply button. The GTP Profile, Global Policy (Edit) form opens with the General tab displayed. The Configuration Mode parameter in the Policy Configuration panel is in the Draft state. The Distribute button at the bottom of the form is dimmed. The policy cannot be distributed.
  - 6 Release the policy and distribute the policy to as many routers as required. When you release the global policy, the policy is also distributed to existing local definitions. See the *5620 SAM User Guide* for information about how to distribute a policy.
  - 7 Close the GTP Profile, Global Policy (Edit) form.
  - 8 Close the LTE Profiles form.
- 

### **Procedure 15-2 To view a GTP profile**

---

- 1 Choose Policies→Mobile→LTE Profiles and Policies from the 5620 SAM main menu. The LTE Profiles form opens.
  - 2 Choose GTP Profile (LTE) from the Select Object Type drop-down list.
  - 3 Specify a filter to search for a policy. Select a policy in the filtered list and click on the Properties button. The GTP Profile, Global Policy (Edit) form opens.
  - 4 Click on the following tab buttons in the GTP Profile, Global Policy (Edit) form to view the properties of the profile and the associated NEs, reference points, and faults.
    - General—to view the general properties of the GTP profile, such as the parameters configured in Procedure 15-1.
    - Local Definitions—to view the NEs to which the policy has been distributed.
    - Gn, S11, S1u, S5, S8 and Ga—to view the properties of the reference points that use this policy. See Procedure 6-2 for information about how to configure the S11, S1u, S5, S8 and Ga reference points on the SGW; see Procedure 6-7 for information about how to configure the S5, S8, Gn, and Ga reference points on the PGW.
    - Signalling—to view the properties of the signaling interfaces that use this policy. See Procedure 6-1 for information about how to configure signaling on the SGW; see Procedure 6-6 for information about how to configure signaling on the PGW.
    - Faults—to identify faults and to navigate to alarm information.
  - 5 Close the GTP Profile, Global Policy (Edit) form.
  - 6 Close the LTE Profiles form.
-

**Procedure 15-3 To configure a GTP prime server group profile**

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- 1 Choose Policies→Mobile→LTE Profiles and Policies from the 5620 SAM main menu. The LTE Profiles form opens.
- 2 Choose GTP Prime Server Group Profile (LTE) from the Select Object Type drop-down list.
- 3 Perform one of the following:
  - a Specify a filter to search for and modify an existing policy. Select a policy in the filtered list and click on the Properties button. The GTP Prime Server Group Profile, Global Policy (Edit) form opens with the General tab displayed.
  - b Click on the Create button. The GTP Prime Server Group Profile, Global Policy (Create) form opens with the General tab displayed.
- 4 Configure the parameters:

• Displayed Name	• File Obsolete Time (days)
• Description	• File Private Info
• Maximum CDRs per PDU	• File Extension
• Dead Time (seconds)	• File Closure Size (Mbytes)
• Inactive Time (minutes)	• File Closure Max Records
• Administrative State	• File Closure Life Time (hours)
• Queue Size	• Primary Compact Flash
- 5 Configure the Configuration File Limit (Mbytes) parameter in the CDR Storage on cf1 panel.
- 6 Configure the Configuration File Limit (Mbytes) parameter in the CDR Storage on cf2 panel.
- 7 Click on the GTP Primary Server Addresses tab button.
- 8 Perform one of the following:
  - a Specify a filter to search for and modify an existing server. Select a server in the filtered list and click on the Properties button. The GTP Primary Server List Entry, Global Policy (Edit) form opens.
  - b Click on the Create button. The GTP Primary Server List Entry, Global Policy (Create) form opens.
- 9 Configure the parameters:

• Administrative State	• Time Out (seconds)
• Primary Server Address	• Echo Interval (seconds)
• Server Port	• Maximum Requests
• Retries	• Server Priority
- 10 Click on the Apply button to add the server to the server list. A dialog box appears.
- 11 Click on the OK button.

- 12 Repeat steps 9 to 11 for each server that you need to add.
  - 13 When you configure the last server click on the OK button to add it to the list. The GTP Primary Server List Entry, Global Policy (Create) form closes and a dialog box appears.
  - 14 Click on the OK button.
  - 15 Click on the General tab button.
  - 16 Click on the Apply button. The GTP Prime Server Group Profile, Global Policy (Edit) form opens with the General tab displayed. The Configuration Mode parameter in the Policy Configuration panel is in the Draft state. The Distribute button at the bottom of the form is dimmed. The policy cannot be distributed.
  - 17 Release the policy and distribute the policy to as many routers as required. When you release the global policy, the policy is also distributed to existing local definitions. See the *5620 SAM User Guide* for information about how to distribute a policy.
  - 18 Close the GTP Prime Server Group Profile, Global Policy (Edit) form.
  - 19 Close the LTE Profiles form.
- 

#### **Procedure 15-4 To view a GTP prime server group profile**

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- 1 Choose Policies→Mobile→LTE Profiles and Policies from the 5620 SAM main menu. The LTE Profiles form opens.
  - 2 Choose GTP Prime Server Group Profile (LTE) from the Select Object Type drop-down list.
  - 3 Specify a filter to search for a policy. Select a policy in the filtered list and click on the Properties button. The GTP Prime Server Group Profile, Global Policy (Edit) form opens.
  - 4 Click on the following tab buttons to view the properties of the profile and the associated NEs, reference points, and faults.
    - General—to view the general properties of the GTP profile, such as the parameters configured in Procedure 15-3.
    - GTP Primary Server Addresses—to view a list of primary servers in the group
    - Local Definitions—to view the NEs to which the policy has been distributed.
    - Ga—to view the properties of the reference points that use this policy. See Procedure 6-7 for information about how to configure the Ga reference point on a PGW.
    - Faults—to identify faults and navigate to alarm information.
  - 5 Close the GTP Prime Server Group Profile, Global Policy (Edit) form.
  - 6 Close the LTE Profiles form.
-

### Procedure 15-5 To configure a diameter profile

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The diameter profile provides a template for the configuration of diameter protocol parameters such as connection time, retry count, and IP DSCP values.

- 1 Choose Policies→Mobile→LTE Profiles and Policies. The LTE Profiles form opens.
- 2 Choose Diameter Profile (LTE) from the Select Object Type drop-down list.
- 3 Perform one of the following:
  - a Specify a filter to search for and modify an existing profile. Select a profile in the filtered list and click on the Properties button. The Diameter Profile, Global Policy (Edit) form opens with the General tab displayed.
  - b Click on the Create button. The Diameter Profile, Global Policy (Create) form opens.
- 4 Configure the parameters:

• Displayed Name	• Retry Count
• Description	• Transaction Timer (s)
• Connection Timer (s)	• Watch Dog Timer (s)
• DPR Timeout (s)	• Retry Time (min)
• IP DSCP	• DNS Refresh Time (s)
• IP TTL (s)	
- 5 Click on the Apply button. The Diameter Profile, Global Policy (Edit) form opens with the General tab displayed. The Configuration Mode parameter in the Policy Configuration panel is in the Draft state. The Distribute button at the bottom of the form is dimmed.



**Note** — When the Configuration Mode parameter is in the Draft state, the Distribution button is dimmed and the policy cannot be distributed to the NEs. You must first release the policy for distribution. Releasing the global policy also distributes the policy to existing local definitions.

- 6 Release the policy and distribute it to as many routers as required. See the *5620 SAM User Guide* for information about how to distribute a policy.
- 7 Close the Diameter Profile, Global Policy (Edit) form.
- 8 Close the LTE Profiles form.

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### Procedure 15-6 To view a diameter profile

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- 1 Choose Policies→Mobile→LTE Profiles and Policies. The Manage LTE Profiles form opens.
- 2 Choose Diameter Profile (LTE) from the Select Object Type drop-down list.

- 3 Specify a filter to search for a policy. Select a policy in the filtered list and click on the Properties button. The Diameter Profile—Global Policy (Edit) form opens.
  - 4 Click on the following tab buttons in the Diameter Profile—Global Policy (Edit) form to view the properties of the profile and the associated NEs, entities, and faults.
    - General—to view the general properties of the diameter profile, such as the parameters configured in Procedure 15-5.
    - Local Definitions—to view the NEs to which the policy has been distributed.
    - Diameter Peer Profiles—to view the properties of the diameter peers that use this policy. See Procedure 15-7 for information about how to configure the diameter peer profiles.
    - Signalling—to view the properties of the signaling interfaces that use this policy. See Procedure 6-1 for information about how to configure diameter signaling on the SGW; see Procedure 6-6 for information about how to configure diameter signaling on the PGW.
    - Faults—to identify faults and to navigate to alarm information.
  - 5 Close the Diameter Profile, Global Policy (Edit) form.
  - 6 Close the LTE Profiles form.
- 

### Procedure 15-7 To configure a diameter peer profile

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You must create a diameter profile, as described in Procedure 15-5, before you can configure a diameter peer profile.



**Note 1** — Before you can configure the Destination Realm, Load Balance Enable, and interface parameters, you must set the administrative state for existing peers to down.

**Note 2** — To delete a peer entry, the peer must be shut down. To delete the global or local policy, the peer must be shut down.

The number of peers that you can configure depends on the value that you set for the Application Type parameter. When the application type is set to Gx, you can only configure one peer. When the application type is set to Rf or Gy, you can configure up to 20 peers.

- 1 Choose Policies→Mobile→LTE Profiles and Policies. The LTE Profiles form opens.
- 2 Choose Diameter Peer Profile (LTE) from the Select Object Type drop-down list.
- 3 Perform one of the following:
  - a Specify a filter to search for and modify an existing profile. Select a profile in the list and click on the Properties button. The Diameter Peer Profile, Global Policy (Edit) form opens with the General tab displayed.
  - b Click on the Create button. The Diameter Peer Profile, Global Policy (Create) form opens with the General tab displayed.



- 4 Configure the parameters:
  - Displayed Name
  - Description
- 5 In the Diameter Peer Configuration panel, click on the Select button to display a list of diameter profiles to associate with the peer. The Select Diameter Profile - Diameter Peer Profile - Global Policy form opens.
- 6 Perform one of the following:
  - a Configure a filter to search for an existing policy. Select a policy, and click on the OK button. You can also click on the Properties button to modify the policy, if required.
  - b Click on the Create button. The Diameter Profile, Global Policy (Create) form opens with the General tab displayed. See Procedure 15-5 for information about how to configure the diameter profile.
- 7 Configure the parameters:
  - Destination Realm
  - Transport Protocol
  - Load Balance Enabled
  - Application Type
- 8 Click on the Apply button. The form expands with additional tabs.
- 9 Click on the Diameter Peer IP Addresses tab button.
- 10 Click on the Create button to configure an IP address for the diameter peer. The Diameter Peer List Entry, Global Policy (Create) form opens.
- 11 Configure the parameters:
  - Peer IP Address/URL
  - Peer Port
  - Peer Administrative State
- 12 Click on the OK button to save the policy. A dialog box opens.
- 13 Click on the OK button.
- 14 Click on the General tab button.
- 15 Click on the Apply button. The Diameter Peer Profile, Global Policy (Edit) form opens with the General tab displayed. The Configuration Mode parameter in the Policy Configuration panel is in the Draft state. The Distribute button at the bottom of the form is dimmed.



**Note** — When the Configuration Mode parameter is in the Draft state, the Distribution button is dimmed and the policy cannot be distributed to the NEs. You must first release the policy for distribution. When you release a global policy, the policy is distributed to existing local definitions.

- 16 Release the policy and distribute it to as many routers as necessary. See the *5620 SAM User Guide* for information about how to distribute a policy.
  - 17 Close the Diameter Peer Profile, Global Policy (Edit) form.
  - 18 Close the LTE Profiles form.
- 

### Procedure 15-8 To view a diameter peer profile

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- 1 Choose Policies→Mobile→LTE Profiles and Policies. The LTE Profiles form opens.
  - 2 Choose Diameter Peer Profile (LTE) from the Select Object Type drop-down list.
  - 3 Specify a filter to search for a policy. Select a policy in the filtered list and click on the Properties button. The Diameter Peer Profile - Global Policy (Edit) form opens with the General tab displayed.
  - 4 Click on the following tab buttons in the Diameter Peer Profile - Global Policy (Edit) form to view the properties of the profile and the associated NEs, reference points, and faults.
    - General—to view the general properties of the diameter peer profile, such as the parameters configured in Procedure 15-7.
    - Diameter Peer IP Addresses—to view the peer IP address properties.
    - Local Definitions—to view the NEs to which the policy has been distributed.
    - Reference Points—to view the properties of the reference points that use this policy. See Procedure 6-2 for information about how to configure the Rf reference point on the SGW; see Procedure 6-7 for information about how to configure the Rf and Gx reference points on the PGW.
    - PDN APN—to view the properties of the PDN APNs that use this profile.
    - SGW Charging Profile—to view the properties of SGW charging profiles.
    - Faults—to identify faults and to navigate to alarm information.
  - 5 Close the Diameter Peer Profile, Global Policy (Edit) form.
  - 6 Close the LTE Profiles form.
- 

### Procedure 15-9 To configure a DCCA profile

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- 1 Choose Policies→Mobile→LTE Profiles and Policies from the 5620 SAM main menu. The LTE Profiles form opens.
- 2 Choose DCCA Profile (LTE) from the Select Object Type drop-down list.

- 3 Perform one of the following:
    - a Specify a filter to search for and modify an existing policy. Select a policy in the filtered list and click on the Properties button. The DCCA Profile, Global Policy (Edit) form opens with the General tab displayed.
    - b Click on the Create button. The DCCA Profile, Global Policy (Create) form opens with the General tab displayed.
  - 4 Configure the parameters:

• Displayed Name	• Called Station Id Virtual
• Description	• QoS Information
• Application Tx Timer (s)	• Forced Re-Authorization
• CC Session Fallover	• Quota Exhausted Threshold Active
• CC Fallover Handling	• Rating Condition Change
• Retry Count	• Quota Exhausted No Threshold
• 3GPP GPRS QoS Negotiated Profile	• Quota Unavailable
	• Validity Time Expired
  - 5 Click on the Apply button. The DCCA Profile, Global Policy (Create) form closes. The new policy appears in the list of DCCA policies on LTE Profiles form, and the DCCA Profile, Global Policy (Edit) form opens with the General tab displayed.
  - 6 Click on the Apply button. The Configuration Mode parameter in the Policy Configuration panel is in the Draft state. The Distribute button at the bottom of the form is dimmed.
-  **Note** — When the Configuration Mode parameter is in the Draft state, the Distribution button is dimmed and the policy cannot be distributed to the NEs. You must first release the policy for distribution. Releasing the global policy also distributes the policy to existing local definitions.
- 7 Release the policy and distribute it to as many routers as necessary. See the *5620 SAM User Guide* for information about how to distribute a policy.
- 

### Procedure 15-10 To view a DCCA profile

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- 1 Choose Policies→Mobile→LTE Profiles and Policies from the 5620 SAM main menu. The LTE Profiles form opens.
- 2 Choose DCCA Profile (LTE) from the Select Object Type drop-down list.
- 3 Specify a filter to search for a policy. Select a policy in the filtered list and click on the Properties button. The DCCA Profile - Global Policy (Edit) form opens with the General tab displayed.

- 4 Click on the following tab buttons in the DCCA Profile - Global Policy (Edit) form to view the properties of the profile and the associated NEs, reference points, and faults.
    - General – to view the general properties of the diameter peer profile, such as the parameters configured in Procedure 15-7.
    - Local Definitions – to view the NEs to which the policy has been distributed.
    - Gy – to view the properties of the Gy reference points that use this policy. See Procedure 6-7 for information about how to configure the Gy reference point on the PGW.
    - Faults – to identify faults and to navigate to alarm information.
  - 5 Close the DCCA Profile, Global Policy (Edit) form.
  - 6 Close the LTE Profiles form.
- 

### **Procedure 15-11 To configure a QCI policy**

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- 1 Choose Policies→Mobile→LTE Profiles and Policies from the 5620 SAM main menu. The LTE Profiles form opens.
- 2 Choose QCI Policy (LTE) from the Select Object Type drop-down list.
- 3 Perform one of the following:
  - a Specify a filter to search for and modify an existing policy. Select a policy in the filtered list and click on the Properties button. The QCI Policy, Global Policy (Edit) form opens with the General tab displayed.
  - b Click on the Create button. The QCI Policy, Global Policy (Create) form opens with the General tab displayed.
- 4 Configure the parameters:
  - Displayed Name
  - Description
- 5 Click on the Apply button. The QCI Policy, Global Policy (Create) form closes, the new policy appears in the list of QCI policies on LTE Profiles form, and the QCI Policy, Global Policy (Edit) form opens with the General tab displayed.
- 6 Change a QCI policy entry, if required:
  - i Click on the QCI Policy Entries tab button. The list of policy entries is displayed in the form.
  - ii Select one of the entries in the list and click on the Properties button. The QCI Policy Entry, QCI Policy, Global Policy (Edit) form opens.

- iii Configure the parameters, if required:
    - Displayed Name
    - Description
    - DSCP Preserve
    - DSCP for In Profile Packets
    - DSCP for Out Profile Packets
    - Forwarding Class Name
    - Profile
  - iv Click on the OK button. The QCI Policy Entry, QCI Policy, Global Policy (Edit) form closes and the policy information updates in the QCI Policy Entries tab.
  - v Repeat steps ii to iv to change as many QCI policy entries as needed.
- 7 Click on the General tab button.
- 8 Click on the Apply button. The Configuration Mode parameter in the Policy Configuration panel is in the Draft state. The Distribute button at the bottom of the form is dimmed.
-  **Note** — When the Configuration Mode parameter is in the Draft state, the Distribution button is dimmed and the policy cannot be distributed to the NEs. You must first release the policy for distribution. Releasing the global policy also distributes the policy to existing local definitions.
- 9 Release the policy and distribute it to as many routers as necessary. See the *5620 SAM User Guide* for information about how to distribute a policy.
- 

### Procedure 15-12 To change a QCI policy entry

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- 1 Choose Policies→Mobile→LTE Profiles and Policies from the 5620 SAM main menu. The LTE Profiles form opens.
- 2 Choose QCI Policy (LTE) from the Select Object Type drop-down list.
- 3 Specify a filter to search for and modify an existing policy. Select a policy in the filtered list and click on the Properties button. The QCI Policy, Global Policy (Edit) form opens with the General tab displayed.
- 4 Click on the QCI Policy Entries tab button. The list of policy entries is displayed in the form.
- 5 Select one of the entries in the list and click on the Properties button. The QCI Policy Entry, QCI Policy, Global Policy (Edit) form opens.
- 6 Configure the following parameters, as required:
  - Displayed Name
  - Description
  - DSCP Preserve
  - DSCP for In Profile Packets
  - DSCP for Out Profile Packets
  - Forwarding Class Name
  - Profile

- 7 Click on the OK button. The QCI Policy Entry, QCI Policy, Global Policy (Edit) form closes and the policy information updates in the list in the QCI Policy Entries tab.
  - 8 Click on the OK button to save the changes to the QCI Policy entry. A dialog box appears.
  - 9 Click on the Yes button. The QCI Policy, Global Policy (Edit) form closes.
  - 10 Close the LTE Profiles form.
- 

### Procedure 15-13 To view a QCI policy

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- 1 Choose Policies→Mobile→LTE Profiles and Policies from the 5620 SAM main menu. The LTE Profiles form opens.
  - 2 Choose QCI Policy (LTE) from the Select Object Type drop-down list.
  - 3 Specify a filter to search for a policy. Select a policy in the filtered list and click on the Properties button. The QCI Policy - Global Policy (Edit) form opens with the General tab displayed.
  - 4 Click on the following tab buttons in the QCI Policy - Global Policy (Edit) form to view the properties of the profile and the associated NEs, entities, and faults.
    - General—to view the general properties of the QCI policy, such as the parameters configured in Procedure 15-11.
    - QCI Policy Entries—to view QCI policy entry properties.
    - Local Definitions—to view the NEs to which the policy has been distributed.
    - EPC Gateway—to view the properties of the SGW and PGW that use this policy. See Procedure 6-5 for information about how to change the QCI policy on the SGW; see Procedure 6-11 for information about how to change the QCI policy on the PGW.
    - Gateway APN—to view the properties of the APNs that use this policy. See Procedure 6-3 for information about how to configure an APN on the SGW.
    - Faults—to identify faults and to navigate to alarm information.
  - 5 Close the QCI Policy, Global Policy (Edit) form.
  - 6 Close the LTE Profiles form.
- 

### Procedure 15-14 To configure a PGW charging profile

---

- 1 Choose Policies→Mobile→LTE Profiles and Policies from the 5620 SAM main menu. The LTE Profiles form opens.
- 2 Choose PGW Charging Profile (LTE) from the Select Object Type drop-down list.

- 3 Perform one of the following:
    - a Specify a filter to search for an existing policy. Select the policy to modify and click on the Properties button. The PGW Charging Profile, Global Policy (Edit) form opens with the General tab displayed.
    - b Click on the Create button. The PGW Charging Profile, Global Policy (Create) form opens.
  - 4 Configure the parameters:
    - Charging Profile ID
    - Description
    - Offline Charging
    - Time Limit (s)
    - Volume Limit (Kbytes)
  - 5 Click on the Apply button. The PGW Charging Profile, Global Policy (Edit) form opens with the General tab displayed. The Configuration Mode parameter in the Policy Configuration panel is set to Draft. The Distribute button at the bottom of the form is dimmed and the profile cannot be distributed to the NEs. You must first release the profile for distribution. Releasing the global policy also distributes the policy to existing local definitions.
  - 6 Release the profile and distribute the profile to as many routers as required. See the *5620 SAM User Guide* for more information.
  - 7 Close the PGW Charging Profile, Global Policy (Edit) form.
  - 8 Close the LTE Profiles form.
- 

### **Procedure 15-15 To view a PGW charging profile**

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- 1 Choose Policies→Mobile→LTE Profiles and Policies from the 5620 SAM main menu. The LTE Profiles form opens.
- 2 Choose PGW Charging Profile (LTE) from the Select Object Type drop-down list.
- 3 Specify a filter to search for a policy. Select a profile from the list and click on the Properties button. The PGW Charging Profile, Global Policy (Edit) form opens with the General tab displayed.
- 4 Click on the following tab buttons in the PGW Charging Profile, Global Policy (Edit) form to view the properties of the profile and the associated NEs, entities and faults.
  - General—to view the general properties of the PGW charging profile, such as the parameters configured in Procedure [15-14](#).
  - Local Definitions—to view the NEs to which the policy is distributed.
  - PDN Gateway—to view the PDN gateways that use the profile.
  - PDN APN—to view the PDN APNs that use the profile.
  - Faults—to identify faults and navigate to alarm information.

- 5 Close the PGW Charging Profile, Global Policy (Edit) form.
  - 6 Close the LTE Profiles form.
- 

### **Procedure 15-16 To configure an SGW charging profile**

---

- 1 Choose Policies→Mobile→LTE Profiles and Policies from the 5620 SAM main menu. The LTE Profiles form opens.
- 2 Choose SGW Charging Profile (LTE) from the Select Object Type drop-down list.
- 3 Perform one of the following:
  - a Specify a filter to search for an existing policy. Select the policy to modify and click on the Properties button. The SGW Charging Profile, Global Policy (Edit) form opens with the General tab displayed.
  - b Click on the Create button. The SGW Charging Profile, Global Policy (Create) form opens.
- 4 Configure the parameters:
  - Charging Profile ID
  - Description
  - Offline Charging
- 5 Click on the Select button for the Primary Diameter Peer profile in the Charging Data Function panel to select a primary diameter peer profile. The Select Primary Diameter Peer - SGW Charging Profile - Global Policy form opens.
- 6 Select a profile from the displayed list and click on the OK button. The Select Primary Diameter Peer - SGW Charging Profile - Global Policy form closes.
- 7 Click on the Select button for the Secondary Diameter Peer profile in the Charging Data Function panel to select a secondary diameter peer profile. The Select Secondary Diameter Peer - SGW Charging Profile - Global Policy form opens.
- 8 Select a profile from the displayed list and click on the OK button. The Select Secondary Diameter Peer - SGW Charging Profile - Global Policy form closes.
- 9 Configure the parameters:
  - QoS Change
  - User Location Change
  - Time Limit (s)
  - Volume Limit (Kbytes)
  - Maximum Number of Changes
  - MS Time Zone Change



- 10 Click on the Apply button. The SGW Charging Profile, Global Policy (Edit) form opens with the General tab displayed. The Configuration Mode parameter in the Policy Configuration panel is set to Draft. The Distribute button at the bottom of the form is dimmed and the profile cannot be distributed to the NEs. You must first release the profile for distribution. Releasing the global policy also distributes the policy to existing local definitions.
  - 11 Release the profile and distribute the profile to as many routers as required. See the *5620 SAM User Guide* for more information.
  - 12 Close the SGW Charging Profile, Global Policy (Edit) form.
  - 13 Close the LTE Profiles form.
- 

### **Procedure 15-17 To view an SGW charging profile**

---

- 1 Choose Policies→Mobile→LTE Profiles and Policies from the 5620 SAM main menu. The LTE Profiles form opens.
  - 2 Choose SGW Charging Profile (LTE) from the Select Object Type drop-down list.
  - 3 Specify a filter to search for a policy. Select a profile from the list and click on the Properties button. The SGW Charging Profile, Global Policy (Edit) form opens with the General tab displayed.
  - 4 Click on the following tab buttons in the SGW Charging Profile, Global Policy (Edit) form to view the properties of the profile and the associated NEs, entities, and faults.
    - General—to view the general properties of the QCI policy, such as the parameters configured in Procedure 15-16.
    - Local Definitions—to view the NEs to which the policy has been distributed.
    - Serving Gateway—to view the properties of the SGWs that use this policy.
    - Faults—to identify faults and navigate to alarm information.
  - 5 Close the SGW Charging Profile, Global Policy (Edit) form.
  - 6 Close the LTE Profiles form.
- 

### **Procedure 15-18 To configure a PLMN list group**

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- 1 Choose Policies→Mobile→LTE Profiles and Policies from the 5620 SAM main menu. The LTE Profiles form opens.
- 2 Choose PLMN List Group (LTE) from the Select Object Type drop-down list.

- 3 Perform one of the following:
    - a Specify a filter to search for an existing policy. Select the policy to modify and click on the Properties button. The PLMN List Group, Global Policy (Edit) form opens with the General tab displayed.
    - b Click on the Create button. The PLMN List Group, Global Policy (Create) form opens with the General tab displayed.
  - 4 Configure the Displayed Name parameter.
  - 5 Click on the PLMN List Policy tab button.
  - 6 Click on the Create button. The PLMN List Profile (Create) form opens.
  - 7 Configure the parameters:
    - Description
    - Mobile Country Code
    - Mobile Network Code
  - 8 Click on the Apply button. A dialog box opens.
  - 9 Click on the OK button to add the PLMN list to the group.
  - 10 Repeat steps 7 to 9 for each PLMN list that you need to add to the group.
  - 11 Click on the OK button to close the PLMN List Profile (Create) form. A dialog box opens.
  - 12 Click on the OK button.
  - 13 Click on the General tab button.
  - 14 Click on the Apply button. The PLMN List Group, Global Policy (Edit) form opens with the General tab displayed. The Configuration Mode parameter in the Policy Configuration panel is set to Draft. The Distribute button at the bottom of the form is dimmed and the profile cannot be distributed to the NEs. You must first release the profile for distribution. Releasing the global policy also distributes the policy to existing local definitions.
  - 15 Release the profile and distribute the profile to as many routers as required. See the *5620 SAM User Guide* for more information.
  - 16 Close the LTE Profiles form.
- 

### **Procedure 15-19 To view a PLMN list group**

---

- 1 Choose Policies→Mobile→LTE Profiles and Policies from the 5620 SAM main menu. The LTE Profiles form opens.
- 2 Choose PLMN List Group (LTE) from the Select Object Type drop-down list.

- 3 Specify a filter to search for a policy. Select a profile from the list and click on the Properties button. The PLMN List Group, Global Policy (Edit) form opens with the General tab displayed.
  - 4 Click on the following tab buttons in the PLMN List Group, Global Policy (Edit) form to view the properties of the profile and the associated NEs, entities and faults.
    - General—to view the general properties of the policy, such as the parameters configured in Procedure 15-18.
    - PLMN List Policy—to view PLMN list policies in the group.
    - Local Definitions—to view the NEs to which the policy is distributed.
    - EPC Gateway—to view the EPC gateways that use the profile.
    - Faults—to identify faults and navigate to alarm information.
  - 5 Close the PLMN List Group, Global Policy (Edit) form.
  - 6 Close the LTE Profiles form.
- 

#### **Procedure 15-20 To configure a trusted peer list policy**

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- 1 Choose Policies→Mobile→LTE Profiles and Policies from the 5620 SAM main menu. The LTE Profiles form opens.
- 2 Choose Trusted Peer List Policy (LTE) from the Select Object Type drop-down list.
- 3 Perform one of the following:
  - a Specify a filter to search for a policy. Select the policy to modify and click on the Properties button. The Trusted Peer List Policy, Global Policy (Edit) form opens with the General tab displayed.
  - b Click on the Create button. The Trusted Peer List Policy, Global Policy (Create) form opens with the General tab displayed.
- 4 Configure the following parameters:
  - Displayed Name
  - Description
- 5 Click on the Trusted Peers tab button.
- 6 Click on the Create button. The Trusted Peers, Trusted Peer List Policy, Global Policy (Create) form opens.

- 7 Configure the parameters:
    - Peer IP Address
    - Prefix
    - Administrative State
    - GTP Echo
    - Radio Access Technology
    - Node Type
    - Mobile Country Code
    - Mobile Network Code
  - 8 Click on the Apply button to save the configuration. A dialog box opens.
  - 9 Click on the OK button.
  - 10 Click on the OK button to close the Trusted Peers, Trusted Peer List Policy, Global Policy (Create) form. A dialog box appears.
  - 11 Click on the OK button.
  - 12 Repeat steps 6 to 11 for each trusted peer list policy that you need to create.
  - 13 Click on the Apply button. The Trusted Peer List Policy, Global Policy (Edit) form opens with the General tab displayed. The Configuration Mode parameter in the Policy Configuration panel is set to Draft. To distribute the profile to the NEs, you must first release the profile for distribution. Releasing the global policy also distributes the policy to existing local definitions.
  - 14 Release the profile and distribute the profile to as many routers as required. The global policy is also distributed to the local definitions. See the *5620 SAM User Guide* for more information.
  - 15 Close the Trusted Peer List Policy, Global Policy (Edit) form.
  - 16 Close the LTE Profiles form.
- 

### **Procedure 15-21 To view a trusted peer list policy**

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- 1 Choose Policies→Mobile→LTE Profiles and Policies from the 5620 SAM main menu. The LTE Profiles form opens.
- 2 Choose Trusted Peer List Policy (LTE) from the Select Object Type drop-down list.
- 3 Specify a filter to search for a policy. Select a profile from the list and click on the Properties button. The Trusted Peer List Policy, Global Policy (Edit) form opens with the General tab displayed.

- 4 Click on the following tab buttons in the Trusted Peer List Policy, Global Policy (Edit) form to view the properties of the profile, and the associated NEs, entities and faults.
    - General – to view the general properties of the policy, such as the parameters configured in Procedure 15-18.
    - Trusted Peers – to view trusted peer list policies.
    - Local Definitions – to view the NEs to which the policy is distributed.
    - Gn – to view the Gn reference points that use the profile.
    - Faults – to identify faults and navigate to alarm information.
  - 5 Close the Trusted Peer List Policy, Global Policy (Edit) form.
  - 6 Close the LTE Profiles form.
- 

### **Procedure 15-22 To configure an LTE LI delivery function peer policy**

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- 1 Choose Policies→Mobile→LTE Profiles and Policies from the 5620 SAM main menu. The LTE Profiles form opens.
- 2 Choose LTE LI Delivery Function Peer (LTE LI) from the Select Object Type drop-down list.
- 3 Perform one of the following:
  - a Specify a filter to search for a policy. Select the policy to modify and click on the Properties button.
  - b Click on the Create button. The LTE LI Delivery Function Peer - Global Policy (Create) form opens.
- 4 Configure the parameters:
  - ID
  - Description
  - Address (Delivery Function 2 panel)
  - Port (Delivery Function 2 panel)
  - Address (Delivery Function 3 panel)
  - Port (Delivery Function 3 panel)
- 5 Click on the OK button to save the configuration.
- 6 Click on the Apply button. The LTE LI Delivery Function Peer - Global Policy (Edit) form opens with the General tab displayed. The Configuration Mode parameter in the Policy Configuration panel is set to Draft. When you release the global policy, the policy is also distributed to existing local definitions.
- 7 Release the profile and distribute the profile to as many routers as required. See the *5620 SAM User Guide* for more information.

- 8 Close the LTE LI Delivery Function Peer - Global Policy (Create) form.
  - 9 Close the LTE Profiles form.
- 

### **Procedure 15-23 To configure an LTE LI interception target policy**

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- 1 Choose Policies→Mobile→LTE Profiles and Policies from the 5620 SAM main menu. The LTE Profiles form opens.
  - 2 Choose LTE LI Interception Target (LTE LI) from the Select Object Type drop-down list.
  - 3 Perform one of the following:
    - a Specify a filter to search for a policy. Select the policy to modify and click on the Properties button.
    - b Click on the Create button. The LTE LI Interception Target - Global Policy (Create) form opens.
  - 4 Configure the parameters:
    - Description
    - Target ID
    - Target Type
    - Content Type
  - 5 Click on the Select button to choose a delivery function peer. The Select Delivery Function Peer - LTE LI Interception Target - Global Policy form opens.
  - 6 Select a profile from the list and click on the OK button. The Select Delivery Function Peer - LTE LI Interception Target - Global Policy form closes.
  - 7 Click on the Apply button. The LTE LI Interception Target - Global Policy (Edit) form opens with the General tab displayed. The Configuration Mode parameter in the Policy Configuration panel is set to Draft. When you release the global policy, the policy is also distributed to existing local definitions.
  - 8 Release the profile and distribute the profile to as many routers as required. See the *5620 SAM User Guide* for more information.
  - 9 Close the LTE LI Interception Target – Global Policy (Create) form.
  - 10 Close the LTE Profiles form.
-

**Procedure 15-24 To configure an MME SCTP profile**

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- 1 Choose Policies→Mobile→MME Profiles and Policies from the 5620 SAM main menu. The MME Profiles form opens.
  - 2 Choose MME SCTP Profile (mmepolicy) from the Select Object Type drop-down list.
  - 3 Perform one of the following:
    - a Specify a filter to search for a policy. Select the policy to modify and click on the Properties button. The MME SCTP Profile - Global Policy (Edit) form opens with the General tab displayed.
    - b Click on the Create button. The MME SCTP Profile - Global Policy (Create) form opens.
  - 4 Configure the parameters:

• Displayed Name	• Cookie Life (seconds)
• Description	• Heartbeat Interval (seconds)
• SCTP Profile ID	• SACK Period (ms)
• Config Type	• SACK Frequency
• SCTP Port	• MTU Size (octets)
• RTO Minimum (ms)	• Maximum Association Retransmissions
• RTO Maximum (ms)	• Maximum Path Retransmissions
• RTO Initial Value (ms)	• Maximum Init Retransmissions
  - 5 Click on the Apply button. The MME SCTP Profile - Global Policy (Edit) form opens with the General tab displayed. The Configuration Mode parameter in the Policy Configuration panel is set to Draft. When you release the global policy, the policy is also distributed to existing local definitions.
  - 6 Release the profile and distribute the profile to as many routers as required. See the *5620 SAM User Guide* for more information.
  - 7 Close the MME SCTP Profile - Global Policy (Edit) form.
  - 8 Close the MME Profiles form.
- 

**Procedure 15-25 To configure an MME GTP profile**

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- 1 Choose Policies→Mobile→MME Profiles and Policies from the 5620 SAM main menu. The MME Profiles form opens.
- 2 Choose MME GTP Profile (mmepolicy) from the Select Object Type drop-down list.

- 3 Perform one of the following:
    - a Specify a filter to search for a policy. Select the policy to modify and click on the Properties button. The MME GTP Profile - Global Policy (Edit) form opens with the General tab displayed.
    - b Click on the Create button. The MME GTP Profile - Global Policy (Create) form opens.
  - 4 Configure the parameters:
    - Displayed Name
    - Description
    - GTP Profile ID
    - Inter-Echo Request Timer (seconds)
    - Echo Response Timer (seconds)
    - Echo Requests
    - GTP Message Response Timer (seconds)
    - GTP Message Send Attempts
  - 5 Click on the Apply button. The MME GTP Profile - Global Policy (Edit) form opens with the General tab displayed. The Configuration Mode parameter in the Policy Configuration panel is set to Draft. When you release the global policy, the policy is also distributed to existing local definitions.
  - 6 Release the profile and distribute the profile to as many routers as required. See the *5620 SAM User Guide* for more information.
  - 7 Close the MME GTP Profile - Global Policy (Edit) form.
  - 8 Close the MME Profiles form.
- 

### Procedure 15-26 To configure a PMIPv6 profile

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- 1 Choose Policies→Mobile→LTE Profiles and Policies from the 5620 SAM main menu. The LTE Profiles form opens.
- 2 Choose PMIPv6 Profile (LTE) from the Select Object Type drop-down list.
- 3 Perform one of the following:
  - a Specify a filter to search for and modify an existing policy. Select a policy in the filtered list and click on the Properties button. The PMIPv6 Profile, Global Policy (Edit) form opens with the General tab displayed.
  - b Click on the Create button. The PMIPv6 Profile, Global Policy (Create) form opens with the General tab displayed.
- 4 Configure the parameters:
  - Displayed Name
  - Description
  - Message Timeout (s)
  - Message Retry Count
  - PMIPv6 Keep Alive Timeout (s)
  - PMIPv6 Keep Alive Retry Count
  - PMIPv6 Keep Alive Interval (s)
  - IP Time to Live (s)
  - IP Diff Services Code Point



- 5 Click on the Apply button. The PMIPv6 Profile, Global Policy (Create) form closes. The new policy appears in the list of PMIPv6 policies on LTE Profiles form, and the PMIPv6 Profile, Global Policy (Edit) form opens with the General tab displayed.
- 6 Click on the Apply button. The Configuration Mode parameter in the Policy Configuration panel is in the Draft state. The Distribute button at the bottom of the form is dimmed.



**Note** — When the Configuration Mode parameter is in the Draft state, the Distribution button is dimmed and the policy cannot be distributed to the NEs. You must first release the policy for distribution. Releasing the global policy also distributes the policy to existing local definitions.

- 7 Release the policy and distribute it to as many routers as necessary. See the *5620 SAM User Guide* for information about how to distribute a policy.
- 

### Procedure 15-27 To view a PMIPv6 profile

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- 1 Choose Policies→Mobile→LTE Profiles and Policies from the 5620 SAM main menu. The LTE Profiles form opens.
  - 2 Choose PMIPv6 Profile (LTE) from the Select Object Type drop-down list.
  - 3 Specify a filter to search for a policy. Select a policy in the filtered list and click on the Properties button. The PMIPv6 Profile, Global Policy (Edit) form opens.
  - 4 Click on the following tab buttons in the PMIPv6 Profile, Global Policy (Edit) form to view the properties of the profile and the associated NEs, reference points, and faults.
    - General—to view the general properties of the PMIPv6 profile, such as the parameters configured in Procedure 15-26.
    - S2a—to view the properties of the S2a reference points that use this policy. See Procedure 6-7 for information about how to configure the S2a reference point on the PGW.
    - Local Definitions—to view the NEs to which the policy has been distributed.
    - Faults—to identify faults and to navigate to alarm information.
  - 5 Close the PMIPv6 Profile, Global Policy (Edit) form.
  - 6 Close the LTE Profiles form.
-



## **16 – RADIUS profile**

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- 16.3 RADIUS profile configuration and viewing procedures    16-2**

## 16.1 RADIUS profile overview

RADIUS is an AAA protocol for applications that allows remote access servers to communicate with a central server to authenticate dial-in users and authorize their access to the requested system or service. RADIUS allows an organization to maintain user profiles in a central database that all remote servers can share.

The 7750 MG PGW and GGSN support the use of a RADIUS profile.

See chapter 15 for more information about other LTE-specific profiles and policies.

## 16.2 Workflow to configure the RADIUS profile

- 1 Review the LTE ePC profiles and policies workflow in section 15.1.
- 2 Create a RADIUS profile. See Procedure 16-1 for more information.
- 3 Create a RADIUS group profile and bind the RADIUS profile to it. See Procedure 16-2 for more information.
- 4 Create RADIUS peer objects in the RADIUS group profile. See Procedure 16-2 for more information.
- 5 Distribute the profile. See Procedure 16-2 for more information.
- 6 Bind the RADIUS group profile to a 7750 MG PGW. See Procedure 16-3 for more information.
- 7 View the statistics for a RADIUS peer, if required. See Procedure 16-6 for more information.

## 16.3 RADIUS profile configuration and viewing procedures

The following procedures describe how to configure and view the RADIUS profile.

After you configure a profile, additional tabs appear in the edit properties form that allow you to do the following:

- view where and how a profile is used
- manage faults associated with the profile

---

### Procedure 16-1 To configure a RADIUS profile

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- 1 Choose Policies→Mobile→LTE Profiles and Policies from the 5620 SAM main menu. The LTE Profiles form opens.
- 2 Choose RADIUS Profile (LTE) from the Select Object Type drop-down menu.

- 3 Perform one of the following:
    - a Specify a filter to search for a profile. Select the profile to modify and click on the Properties button. The RADIUS Profile, Global Policy (Edit) form opens with the General tab displayed.
    - b Click on the Create button. The RADIUS Profile, Global Policy (Create) form opens.
  - 4 Configure the following parameters:
    - Displayed Name
    - Description
    - Authentication Probe Interval (seconds)
    - Dead Time (seconds)
    - Retry Timeout (seconds)
    - Retry Count
  - 5 Click on the Apply button. The RADIUS Profile - Global Policy (Edit) form opens with the General tab displayed. The Configuration Mode parameter in the Policy Configuration panel is set to Draft. To distribute the profile to the NEs, you must first release the profile for distribution. Releasing the global profile also distributes the profile to existing local definitions.
  - 6 Release the profile and distribute the profile to as many routers as required. The global profile is also distributed to the local definitions. See the *5620 SAM User Guide* for more information.
  - 7 Close the RADIUS Profile - Global Policy (Edit) form.
  - 8 Close the LTE Profiles form.
- 

## Procedure 16-2 To create a RADIUS group profile

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You must create a RADIUS profile, as described in Procedure [16-1](#), before you can configure a RADIUS group profile.

- 1 Choose Policies→Mobile→LTE Profiles and Policies from the 5620 SAM main menu. The LTE Profiles form opens.
- 2 Choose RADIUS Group Profile (LTE) from the Select Object Type drop-down menu.
- 3 Perform one of the following:
  - a Specify a filter to search for a profile. Select the profile to modify and click on the Properties button. The RADIUS Group Profile, Global Policy (Edit) form opens.
  - b Click on the Create button. The RADIUS Group Profile, Global Policy (Create) form opens.

- 4 Configure the following parameters:
  - Displayed Name
  - Description
  - Authentication Port
  - Accounting Port
  - Shared Secret
  - Update Interval (minutes)
  - RADIUS Server Type
- 5 In the RADIUS Profile panel, click on the Select button to display a list of RADIUS profiles to associate with the RADIUS group profile. The Select RADIUS Profile - RADIUS Group Profile - Global Policy form opens.
- 6 Perform one of the following:
  - a Configure a filter to search for an existing profile. Select a profile, and click on the OK button. You can also click on the Properties button to modify the profile, if required.
  - b Click on the Create button. The RADIUS Group Profile, Global Policy (Create) form opens. See Procedure 16-1 for information about how to configure the RADIUS profile.
- 7 Click on the Apply button. The RADIUS Group Profile, Global Policy (Edit) form opens with additional tabs.
- 8 Click on the RADIUS Peers tab button.
- 9 Click on the Create button to configure an IP address for the RADIUS peer. The RADIUS Peer Profile, Global Policy (Create) form opens.
- 10 Configure the parameters:
  - IP Address
  - Authentication Port
  - Accounting Port
  - Administrative State
  - Shared Secret
  - Priority
- 11 In the RADIUS Profile panel, click on the Select button to display a list of RADIUS profiles to associate with the RADIUS peer. The Select RADIUS Profile - RADIUS Peer Profile - Global Policy form opens.
- 12 Perform one of the following:
  - a Configure a filter to search for an existing profile. Select a profile, and click on the OK button. You can also click on the Properties button to modify the profile, if required.
  - b Click on the Create button. The RADIUS Profile, Global Policy (Create) form opens. See Procedure 16-1 for information about how to configure the RADIUS profile.

- 13 Click on the OK button to save the profile. A dialog box opens.
  - 14 Click on the OK button.
  - 15 The RADIUS Group Profile, Global Policy (Edit) form opens with the General tab displayed. The Configuration Mode parameter in the Policy Configuration panel is in the Draft state.
  - 16 Click on the OK button.
  - 17 Release the profile and distribute it to as many routers as necessary. See the *5620 SAM User Guide* for information about how to distribute a profile.
  - 18 Close the LTE Profiles form.
- 

### **Procedure 16-3 To bind the RADIUS group profile to the 7750 MG PGW**

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- 1 Right-click on a discovered 7750 MG PGW in the navigation tree and choose Properties from the contextual menu. The Network Element (Edit) form opens with the General tab displayed.
- 2 In the Serving and PDN Gateway Instances panel, choose a PGW instance, and click on the Properties button. The PDN Gateway (Edit) form opens with the General tab displayed.
- 3 Follow steps 4 to 50 of Procedure 6-8 to add an APN to a PGW.
- 4 Click on the AAA tab button. The General subtab is displayed.
- 5 Configure the parameters in the Authentication panel:
  - Type
  - User Name
- 6 In the RADIUS Server Group Profile subpanel, click on the Select button to display a list of RADIUS group profiles.
- 7 Perform one of the following:
  - a Configure a filter to search for an existing profile. Select a profile, and click on the OK button. You can also click on the Properties button to modify the profile, if required.
  - b Click on the Create button. The RADIUS Profile, Global Policy (Create) form opens. See Procedure 16-1 for information about how to configure the RADIUS profile.
- 8 Click on the OK button to save the profile. A dialog box opens.

- 9 Configure the parameters in the Accounting panel:
    - Type
    - User Name
    - Wait for Accounting Response
  - 10 Click on the OK button.
  - 11 In the RADIUS Server Group Profile subpanel, click on the Select button to display a list of RADIUS group profiles.
  - 12 Perform one of the following:
    - a Configure a filter to search for an existing profile. Select a profile, and click on the OK button. You can also click on the Properties button to modify the profile, if required.
    - b Click on the Create button. The RADIUS Profile, Global Policy (Create) form opens. See Procedure 16-1 for information about how to configure the RADIUS profile.
  - 13 Click on the OK button to save the profile. A dialog box opens.
  - 14 Click on the OK button.
- 

#### **Procedure 16-4 To view a RADIUS profile**

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- 1 Choose Policies→Mobile→LTE Profiles and Policies from the 5620 SAM main menu. The LTE Profiles form opens.
  - 2 Choose RADIUS Profile (LTE) from the Select Object Type drop-down menu.
  - 3 Specify a filter to search for a profile. Select a profile from the list and click on the Properties button. The RADIUS Profile, Global Policy (Edit) form opens with the General tab displayed.
  - 4 Click on the following tab buttons in the RADIUS Profile, Global Policy (Edit) form to view the properties of the profile, and the associated NEs, entities and faults.
    - General – to view the general properties of the policy, such as the parameters configured in Procedure 16-1.
    - Local Definitions – to view the NEs to which the policy is distributed.
    - RADIUS Group Profiles – to view the associated RADIUS group profiles.
    - RADIUS Peer Profiles – to view the associated RADIUS peer profiles.
    - Faults – to identify faults and navigate to alarm information.
  - 5 Close the RADIUS Profile, Global Policy (Edit) form.
  - 6 Close the LTE Profiles form.
-



### Procedure 16-5 To view a RADIUS group profile

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- 1 Choose Policies→Mobile→LTE Profiles and Policies from the 5620 SAM main menu. The LTE Profiles form opens.
  - 2 Choose RADIUS Group Profile (LTE) from the Select Object Type drop-down menu.
  - 3 Specify a filter to search for a policy. Select a profile from the list and click on the Properties button. The RADIUS Group Profile - Global Policy (Edit) form opens with the General tab displayed.
  - 4 Click on the following tab buttons in the RADIUS Group Profile - Global Policy (Edit) form to view the properties of the profile, and the associated NEs, entities and faults.
    - General — to view the general properties of the policy, such as the parameters configured in Procedure 16-2.
    - RADIUS Peers — to view RADIUS peers.
    - Local Definitions — to view the NEs to which the policy is distributed.
    - PDN APN — to view the PDN APN.
    - Duplicate Accounting RADIUS Server Groups — to view the duplicate accounting RADIUS server groups.
    - Faults — to identify faults and navigate to alarm information.
  - 5 Close the RADIUS Group Profile - Global Policy (Edit) form.
  - 6 Close the LTE Profiles form.
- 

### Procedure 16-6 To view the statistics of a RADIUS peer

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The 5620 SAM collects the statistics of a RADIUS peer from the PGW. The 5620 SAM records the statistic counters as 7750 MG statistics. See Appendix A for a list of the supported 7750 MG statistics.

- 1 Choose Equipment from the view selector in the navigation tree. The navigation tree displays the Equipment view.
- 2 Right-click on a 7750 MG NE in the Equipment view and choose Properties. The Network Element (Edit) form opens with the General tab displayed.
- 3 In the Serving and PDN Gateway Instances dashboard, choose an SGW instance or a PGW instance, then click on the Properties tab button. The Serving Gateway (Edit) form or the PDN Gateway (Edit) form opens.
- 4 Click on the EPS Peers tab button.
- 5 Choose a RADIUS peer, and click on the Properties button. The RADIUS Peer (Edit) form opens.
- 6 Click on the Statistics tab button. Choose RADIUS Peer Stats (LTE) from the Select Object Type drop-down menu.

- 7 Specify a filter to narrow your search.
  - 8 Choose a captured time in the list, and click on the Properties button. The Statistics Record - RADIUS Peer Stats read-only form opens.
-

# ***LTE ePC NE maintenance***

---

## **17 — Maintaining LTE ePC NEs**



## ***17 – Maintaining LTE ePC NEs***

---

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## 17.1 LTE ePC NE maintenance overview

The 5620 SAM includes NE maintenance functionality for supported LTE devices that allows a system administrator to:

- define the 5620 SAM deployment and local device configuration-save conditions
- perform an on-demand or a scheduled NE configuration backup
- restore a previous device configuration
- perform an on-demand or a scheduled NE software upgrade; scheduled software upgrades are supported on the 7750 MGs.
- view the status of a deployment, backup, device configuration restore, device software upgrade, or an accounting statistics retrieval operation in progress
- troubleshoot a failed deployment, backup, or upgrade

A 5620 SAM operator with an administrator or network element software management scope of command role can perform device configuration save, backup, or restore operations, and can create policies to schedule backups and save a configuration.

A 5620 SAM operator can upgrade software or schedule a software upgrade on NEs that are within their span of control.



**Note** — The 5620 SAM backup and restore, software upgrade, and file browsing functions are not supported on the 5780 DSC.

### Managing LTE ePC NE deployments

When you apply a device configuration change using the 5620 SAM (for example, by clicking on the OK or Apply button after you change a service parameter), the 5620 SAM deploys the configuration change to the device according to the 5620 SAM deployment policy. The deployment policy also specifies when the device saves the configuration locally. The information in a deployment policy includes the following:

- number and frequency of deployment retries that the 5620 SAM performs
- conditions under which the 5620 SAM initiates a device configuration save, such as the frequency and level of saved configuration detail

In a lab or testing environment, you may need to disable the 5620 SAM deployment. See the *5620 SAM XML OSS Interface Developer Guide* for information about how to disable a 5620 SAM deployment.

### Managing LTE ePC NE backups and restores

A 5620 SAM backup policy specifies the conditions under which the 5620 SAM performs a device backup to ensure that the device configuration is not lost in the event of a failure. A default policy is assigned to all managed devices after the 5620 SAM installation.

You can create and configure multiple backup policies, and you can assign policies to multiple NEs. You cannot delete a backup policy that is assigned to an NE. The information in a backup policy includes the following:

- frequency of backups
- files that a backup collects
- type of file compression that the 5620 SAM uses
- age and number of backup files that the 5620 SAM retains

The 5620 SAM stores the backed up device configuration files in the 5620 SAM database to facilitate tracking and retrieval. You can perform an on-demand export of backup files from the database to a file system. You can import NE backups from a file system to the 5620 SAM database. If required, you can configure a 5620 SAM server to automatically save each device backup to a file system when it stores the backup in the database.

If a device configuration requires replacement (for example, because the device becomes corrupted), you can restore a previously backed up configuration. Unless otherwise specified, the 5620 SAM restores the most recent device configuration backup.



**Note —** The 5620 SAM backup and restore and file browsing functions are not supported on the 9471 MME.

## Managing LTE ePC NE software upgrades

When a new device software version is available, you can use the 5620 SAM to perform an on-demand NE software upgrade or schedule an upgrade using a software upgrade policy. You can create and configure multiple software upgrade policies and assign the policies to multiple NEs. You cannot delete a software upgrade policy that is assigned to an NE. The information in a software upgrade policy includes the following:

- NE file location of the currently active device software
- NE file location in which to store a backup copy of the current device software
- whether to activate the software after the software is transferred to the NE

- whether to reinitialize the NE after the upgrade
- whether the upgrade is an ISSU



**Note 1** — Software upgrades between a 7750 SR and a 7750 MG NE are not supported.

**Note 2** — Software upgrades in an SR-MG 1.0 (1.0.B1-x) loadset are supported. Software upgrades from SR-MG 1.0 B1 to 1.0 B2 are supported.

**Note 3** — You can use the 5620 SAM to transfer a software image to the 9471 MME, but you cannot perform the software upgrade by using the 5620 SAM. See the *Alcatel-Lucent 9471 Mobility Management Entity (MME) | Release LMx.x Software Update 418-111-206* document for more information about performing a software upgrade on the 9471 MME.

During a software upgrade, the 5620 SAM performs checks to ensure that the new software is compatible with the device type and that the required files are present. The 5620 SAM does not initiate a device software upgrade unless the required conditions are met. You can use the 5620 SAM to roll back a software upgrade to the previous version if the upgrade fails.

### ISSUs

The ISSU process ensures that service is uninterrupted during the upgrade of a device. A device software upgrade requires a CPM restart, which causes temporary device down time. When a device has dual CPMs, one CPM remains active and in service; the other CPM restarts with the upgraded software. If an upgrade on a CPM fails, the CPM reports a failed state and raises an alarm. The ISSUs for devices are restricted to maintenance software releases.

You can configure the 5620 SAM to activate the new software immediately after the software is transferred to an NE. You can configure the 5620 SAM to transfer the software file but not to activate the software; in this case, a manual software activation is required. Manual software activation provides more control over an upgrade, which may be required; for example, when multiple NEs are involved.

### LTE ePC NE file-system browsing

A 5620 SAM operator can browse the file system of a managed NE to list the contents of the compact flash devices. You can browse files for the 7750 MG using FTP or a CLI session using SSH. FTP file browsing on an NE requires FTP user-account access on the NE. SSH file browsing requires console user account access and the configuration of SSH security on the NE.

You can use the 5620 SAM GUI to browse the different types of files. When you browse an NE file system using the 5620 SAM, you can confirm that operations, such as the following, occur as planned by verifying the size and timestamp of the local NE files.

- configuration saves
- software image transfers and upgrades



- configuration restores
- accounting-statistics collection

## Secure file transfers for site backups and upgrades

The 5620 SAM supports both secure and non-secure file transfers in backups, restores, and software upgrades. Secure file transfers using SSH2 are supported by the 7750 MG. The device mediation policy determines whether FTP or SCP is used during file transfers.

## 17.2 Workflow for LTE ePC NE maintenance

- 1 For secure backups and upgrades, verify that SSH2 is correctly configured on the device and that the 5620 SAM mediation policy for the device is configured for secure FTP or SCP. Secure backups and upgrades are supported on the 7750 MG. See the *5620 SAM User Guide* for more information.
- 2 Configure the device for discovery by the 5620 SAM. See chapter 4 for more information.
- 3 Configure the 5620 SAM deployment policy to specify how and when the 5620 SAM tries to send configuration changes from 5620 SAM clients to the managed devices. See the *5620 SAM User Guide* for more information.
- 4 Use the 5620 SAM to configure device backup policies. A device backup policy specifies how often the 5620 SAM backs up the device configuration. See the *5620 SAM User Guide* for more information.
- 5 Perform on-demand NE configuration saves, backups, and restores, as required. See the *5620 SAM User Guide* for more information.
- 6 Use the 5620 SAM to transfer software image files to the 9471 MME, as required. See Procedure 17-6 for more information.
- 7 Perform 7750 MG software upgrades, as required.
  - i Create a software upgrade policy for the 7750 MG. See the *5620 SAM User Guide* for more information.
  - ii Upload the device software image to the 5620 SAM server. See the *5620 SAM User Guide* for more information.
  - iii Verify that the device boot environment is synchronized. See Procedure 17-10 for more information.
  - iv Perform a backup on the device prior to activating the software image. See Procedure 17-2 for more information.
  - v Perform the software upgrade operation to transfer the software image to the device and activate the image. See Procedure 17-6 for more information.
  - vi Perform a backup on the device after activating the software image and before rebooting the device. See Procedure 17-2 for more information.
  - vii Reboot the device. See Procedure 17-10 for more information.

- viii Resynchronize the device with the 5620 SAM, if required. See Procedure 17-10 for more information.
- ix Verify the success of the software upgrade. See Procedure 17-11 for more information.



**Note —** The 5620 SAM does not currently support rollback or restore of a software upgrade by using the 5620 SAM GUI. Contact Alcatel-Lucent for more information about troubleshooting failed 7750 MG software upgrades.

- 8 Schedule device software upgrades, as required. Scheduled software upgrades are supported on the 7750 MG. See Procedure 17-9 for more information.
  - i Create a 5620 SAM schedule.
  - ii Create a software upgrade policy.
  - iii Create a 5620 SAM scheduled task for the upgrade activity.
  - iv Review the results and status of the scheduled upgrade and take the appropriate actions, as required, based on your company policies.
- 9 View the status of configuration deployments, backups, restores, or upgrades using the appropriate management form and viewing the contents of NE file systems by opening an FTP or SSH file browser from the 5620 SAM client GUI or by using the Deployment form. See the *5620 SAM User Guide* for more information about viewing NE file systems using FTP or SSH, and Procedure 17-11 for more information about the Deployment form.
- 10 Troubleshoot any failed configuration deployments, as required, using the 5620 SAM alarm window and the Deployment form. See the *5620 SAM User Guide* for more information about the 5620 SAM alarm window, and Procedure 17-11 for more information about the Deployment form.

## 17.3 NE maintenance procedures

Use the following procedures to perform NE maintenance operations. See the *5620 SAM Parameter Guide* for more information about the parameters described in the following procedures.

### Backup and restore procedures

The following procedures describe backup and restore tasks for LTE ePC devices.

## Procedure 17-1 To create a 7750 MG backup policy

When the 5620 SAM performs a device configuration backup, it transfers files to itself from the device.



**Note** — The default backup policy is assigned automatically to all 5620 SAM-managed NEs that do not currently have an assigned backup policy.

- 1 Choose Administration→NE Maintenance→Backup/Restore from the 5620 SAM main menu. The Backup/Restore form opens with the Backup/Restore Policy tab displayed.
- 2 Click on the Create button. The Backup Policy (Create) form opens.
- 3 Specify whether backup functionality is enabled.
  - a Enable the Enable Backup parameter.
  - b Disable the Enable Backup parameter. The remaining parameters on the form cannot be configured. Go to step 10.
- 4 Choose SR Based Node from the Policy Type drop-down menu.
- 5 Configure the following parameters:
  - Policy ID
  - Auto-Assign ID
  - Name
- 6 Specify whether to perform a reboot after the configuration is restored to the device by specifying the Auto Reboot After Successful Restore parameter.



**Caution** — When you use the 5620 SAM client GUI to restore a managed device configuration and you disable the Auto Reboot After Successful Restore parameter, there is a risk that the bof.cfg file may be overwritten when a user performs “bof save” using CLI on the managed device. If there is a gap between a restore and a reboot, you can perform a “show bof” to ensure that another user has not performed a “bof save”.

- 7 You can schedule backups based on a time interval or on the number of NE configurations performed from the 5620 SAM server. Configure the backup triggering parameters:
  - Scheduled Backup Scheme
  - Scheduled Backup Interval
  - Scheduled Backup Sync Time
  - Scheduled Backup Threshold (operations)
  - Auto Backup Scheme
  - Auto Backup Threshold (operations)

**8** Configure the Backup Settings parameters:

- CLI Config File Mode
- CLI Config Save Details
- CLI Debug Save Config File
- Boot Option File Mode
- File Compression



**Note** — In addition to enabling the CLI Debug Save Config File Mode parameter, you must specify the location of the debug configuration files in the 5620 SAM main server configuration. See the *5620 SAM User Guide* for information about how to specify the location of the debug configuration files in the main server configuration.

**9** Configure the parameters in the Backup Purging panel. Backup purging parameters allow you to specify the number of backup files kept. These settings allow you to eliminate manual monitoring and deletion of backup files. The purge criteria can be the number of files, the age of the files, or both.

- Auto-Purge Scheme
- Number of Backups
- Maximum Backup Age (days)

**10** Click on the OK button to save the backup policy. The Backup Policy (Create) form closes.**11** Assign the policy to NEs as required.

- Select the new policy in the list and click on the Properties button. The Backup Policy (Edit) form opens.
- Click on the Backup/Restore Policy Assignment tab button. The Backup Policy Filter (Edit) form opens.
- Configure the filter parameters, if require. Click on the OK button.
- Select one or more NEs in the Unassigned Sites list and click on the right-pointing arrow to move them to the Assigned Sites list.
- Click on the OK button. A dialog box appears.
- Click on the Yes button. The Backup Policy (Edit) form closes and the policy is assigned to the NEs.

**12** Close the Backup/Restore form.

---

**Procedure 17-2 To perform an immediate device backup, restore, or configuration save**

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When you start an immediate backup, you back up the device configuration based on the backup policy associated with the NE.

A device configuration restore operation uses the most recently backed-up device configuration file unless otherwise specified. See Procedure 17-5 for more information.

The following conditions must be present before you can perform a device configuration backup, restore, or configuration save:

- You have a 5620 SAM user account with an administrator or network element software management scope of command role or a scope of command role with write access to the mediation package. See the *5620 SAM User Guide* for more information about scope of command roles.
- FTP or secure FTP is configured in the mediation policy for the NE. See chapter 4 for more information about configuring FTP.
- The BOF persist parameter is set on the device. See chapter 4 for information about device commissioning.

Depending on the operation type, the Backup State or Restore State column displays the current state of the operation. The possible values are:

- Not Attempted - the operation is unattempted
- Saving Config - the device configuration is being saved on the device
- Transferring Files - a file transfer is in progress
- Success - the operation is complete and successful
- Failure - the operation is complete but unsuccessful
- CPM Sync and Pending Reboot - the device configuration is restored and the device is synchronizing the CPMs before it reboots
- CPM Sync and Pending Reboot Standby - the 5620 SAM is waiting for the reboot of the standby CPM
- Standby Reboot and Pending Redundant Switch-over - the 5620 SAM is waiting for the switchover to the standby CPM



**Note** — During a backup, if a device is unresponsive to the 5620 SAM because SNMP on the device is disabled, the Backup State column entry for the device does not immediately display the correct value of Failed. This latency is caused by the inability of the 5620 SAM to communicate with the unresponsive device. In such a situation, the Backup State column displays the initial value of Saving Config until three 10-minute SNMP polling periods, or 30 minutes, have elapsed, after which the Backup State changes to Failed if SNMP remains disabled.

- 1 Choose Administration→NE Maintenance→Backup/Restore from the 5620 SAM main menu. The Backup/Restore form opens.
- 2 Click on the Backup/Restore Status tab button. The managed devices are listed.
- 3 Select a device from the list and click on the Backup button, the Restore button, or the Save Config button, depending on the operation that you want to perform. A dialog box appears.
- 4 Click on the Yes button. The backup or restore operation starts, and the current backup or restore state for the device is indicated in the Backup State or Restore State column.

- 5 You can resynchronize an NE with the 5620 SAM database, if required, by clicking on the Resync button.
  - 6 Close the Backup/Restore form.
- 

### **Procedure 17-3 To import a device backup to the 5620 SAM database**

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- 1 Choose Administration→NE Maintenance→Backup/Restore from the 5620 SAM main menu. The Backup/Restore form opens with the Backup/Restore Policy tab displayed.
- 2 Click on the Backup/Restore Status tab button.
- 3 Select the NE in the list for which you are importing a backup and click on the Properties button. The NE Backup/Restore Status form opens.
- 4 Click on the Import button. A file navigator form opens.
- 5 Use the form to specify the directory that contains the device backup and click on the OK button.

If the directory contains a backup for this NE, the 5620 SAM imports the backup files into the 5620 SAM database and the import is successful. Otherwise, a dialog box appears if the directory does not contain a backup from this NE, and the import fails. Click on the OK button to close the dialog box.

- 6 Close the NE Backup/Restore Status form.
  - 7 Close the Backup/Restore form.
- 

### **Procedure 17-4 To export a device backup to a file**

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- 1 Choose Administration→NE Maintenance→Backup/Restore from the 5620 SAM main menu. The Backup/Restore form opens with the Backup/Restore Policy tab displayed.
- 2 Click on the Backup/Restore Status tab button.
- 3 Select the NE in the list for which you are exporting a backup and click on the Properties button. The NE Backup/Restore Status form opens.
- 4 Click on the Backups tab button. A list of backups for the NE is displayed.
- 5 Select a backup in the list and click on the Export button. A file navigator form opens.
- 6 Use the form to specify the directory that is to contain the exported device backup and click on the OK button. The NE configuration backup is saved to the specified directory.

- 7 Close the NE Backup/Restore Status form.
  - 8 Close the Backup/Restore form.
- 

### Procedure 17-5 To restore a device configuration backup other than the most recent

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You can choose to restore an older version of the device configuration to meet special network requirements.



**Caution 1** — Older backups do not have the most recent network information. Restoring an older device configuration may be service-affecting.

**Caution 2** — Ensure that you back up the current device configuration by performing Procedure 17-2 before you proceed.

- 1 Choose Administration→NE Maintenance→Backup/Restore from the 5620 SAM menu. The Backup/Restore form opens.
  - 2 Click on the Backup/Restore Status tab button. The managed devices are listed.
  - 3 Select an NE from the list and click on the Properties button. The NE Backup/Restore Status form for the selected device opens.
  - 4 Click on the Backups tab button. A list of configuration backups for the selected device opens, ordered from the oldest to the most recent.
  - 5 Select a backup in the list and click on the Restore button. A dialog box appears.
  - 6 Click on the Yes button.
  - 7 Click on the Resync button to ensure the latest network information is available, if required.
  - 8 Close the Backup/Restore form.
- 

### Software upgrade procedures

The following procedures describe software upgrade tasks for LTE ePC devices.

### Procedure 17-6 To import device software image or description files to the 5620 SAM database

---

Perform this procedure to import a set of device software files into the 5620 SAM database for use during device software upgrades.

- 1 Make the new device software files available to the 5620 SAM.
  - i If the device software files are compressed in an archive, for example, a TiMOS ZIP file, extract the files from the archive.



**Note** — Depending on the device type and version, the compressed files in a device software archive do not extract to a flat directory structure.

- ii Copy or move the files to a directory on the 5620 SAM client PC or another location that is accessible to the 5620 SAM.



**Note** — The directory must contain a valid and complete set of device software files, and must not contain other files or subdirectories.

- 2 Choose Administration→NE Maintenance→Software Upgrade from the 5620 SAM main menu. The Software Upgrade form opens with the Software Upgrade Policy tab displayed.
- 3 Click on the Software Images tab button.
- 4 Click on the appropriate tab button for the type of NE that you need to upgrade.
- 5 Click on the Import button. A file navigator form opens.
- 6 Navigate to the folder that contains the software image, choose the software image, and click on the Open button. The software image appears in the list.

The 5620 SAM verifies that only the required files are present and then imports the files from the specified directory into the 5620 SAM database. An entry for the image appears in the list.

If the directory does not contain only the required files, a dialog box appears. Go to step 7. Otherwise, go to step 8.

- 7 Perform the following:
    - i Click on the OK button.
    - ii Copy or move files, as required, to ensure that the directory contains only the files required for the upgrade.
    - iii Go to step 5.
  - 8 Close the Software Upgrade form.
-



## Procedure 17-7 To assign a 9471 MME software upgrade policy

The 5620 SAM uses a 9471 MME-specific software upgrade policy to download 9471 MME software. A default 9471 MME software upgrade policy is created when the 5620 SAM initializes.

The following conditions must be true for you to assign a software upgrade policy:

- The FTP or secure FTP must be configured in the mediation policy for the NE. See chapter 4 for more information on configuring FTP.
- The required software image is imported to the 5620 SAM. See Procedure 17-6 for more information.



**Note** — Although you can download 9471 MME software to one or more 9471 MME NEs, you cannot perform an upgrade using the 5620 SAM. See the *Alcatel-Lucent 9471 Mobility Management Entity (MME) | Release LMx.x Software Update 418-111-206* document for more information about performing a software upgrade on the 9471 MME.

- 1 Choose Administration→NE Maintenance→Software Upgrade from the 5620 SAM main menu. The Software Upgrade form opens.
- 2 Click on the Create button. The Software Upgrade Policy (Create) form opens.
- 3 Choose MME Node from the Policy Type drop-down menu.
- 4 Configure the parameters:
  - Auto-Assign ID
  - Policy ID
  - Name
  - ATCA Image Root Path



**Note 1** — You can open an FTP or SSH file browser from the form to determine the values to use for the ATCA Image Root Path parameter. Click on the FTP File Browser or SSH File Browser button, as required. See the *5620 SAM User Guide* for more information about viewing an NE file system by using an FTP or SSH file browser.

**Note 2** — By default, /data0 is used to store image files.

- 5 Click on the Apply button. The Software Upgrade Policy (Create) form refreshes with additional tab buttons and the form name changes to Software Upgrade Policy (Edit).
- 6 Assign the policy to NEs, as required.
  - i Click on the Software Upgrade Policy Assignment tab button. The Software Upgrade Policy Filter (edit) form opens.
  - ii Configure the filter parameters, if required. Click on the OK button.
  - iii Choose one or more NEs in the Unassigned Sites list and click on the right arrow to move the NEs to the Assigned Sites list.

- iv Click on the OK button. A dialog box appears.
  - v Click on the Yes button. The policy is assigned to the NEs.
- 7 Close the Software Upgrade Policy (Edit) form. The new policy is displayed on the Software Upgrade form.
- 

### **Procedure 17-8 To perform a 9471 MME software image download**

---

Perform the following procedure to download 9471 MME software to one or more 9471 MMEs.

The MME software images are stored in the 5620 SAM file system under `install_dir/lte/backups`, where `install_dir` is the database installation location, for example, `/opt/5620sam/lte/backups`. The software images are synchronized between the active and standby 5620 SAM server.

You need a 5620 SAM user account with an administrator or NE software management scope of command role, or a scope of command role with write access to the mediation package before you can perform a 9471 MME software download. See the *5620 SAM User Guide* for more information about scope of command roles.

- 1 Choose Administration→NE Maintenance→Software Upgrade from the 5620 SAM main menu. The Software Upgrade form opens.
  - 2 Choose the appropriate software upgrade policy.
  - 3 Click on the Software Images tab button.
  - 4 Click on the 9471 MME Software Images tab button.
  - 5 Choose a software image file in the list. The image descriptor file has a .Zip file extension and must be on the client system.
  - 6 Click on the Upgrade Sites button. A list of NEs opens. The list is filtered to display only the device type that is appropriate for the selected software image.
  - 7 Choose one or more NEs in the list.
  - 8 Click on the OK button. The image transfer starts.
  - 9 Click on the Software Upgrade Status tab button to view the status of the upgrade. Verify that the files are successfully transferred before you go to step 10.
  - 10 Close the Software Upgrade form.
-

### Procedure 17-9 To assign a 7750 MG software upgrade policy

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Perform this procedure to create and assign a software upgrade policy that can be used to perform an immediate or scheduled 7750 MG software image upgrade. Contact your Alcatel-Lucent technical support representative for information about downgrades.

- 1 Perform Procedure [17-6](#) to import the required device software image.
- 2 Ensure that the following conditions are present:
  - Appropriate FTP accounts are configured and available on the devices.
  - The device configuration files are backed up, as described in Procedures [17-1](#) and [17-2](#).
- 3 Choose Administration→NE Maintenance→Software Upgrade from the 5620 SAM main menu. The Software Upgrade form opens.
- 4 Click on the Create button. The Software Upgrade Policy (Create) form opens.
- 5 Choose SR Based Node from the Policy Type drop-down menu.
- 6 Configure the following parameters:
  - Auto-Assign ID
  - Policy ID
  - Name
  - CFlash Image Root Path
  - CFlash Backup Root Path



**Note 1** — You can open an FTP or SSH file browser from this form to determine the values to use for the CFlash Image Root Path and CFlash Backup Root Path parameters. Click on the FTP File Browser or SSH File Browser button, as required. See the *5620 SAM User Guide* for more information about viewing NE file systems by using an FTP or SSH file browser.

**Note 2** — By default, compact flash cf3 is used to store image and backup files. Ensure that you specify a supported compact flash for the NE type when you configure the CFlash Image Root Path and CFlash Backup Root Path parameters.

- 7 Perform the following steps to configure the software upgrade parameters:



**Warning** — Alcatel-Lucent strongly recommends that you disable the Auto-Reboot After Successful Activation parameter for 7750 MG software upgrades.

- i Enable the Auto-Activate After Successful File Transfer parameter.
- ii Disable the Auto-Reboot After Successful Activation parameter.
- iii Disable the In Service Software Upgrade parameter.



**Note** — In-service software upgrades are not supported on the 7750 MG.

- 8 Click on the Apply button. The Software Upgrade Policy (Create) form refreshes with additional tab buttons and the form name changes to Software Upgrade Policy (Edit).
- 9 Assign the policy to NEs as required.
- i Click on the Software Upgrade Policy Assignment tab button. The Software Upgrade Policy Filter (edit) form opens.
  - ii Configure the filter parameters, if required. Click on the OK button.
  - iii Select one or more NEs in the Unassigned Sites list and click on the right-pointing arrow to move them to the Assigned Sites list.
  - iv Click on the OK button. A dialog box appears.
  - v Click on the Yes button. The policy is assigned to the NEs.
- 10 Close the Software Upgrade Policy (Edit) form. The new policy is displayed on the Software Upgrade form.
- 

### Procedure 17-10 To perform an immediate 7750 MG software upgrade

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Perform this procedure to download a software image to one or more 7750 MG devices and activate the software image.

The following conditions must be true before you attempt a device software upgrade:

- You have a 5620 SAM user account with an administrator or network element software management scope of command role or a scope of command role with write access to the mediation package. See the *5620 SAM User Guide* for more information about scope of command roles.
- The FTP or secure FTP must be configured in the mediation policy for the NE. See chapter 4 for more information on configuring FTP.
- The required software image is imported to the 5620 SAM. See Procedure 17-6 for more information.



**Warning** — The 7750 MG may require a firmware upgrade before a device software upgrade. To avoid a service outage, ensure that the device firmware version supports the software upgrade. See the device software Release Notes to obtain information about firmware and software version compatibility and about the firmware upgrade procedures.



**Caution 1** — Alcatel-Lucent recommends that you establish a physical console session on the device that you need to upgrade. The console session allows you to monitor the upgrade and recover the device if the upgrade fails.

**Caution 2** — Before you perform a software upgrade, read the device documentation. The software upgrade information in the device documentation takes precedence over this procedure.



**Note** — If you downgrade a device software image, you must unmanage and delete the device before you perform the downgrade, as described in the *5620 SAM User Guide*. Contact your Alcatel-Lucent technical support representative for information about downgrades.

- 1 Perform a preliminary check before you start the software upgrade.
  - a Manually verify the software image file checksums.
  - b Verify that the device supports the new software.
  - c Verify that the compact flash drive has sufficient space for the software image files.
  - d For NEs with redundant CPMs, verify that the boot environments are synchronized by using the following CLI command:
    - i Open a console window on the NE.
    - ii Type the following command at the prompt:  

```
# show redundancy synchronization
```
    - iii Verify that the boot/config sync status is synchronized.
- 2 Back up the device configuration and verify that the backup is successful. See Procedure 17-2.

- 3 Import the software image into the 5620 SAM database by performing Procedure [17-6](#).
- 4 Choose Administration→NE Maintenance→Software Upgrade from the 5620 SAM main menu. The Software Upgrade form opens with the Software Upgrade Policy tab displayed.
- 5 Click on the Software Images tab button.
- 6 Click on the SR Software Images tab button, if required.
- 7 Choose the appropriate software image for the 7750 MG software upgrade.
- 8 Click on the Upgrade Sites button. A list of NEs appears. The list is filtered to display only the device type that is appropriate for the specified software image.
- 9 Choose one or more NEs in the list.
- 10 Click on the OK button. A dialog box opens.
- 11 Click on the Yes button to confirm the action. The software upgrade starts.
- 12 Click on the Software Upgrade Status tab button to view the progress of the upgrade.
- 13 Using the upgrade status information displayed in the Software Upgrade Status tab of the Software Upgrade form, verify the following items before proceeding with the software upgrade procedure:
  - The Upgrade State column displays a status of CPM Sync and Pending Reboot.
  - The Last Uploaded CPM Code Version displays the correct version.
  - The Last Successful Upgrade Time column displays the time of the successful upgrade.

When the upgrade status displays the information listed above, the software upload is complete. The NE will use the new software after a reboot. Go to step [14](#).



**Caution** — You must perform a backup before rebooting the NE in order to synchronize the CPM images.

- 14 Perform a backup on the NE by performing Procedure [17-2](#).
- 15 Verify that the backup operation is successful by performing Procedure [17-11](#) before proceeding to the next step.

**16** Reboot the NE. Perform one of the following actions.



**Warning** — Verify that step 14 has been completed before performing this step.



**Caution** — Rebooting an NE that is in service is service-affecting. Ensure that the reboot activity occurs during a scheduled maintenance window.



**Note** — The reboot process lasts approximately 5-10 minutes. When the reboot is complete and the new software is being successfully used by the NE, a 5620 SAM message appears stating that the NE version has changed as a result of a software upgrade.

- a Use a Telnet or SSH CLI session.
  - i Right-click on the NE and choose NE Session→Telnet Session or NE Session→SSH Session.
  - ii Enter the following at the command prompt:
 

```
admin reboot now ↵
```

The NE reboots.
- b Use the 5620 SAM GUI.
  - i Choose Equipment from the 5620 SAM navigation tree drop-down menu.
  - ii Navigate to the NE shelf object. The path is Routing→NE→Shelf.
  - iii Right-click on the shelf object and choose Reboot from the contextual menu. The NE reboots.

**17** Verify whether the upgrade is successful, as described in Procedure 17-11.

**18** Use the FTP or SSH file browser to verify whether the transferred files and configurations are on the managed device. See the *5620 SAM User Guide* for more information about using FTP and SSH file browsers.

- 19 Fully resynchronize the NE using the 5620 SAM GUI, if required:



**Note** — The 5620 SAM will automatically resynchronize with the NE. Performing a manual resynchronization is optional.

- i Choose Equipment from the 5620 SAM navigation tree drop-down menu.
- ii Navigate to the NE.
- iii Right-click on the NE and choose Resync from the contextual menu.

- 20 Perform upgrade verification tests, as required.
- 

### **Procedure 17-11 To view the deployment, backup/restore, or software upgrade status of an NE**

---

- 1 Perform one of the following actions.
  - a Choose Administration→NE Maintenance→Deployment from the 5620 SAM main menu to view deployment status. The Deployment form opens with the Incomplete Deployments tab displayed.
    - i Select a deployment in the list and click on the Properties button. The Deployment Properties form opens.
    - ii View the deployment status.



- b Choose Administration→NE Maintenance→Backup/Restore from the 5620 SAM main menu to view the backup or restore status. The Backup/Restore form opens with the Backup/Restore Policy tab displayed.
  - i Click on the Backup/Restore Status tab button. The Restore State column of the backup or restore is: Transferring Files, Pending, Reboot, CPM Sync and Reboot, Success, Not Attempted, Save Config, or Failure. The timestamp is also displayed.
  - ii Select an NE in the list and click on the Properties button to display information about the backup or restore operation. The NE Backup/Restore Status form opens. You can click on the General, Backups, Configuration Saves, and Faults tab buttons.



**Note** — When you click on the Backups tab button, the date and time in the Config File Version column corresponds to the date and time for the Last Boot Cfg Version on the NE.

- c Choose Administration→NE Maintenance→Software Upgrade to view the software upgrade status. The Software Upgrade form opens.
  - i Click on the Software Upgrade Status tab button. A list of NEs displayed.
  - ii Select an NE in the list and click on the Properties button to view information about the upgrade. The Software Upgrade Status form opens.
  - iii Close the Software Upgrade Status form.

- 2 Close the form.
-



# ***LTE ePC alarm management***

---

## **18 — Managing LTE ePC alarms**



## ***18 – Managing LTE ePC alarms***

---

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## 18.1 Managing LTE ePC alarms

This chapter describes 5620 SAM alarm management for LTE devices.

## 18.2 Additional resources

Table 18-1 lists where to find more information about how to manage alarms and how to use alarms for troubleshooting.

**Table 18-1 Alarm management resources**

For information about	See
LTE-related device and platform alarms	<i>5620 SAM Alarm Reference</i>
<ul style="list-style-type: none"><li>managing alarms</li><li>alarm status, severity, and aggregation</li><li>alarm thresholds</li><li>alarm suppression</li><li>correlated alarms</li><li>automatic purging of alarms</li><li>fault management using alarms</li></ul>	<i>5620 SAM User Guide</i>
Troubleshooting using network alarms	<i>5620 SAM Troubleshooting Guide</i>
9471 MME alarms	<i>9471 MME Alarms Dictionary</i>

## 18.3 Alarm management overview

The 5620 SAM converts SNMP traps from NEs and 5620 SAM events to alarms that are associated with the managed equipment, configured services, and policies. The alarm-based fault management system provides the following:

- correlation of alarms with equipment- and service-affecting faults
- updates to the managed object operational status in near-real-time
- alarm policy control that allows a network administrator to specify how to process alarms, and how to create and store the alarm logs
- point-and-click alarm management using the 5620 SAM GUI dynamic alarm list and object properties forms
- ability to log the actions to correct the associated fault by adding notes to the alarm
- alarm history for performing trend analysis

## 18.4 SGW and PGW alarm management

When the 5620 SAM is deployed in the LTE network, the 5620 SAM supports LTE-ePC specific traps that are generated by the ISM Mobile card on the SGW and PGW. The alarm status of the SGW and PGW are represented in the equipment tree and network topology map.

The SGW and PGW alarms are limited to status alarms for the gateway instances. There are also status-related notifications for the EPS peers, which are propagated to the EPS paths. See the alarm description tables in the *5620 SAM Alarm Reference* for a description of each alarm that the 5620 SAM can raise.

## 18.5 9471 MME alarm management

The 5620 SAM converts SNMP traps from the 9471 MME to alarms. In addition, when a fault occurs on a 9471 MME, the 9471 MME generates an alarm and sends a trap to the 5620 SAM that contains all of the information about the alarm. The 5620 SAM generates a corresponding alarm and displays the data in the 5620 SAM alarm subsystem.

### Viewing information about 9471 MME alarms

The list of known 9471 MME alarms are prefixed in 5620 SAM with "Mme" so that 9471 MME alarms can be differentiated from 5620 SAM-generated alarms. If the 5620 SAM receives a trap from the 9471 MME that the 5620 SAM cannot interpret, the alarm is prefixed with "MmeUnknown".

You can view the properties of an 9471 MME alarm by clicking on the alarm in the 5620 SAM Alarm Window. You can view the information about the alarm in the Alarm Info window. You can click on the Severity, Statistics, Acknowledgement, and Details tab buttons to view additional information about the specified alarm.

### Clearing 9471 MME faults and alarms

The 9471 MME alarms that the 5620 SAM Alarm Window displays must be cleared using the fault management interface that you access from the 9471 MME MI GUI. See the *9471 MME Alarms Dictionary* for more information about how to clear faults on the 9471 MME. See the alarm description tables in the *5620 SAM Alarm Reference* for a description of each alarm that the 5620 SAM can raise.

## 18.6 5780 DSC alarm management

The existing 5620 SAM infrastructure is used to generate alarms for 5780 DSC NEs. When a state change occurs, the 5780 DSC sends a trap to the 5620 SAM to report the event. The 5620 SAM generates the corresponding alarm. See the alarm description tables in the *5620 SAM Alarm Reference* for a description of each alarm that the 5620 SAM can raise.





# ***LTE ePC statistics management***

---

## **19 — Collecting and managing LTE ePC statistics**



# ***19 – Collecting and managing LTE ePC statistics***

---

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- 19.3 9471 MME PM statistics    19-3**
- 19.4 5780 DSC statistics    19-6**
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- 19.6 LTE user bearer and SDF statistics    19-7**

## 19.1 LTE ePC statistics overview

The 5620 SAM supports the collection of performance, accounting, and 5620 SAM server performance statistics. The statistics are typically used to monitor and troubleshoot the 5620 SAM, and for SLA and billing functions that are performed by OSS applications that connect to the 5620 SAM. See *5620 SAM Statistics Management Guide* for information about the following:

- configuring statistics collection
- viewing statistics data
- creating graphical representations of statistics data using the Statistics Plotter
- non-LTE NE statistics counters

## 19.2 7750 MG statistics

The 5620 SAM collects statistics from the SGW and PGW for the ISM Mobile card and EPS peers. The 5620 SAM records the statistic counters as 7750 MG statistics. See Appendix A for a list of the supported 7750 MG statistics.

### Procedure 19-1 To view the statistics of an SGW Ga peer or a PGW Ga peer

---

- 1 Choose Equipment from the view selector in the navigation tree. The navigation tree displays the Equipment view.
  - 2 Right-click on a 7750 MG NE in the Equipment view and choose Properties. The Network Element (Edit) form opens with the General tab displayed.
  - 3 In the Serving and PDN Gateway Instances dashboard, choose an SGW instance or a PGW instance, then click on the Properties tab button. The Serving Gateway (Edit) form or the PDN Gateway (Edit) form opens.
  - 4 Click on the EPS Peers tab button.
  - 5 Choose an EPS peer, and click on the Properties button. The SGW Ga Peer (Edit) form or the PGW Ga Peer (Edit) form opens.
  - 6 Click on the Statistics tab button. Choose Ga Peer Stats (LTE) from the Select Object Type drop-down menu.
  - 7 Specify a filter to narrow your search.
  - 8 Choose a captured time in the list, and click on the Properties button. The Statistics Record - Ga Peer Stats read-only form opens.
-

## 19.3 9471 MME PM statistics

9471 MME PM statistics are collected by the 5620 SAM and can be viewed by using the 5620 SAM GUI. This section describes the process of PM counter collection, relevant system configuration, and a procedure for viewing the PM counters in the 5620 SAM GUI.

### 9471 MME PM statistics collection

The 9471 MME collects performance management statistics as part of standard operation. The statistics are collected using the PM job function and stored in 3GPP-compliant XML files. A default PM job is created on the 9471 MME at startup. This job collects statistics at 15m intervals and runs indefinitely. You can create additional PM jobs on the 9471 MME, in which you specify the following:

- start time
- collection period duration
- polling interval
- PM statistics counters to collect

Statistics collected by a PM job are stored in a 3GPP-compliant XML file format using a 3GPP-compliant file name. The 9471 MME creates the statistics files at the end of each polling interval and stores them on the local hard disk. Each time a PM job creates a file, the 9471 MME sends a trap to the 5620 SAM to indicate that the file is ready for retrieval.

A 5620 SAM main server retrieves the PM statistics files from the 9471 MME using SCP and stores the files on the local file system for a configurable period. The files are stored in the following directory:

*path/lte/stats/date/mme/IPaddress-name*

where:

- *path* is the 5620 SAM base directory, typically /opt/5620sam
- *date* is the date of the statistics collection
- *IPaddress* is the 9471 MME IP address in dotted-decimal notation
- *name* is the unique name of the 9471 MME

The 9471 MME statistics files are created in pairs. The file names have the following format:

*YYYYMMDD.HHMMoffset\_SubNetwork=subnet,ManagedElement=name*

*YYYYMMDD.HHMMoffset\_SubNetwork=subnet,ManagedElement=name\_-\_1*

where:

- *YYYYMMDD* is the collection date of the first record in the file
- *HHMM* is the collection time of the first record in the file
- *offset* is the offset from UTC in the format *signHHMM* for example, +0300
- *subnet* is the subnet identifier
- *name* is the unique name of the 9471 MME

The 5620 SAM supports the following statistics functions:

- statistics record type filtering based on class
- statistics record viewing from properties forms
- historical statistics graphing using the 5620 SAM Statistics Plotter

## Viewing 9471 MME PM statistics in the 5620 SAM

You can view 9471 MME PM statistics classes by opening the properties form for the managed object that the statistics are collected on and clicking on the Statistics tab button in that form. You can then select the PM statistic class and click on the Search button to generate a list of collected statistics. Each entry in the list is identified by the ID of the PM job that collected the statistics.

Table 19-1 lists the managed object types and the object paths that can be used to access the corresponding properties forms and Statistics tabs. Perform Procedure 19-2 to view performance management statistics for the 9471 MME.

See Appendix B for a list of 9471 MME PM statistics counters and mapping information.

**Table 19-1 9471 MME PM statistics by managed object type**

Object type	Object path
MME Application Function (MAF)	MME Instance→MME Application Function→MME Application Function Service Group→MME Application Function Service Member
MME Interface Function (MIF)	MME Instance→MME Interface Function→MME Interface Function Service Group→MME Interface Function Service Member
MME Packet Handler (MPH)	MME Instance→MME Packet Handler→MME Packet Handler Service Group→MME Packet Handler Service Member
Card	Equipment tree→9471 MME→Shelf→Card Slot→ <i>card type</i>
OAM Service Member	Equipment tree→9471 MME→Shelf→Card Slot→ATCA Blade/Molene Blade (OAM)→OAM Service Member

## Procedure 19-2 To view 9471 MME performance management statistics in the 5620 SAM GUI

---

You must navigate to the Properties form of the appropriate 9471 MME object in order to view the performance management statistics classes for that object. See table 19-1 for a list object types and paths to object Properties forms.

- 1 Choose one of the following options.
  - a To access the Statistics form of the following object types:
    - MME Application Function (MAF)
    - MME Interface Function (MIF)
    - MME Packet Handler (MPH)
    - i Choose Manage→Mobile Core→MME Instances from the 5620 SAM main menu. The Manage Mobility Management Entities (MME) form opens.
    - ii Click on the Select Object Type drop-down menu and choose the appropriate object type.
    - iii Configure the filter criteria, if required, and click on the Search button to generate a list of 9471 MME objects.
    - iv Choose an object from the list and click on the Properties button. The *MME object\_type* form opens with the General tab displayed.
    - v Click on the Components tab button.
    - vi Refer to Table 19-1 for the appropriate object path and navigate to the object in the navigation tree.
    - vii Right-click on the object and choose Properties from the contextual menu. The *MME object\_type* Member form opens with the General tab displayed.
    - viii Click on the Statistics tab button.
    - ix Go to step 2.
  - b To access the Statistics form of card objects:
    - i Choose Equipment from the navigation tree view selector. The navigation tree displays the Equipment view.
    - ii Navigate to the appropriate 9471 MME in the equipment view.
    - iii Refer to Table 19-1 for the appropriate object path and expand objects as required to navigate to the final object in the path.
    - iv Right-click on the object and choose Properties from the contextual menu. The *object\_type* form opens with the General tab displayed.

- v Click on the Statistics tab button.
  - vi Go to step 2.
  - c To access the Statistics form of an OAM Service Member object:
    - i Choose Equipment from the navigation tree view selector. The navigation tree displays the Equipment view.
    - ii Navigate to the appropriate 9471 MME in the equipment view.
    - iii Refer to Table 19-1 for the appropriate object path and expand objects as required to navigate to the final object in the path.
    - iv Right-click on the object and choose Properties from the contextual menu. The *object\_type* form opens with the General tab displayed.
    - v Click on the OAM Service Members tab button.
    - vi Choose an MI or CFNG object from the list and click on the Properties button. The MME *object\_type* Service Member form opens with the General tab displayed.
    - vii Click on the Statistics tab button.
    - viii Go to step 3.
  - 2 Click on the Select Object Type drop-down menu and choose an object type.
  - 3 Click on the Search button to display a list of captured PM statistics counters.
  - 4 Select a statistics record and click on the Properties button to view the record. The statistics record form opens.
  - 5 View the statistics information.
  - 6 Click on the Close button to close the statistics record form.
  - 7 Repeat steps 2 to 6 for each statistics class that you want to view.
  - 8 Close forms, as required.
- 

## 19.4 5780 DSC statistics

The 5620 SAM LTE ePC does not support the collection of 5780 DSC statistics.



## 19.5 LTE statistics synchronization

Redundant installations of the 5620 SAM can be configured to allow replication and synchronization of PM statistics files to the auxiliary and backup auxiliary servers. You can enable PM statistics file synchronization during 5620 SAM installation or reconfiguration by using the 5620 SAM server configuration utility. See the *5620 SAM | 5650 CPAM Installation and Upgrade Guide* or contact Alcatel-Lucent technical support for more information.

## 19.6 LTE user bearer and SDF statistics

You can use a 5620 SAM GUI or OSS client to collect per-user statistics in the following contexts:

- bearer
- PDN

To collect per-user statistics, you must use the 5620 SAM to create and submit a user statistics query. You can submit a query multiple times to generate multiple statistics snapshots. A query or snapshot is saved until a 5620 SAM operator deletes it. You can delete multiple queries or snapshots at one time.

A query requires the specification of a user IMSI. You can specify optional filter criteria, and can choose which types of information the query returns. See Appendix A for LTE user statistics-counter descriptions.

See Procedure 19-3 for information about collecting and viewing LTE user statistics. See Procedure 19-4 for information about viewing LTE statistics objects. See Procedure 19-5 for information about deleting LTE user statistics queries.

---

### Procedure 19-3 To collect LTE user statistics

---

Perform this procedure to create and submit an LTE user statistics query, and to view the query result.

- 1 Choose Manage→Mobile Core→LTE User Stats from the 5620 SAM main menu. The LTE User Stats form opens.
- 2 Perform one of the following.
  - a Click on the Create New User Stats Query button.
  - b Use the LTE User Query Manager. Perform the following steps.
    - i Click on the LTE User Query Manager button. The LTE User Statistics Query Manager form opens and displays a navigation tree. You can expand an object in the tree by clicking on the + symbol beside the object.
    - ii Right-click on the User Statistics Queries object and choose Create User Statistics Query from the contextual menu. The User Statistics Query (Create) form opens.

- 3 Configure the Description parameter, if required.
- 4 Configure the parameters in the Include in the Results panel to specify the types of information that the query is to return:
  - SDF
  - PDN Context
  - SDF Filter
  - Bearer Context
- 5 Configure the IMSI parameter to identify the user that is the target of the query.
- 6 Configure the EPC Gateway Filter attribute, if required, by clicking on the Select button. If you do not select a filter, the query will retrieve statistics from all of the gateways in the network. The Select EPC Gateway Filter - User Stat Query form opens.

Perform one of the following.

- a Choose an existing EPC gateway filter from the list and click on the OK button.
- b Create a new EPC gateway filter by performing the following steps:
  - i Click on the Create button. A filter form opens.
  - ii Click on the Attribute drop-down menu and choose an attribute.
  - iii Click on the Function drop-down menu and choose a function.
  - iv Enter a value in the Value field.
  - v Click on the Create button to add the filter criteria to the filter.
  - vi Repeat the previous steps to add more filter criteria, as required.
  - vii Click on the Save button. The Save Filter form opens.
  - viii Configure the parameters:
    - Filter Name
    - Description
    - Public
  - ix Click on the Close button to close the filter form and return to the Select EPC Gateway Filter - User Stat Query form.
  - x Choose the filter that you created from the list and click on the OK button to close the Select EPC Gateway Filter form - User Stat Query form.
- 7 Configure the APN Filter attribute, if required, by clicking on the Select button. If you do not select a filter the query will retrieve statistics from all of the gateways in the network. The Select PDN APN Gateway Filter - User Stat Query form opens.

Perform one of the following.

- a Choose an existing APN filter from the list and click on the OK button.
- b Create a new APN filter by performing the following steps:
  - i Click on the Create button. A filter form opens.
  - ii Click on the Attribute drop-down menu and choose an attribute.
  - iii Click on the Function drop-down menu and choose a function.
  - iv Enter a value in the Value field.
  - v Click on the Create button to add the filter criteria to the filter.
  - vi Repeat the previous steps to add more filter criteria, as required.
  - vii Click on the Save button. The Save Filter form opens.
  - viii Configure the parameters:
    - Filter Name
    - Description
    - Public
  - ix Click on the Close button to close the filter form and return to the Select PDN APN Gateway Filter - User Stat Query form.
  - x Choose the filter that you created from the list and click on the OK button to close the Select PDN APN Gateway Filter - User Stat Query form.

**8** Configure the parameters:

- |                  |                           |
|------------------|---------------------------|
| • APN Name       | • Include All APNs        |
| • Bearer ID      | • Include All Bearers     |
| • SDF Precedence | • Include All Precedences |
| • SDF Direction  | • Include All Directions  |
| • SDF Filter ID  | • Include All IDs         |

**9** Click on the OK button. The User Stat Query (Create) form closes.

**10** Perform one of the following.

- a If you are using the LTE User Query Manager, the navigation tree displays the query as an object below the User Statistics Queries object. Go to step [11](#).
- b If you are not using the LTE User Query Manager, perform the following steps.
  - i Choose User Stat Query using the object selector.
  - ii Click on the Search button. The query is listed on the form.
  - iii Select the query in the list and click on the Submit Query button. The 5620 SAM performs the query.

- iv Choose User Stat Query using the object selector and click on the Search button. A list of queries is displayed.
  - v Select the new query and click on the Properties button. The query information form is displayed.
  - vi Click on the Snapshots tab button.
  - vii Go to step 13.
- 11 Right-click on the query object and choose Submit Query from the contextual menu. The 5620 SAM performs the query.
  - 12 Expand the query object. A User Statistics Snapshots object is displayed.
  - 13 Expand the User Statistics Snapshots object. A Snapshot object is displayed.
  - 14 Expand the Snapshot object. A User Statistics Output object is displayed.
  - 15 Expand the User Statistics Output object. The following objects are displayed:
    - PGW User Data—contains information about the path from the PGW to the PDN
    - PGW Bearer Context Data—contains bearer statistics for the user collected by the PGW
    - PGW PDN Context Data—contains PDN statistics for the user collected by the PGW
    - SGW User Data—contains information about the path from the UE to the SGW
    - SGW Bearer Context Data—contains bearer statistics for the user collected by the SGW
    - SGW PDN Context Data—contains PDN statistics for the user collected by the SGW



**Note —** SDF information is not available for collection from an SGW.

- 16 To view the contents of an object, right-click on the object and choose Properties, or double-click on the object. The *Object (View)* form opens.
  - 17 View the information, as required.
  - 18 Close the *Object (View)* form.
  - 19 Close the LTE User Stat Query form. The query and snapshot are saved.
-

### Procedure 19-4 To list and view LTE user statistics objects

---

Perform this procedure to list and view LTE user statistics objects such as the following:

- LTE user statistics queries
  - LTE user statistics query snapshots
  - LTE user statistics query snapshot entries that contain user information or user statistics
- 1 Choose Manage→Mobile Core→LTE User Statistics from the 5620 SAM main menu. The LTE User Stats form opens.
  - 2 Use the object selector to specify the type of object to list and click on the Search button. A list of objects is displayed.
  - 3 Select an object in the list and click on the Properties button. The object information form is displayed.
  - 4 View the information on the form, as required.
  - 5 A user statistics query or user statistics query snapshot form contains a navigation tree in the left panel that displays the statistics query snapshots on the right panel.
  - 6 Close the object information form.
  - 7 Close the LTE User Stats form.
- 

### Procedure 19-5 To delete LTE user statistics queries

---

Perform this procedure to remove one or more LTE user statistics queries from the 5620 SAM.



**Note** — As an alternative method, you can delete queries from the LTE User Statistics Query Manager form by right-clicking on the query in the navigation tree and choosing Delete from the contextual menu.

- 1 Choose Manage→Mobile Core→LTE User Statistics from the 5620 SAM main menu. The LTE User Statistics form opens.
- 2 Use the object selector to specify User Statistics Query and click on the Search button. A list of queries is displayed.
- 3 Perform one of the following.
  - a Delete one or more queries. Select the queries in the list and click on the Delete button. The 5620 SAM deletes the queries.

- 4 Delete all queries. Perform the following steps.
    - i Click on the Delete All Queries button. A dialog box appears.
    - ii Select the check box and click on the Yes button. The 5620 SAM deletes all of the queries.
  - 5 Close the LTE User Query Manager form.
- 

## **LTE key performance and capacity indicators**

You can use a 5620 SAM GUI or an OSS client to collect KPI and KCI statistics from both the serving and PDN gateways. You can configure PM job names, start and stop times, the actual data (MIB table) to be collected, and the frequency of collection. The collected stats are written to an XML file on the NE.

KPI/KCI monitoring provisioning is done in the same way as accounting statistics policy provisioning.

When the PM job is completed, the NE generates a trap indicating that a file is ready for collection. The 5620 SAM collects the file from the node using standard protocols. Once the file is successfully transferred, the 5620 SAM deletes the file from the NE.

The data is stored in a flat file format and is available for export to OSSs through using SAM-O. The 5620 SAM maps the content in the file to the statistics records on its managed objects (bearers, SGW instances, interfaces, and so on).

### Procedure 19-6 To create a KPI/KCI monitoring policy

---

- 1 Open a console window on the NE.
- 2 Type the following command to configure the record you need to create for the KPI/KCI monitoring policy:

```
configure log accounting-policy policy name record record name ↵
```

where

policy name is user-defined

record name is one of the following:

- kpi-system
- kpi-bearer-mgmt
- kpi-bearer-traffic
- kpi-ref-point
- kpi-path-mgmt
- kpi-iom-3
- kpi-bearer-group
- kpi-ref-path-group
- complete-kpi
- kci-system
- kci-bearer-mgmt
- kci-path-mgmt
- complete-kci
- complete-kpi-kci
- kpi-kci-bearer-mgmt
- kpi-kci-path-mgmt
- kpi-kci-system

- 3 Type the following command to configure the collection interval for the policy.

```
configure log accounting-policy policy name collection-interval  
min ↵
```

where

policy name is user-defined

min is between 1 and 59

---

### Procedure 19-7 To define a KPI/KCI log file

---

- 1 Open a console window on the NE.
- 2 Type the following command at the prompt to define the location for a KPI/KCI log file:

```
log file file name location file location ↵
```

where

file name is user-defined

file location is the path for the directory in which you need to save the XML log file

---

### Procedure 19-8 To enable KPI/KCI statistics collection

---

- 1 Open a console window on the NE.
- 2 Type the following command at the prompt to identify the PDN gateway for the statistics collection:

```
pdn gateway instance instance id ↵
```

where instance id is the unique identifier for the PDN gateway

- 3 Type the following command to identify the serving gateway for statistics collection:

```
serving gateway instance instance id ↵
```

- 4 Type the following commands to enable the KPI/KCI collection for the defined PDN gateway and serving gateway.

```
kpi-kci ↵
```

```
[no]accounting-policy name collect-stats /* kpi accounting plcy  
*/ ↵
```

```
[no]accounting-policy name collect-stats /* kci accounting plcy  
*/ ↵
```

---



# ***Troubleshooting***

---

## **20 — Troubleshooting LTE mobile services and EPS paths**



## ***20 – Troubleshooting LTE mobile services and EPS paths***

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- 20.1 Troubleshooting LTE mobile services and EPS paths    20-2**
- 20.2 Workflow to troubleshoot a mobile service or EPS path connectivity problem    20-3**
- 20.3 Troubleshooting mobile service or EPS path connectivity problems using the STM    20-3**

## 20.1 Troubleshooting LTE mobile services and EPS paths

This chapter describes how to troubleshoot LTE mobile services and EPS paths problems using the STM OAM diagnostic tools. See the *5620 SAM Troubleshooting Guide* for information about troubleshooting a service using 5620 SAM alarms.

### STM OAM diagnostics for troubleshooting

You can use the 5620 SAM STM OAM diagnostic tools to troubleshoot a mobile service or transport layer problems. The STM provides the ability to group OAM diagnostic tests in test suites for more comprehensive fault monitoring and troubleshooting. A test suite can perform end-to-end testing of a mobile service and the underlying network transport elements.

The use of test suites is especially valuable when multiple objects of the same type require testing. Test suites can be scheduled to run on a regular basis to provide continual network performance feedback.

See the *5620 SAM User Guide* for more information about creating and using the STM test policies and suites.

### Supported STM OAM test types

Table 20-1 lists the LTE objects for which STM tests can be performed, the test types that are supported, and the network components that are tested.

**Table 20-1 Service assurance OAM test types and test objects for LTE networks**

LTE object	Test type	Network object or service component for test
Mobile service	ICMP ping ICMP traceroute	Connectivity between SGW, PGW, eNodeB service sites. The tests can be used to identify faults in the underlying S1-U, S5, and S8 EPS paths.
EPS path	ICMP ping ICMP traceroute	S1-U, S2a, S5, S8, S11, Gx, Gy, and Ga EPS paths. Tests must be initiated from an SGW or a PGW. Tests cannot be initiated from the MME, PCRF, OfCS, OnCS, or HSGW.

#### ICMP ping

The ICMP ping OAM tool allows you to determine the reachability of a remote host across the LTE IP network. ICMP pings can be sent in band or out of band. The tool is used with ICMP trace to detect and localize faults in the LTE IP network.

#### ICMP trace

The ICMP trace tool allows you to identify the hop-by-hop path to a destination IP address across a mobile service or EPS path. ICMP traces can be sent in band or out of band. The tool is used with ICMP ping to detect and localize faults in the LTE IP network.

## Test scenarios

The ICMP ping and ICMP trace tools can be used in the following scenarios:

- mobile services layer assurance—run a mobile services test to monitor a connection between an eNodeB and its ePC neighbors
- EPS path assurance—test paths that are not part of a mobile service, such as S11, Gx, and Ga paths
- scheduled tests—schedule periodic tests on EPS paths to validate connectivity and to save the test records for future analysis

## 20.2 Workflow to troubleshoot a mobile service or EPS path connectivity problem

Perform the following tasks until you identify the root cause of the problem.

- 1 Open the properties form for the mobile service or EPS path instance that you need to investigate. See section [12.2](#) for more information.
- 2 Verify that there are no alarms associated with the mobile service or EPS path by clicking on the Faults tab button in the Mobile Service (Edit) form or EPS Path (Edit) form.
  - a If there are alarms that affect the service or EPS path, see the *5620 SAM Alarm Reference* for information about individual alarms.
  - b If there are no alarms that affect the service or the EPS path, go to step [3](#).
- 3 Verify the connectivity of all egress points in the service. See Procedure [20-1](#) to use the ICMP ping or ICMP trace diagnostics to troubleshoot the problem.
- 4 Review the test suite results. See Procedure [20-4](#) for more information.
- 5 Contact your Alcatel-Lucent technical support representative if the problem persists.

## 20.3 Troubleshooting mobile service or EPS path connectivity problems using the STM

Perform the following procedures to use the STM to troubleshoot connectivity issues on a mobile service or EPS path.

**Procedure 20-1 To troubleshoot mobile service or EPS path connectivity problems using the STM**

---

- 1 Choose Tools→Service Test Manager (STM) from the 5620 SAM main menu. The Manage Tests form appears.
- 2 Create a test policy.
  - i From the Service Test Manager (STM) (Create) form, choose Create→Create Test Policy. The Test Policy (Create) form opens with the General tab displayed.
  - ii Configure the parameters:
    - ID
    - Auto-Assign ID
    - Name
    - Description
    - NE Schedulable—When you enable this parameter, the Test Results panel is displayed in the Test Policy (Create) form. Choose one of the following test results types:
      - Lightweight Execution
      - Ignore probe results
      - Accounting Files
    - Entity Type—Choose the Mobile Service or EPS Path (LTE) option.
  - iii Click on the Apply button.
- 3 Add a test to the policy.
  - i Click on the Test Definition tab button.
  - ii Perform one or both of the following:
    - Create an ICMP ping test. Choose Add→ICMP→Add ICMP Ping. The ICMP Ping Definition (Create) form opens with the General tab displayed. Perform Procedure 20-2 to configure the ICMP ping test. Click on the OK button to save the test definition. The new ICMP ping test appears in the Test Definitions table.
    - Create an ICMP trace test. Choose Add→ICMP→Add ICMP Trace. The ICMP Trace Definition (Create) form opens with the General tab displayed. Perform Procedure 20-3 to configure the ICMP trace test. Click on the OK button to save the test definition. The new ICMP trace test appears in the Test Definitions table.
  - iii Click on the Apply button to save the information in the Test Definition tab.
- 4 Click on the Update Test Suites button and close the Test Policy (Create) form.

- 5 Create a test suite.
  - i From the Service Test Manager (STM) (Create) form, choose Create→Create Test Suite. The Test Suite (Create) form opens with the General tab displayed.
  - ii Configure the parameters:
    - ID
    - Auto-Assign ID
    - Name
    - Description
    - Entity Type—Choose the Mobile Service or EPS Path (LTE) option.



**Note** — The Entity Type parameter specifies that only test policies created for the same entity type are available for the test suite. The parameter also restricts the predefined tests that are available to those that apply to the entity type. For example, if you set the Entity Type parameter to Mobile Service, only mobile services test policies and entities are available for the rest of the steps in this procedure.

- 6 Add the test policy that you configured in steps 2 to 4 to the test suite.
    - i Click on the Test Policy tab button.
    - ii Click on the Add button. The Add window opens.
    - iii Click on the search button to list the available test policies.
    - iv Choose the test policy from the list and click on the OK button. The Add window closes and the policy that you specified appears in the list in the Test Policy tab.
  - 7 Add test entities to the test suite. The entities are the objects (mobile services or EPS paths) that you need to test.
    - i Click on the Tested Entities tab button. The Add form appears.
    - ii Click on the Add button to add an entity to test. The Add window opens.
    - iii Choose a specific instance for the mobile service or EPS path type.
    - iv Click on the search button to list the available entities.
    - v Choose the entity from the list and click on the OK button. The Add window closes and the specified entity appears in the list in the Entities tab.
  - 8 Click the Apply button to save the test suite. The Generate Tests button is activated.
  - 9 Click on the Generate Tests button. The Execute button is activated.
  - 10 Click on the Execute button to run the test suite.
  - 11 Close the form.
-

### Procedure 20-2 To configure and run an ICMP ping

---

- 1 Choose Tools→Service Test Manager (STM) from the 5620 SAM main menu. The Service Test Manager form opens.
- 2 Choose ICMP→Create ICMP Ping from the Create contextual menu. The ICMP Ping Test (Create) form opens with the General tab displayed.
- 3 Configure the parameters:
  - ID
  - Administrative State
  - Auto-Assign ID
  - Name
  - Description
  - Ne Schedulable
  - NE Persistent

The NE Schedulable parameter is configurable only if the NE Persistent parameter is not enabled. The NE Persistent parameter is configurable only if the NE Schedulable parameter is not enabled.
- 4 Configure the Target Type parameter. Choose one of the following options:
  - EPS Site. Go to step 5.
  - EPS Path. Go to step 8.
- 5 Configure the EPS Instance Site parameter:
  - i Click on the Select button. The Select From Access Gateway - ICMP Ping - Test form opens.
  - ii Click on the Search button to list the available gateways.
  - iii Double-click on a gateway to select it. The form closes and the EPS Instance Site field is populated.
- 6 Type a value in the Target IP Address field
- 7 Go to step 11.
- 8 Configure the EPS Instance Site parameter:
  - i Click on the Select button. The Select From Access Gateway - ICMP Ping - Test form opens.
  - ii Click on the Search button to list the available gateways.
  - iii Double-click on a gateway to select it. The form closes and the EPS Instance Site field is populated.



- 9 Configure the EPS Path ID parameter:
  - i Click on the Select button. The Select Using EPS Path - ICMP Ping - Test form opens.
  - ii Click on the Search button to list the available gateways.
  - iii Double-click on an EPS path to select it. The form closes and the EPS Path ID field is populated.

The value for the Type and Path Symmetry parameters are automatically populated when you select the EPS path ID.
- 10 Click on the Test Parameters tab button.
- 11 Configure the parameters:

• Number of Test Probes	• Positional Data Pattern
• Probe Interval (seconds)	• DiffServ Field
• Probe Timeout (seconds)	• Egress Interface Index
• Size (octets)	• Bypass Routing
• Rapid	• Do Not Fragment
• Time To Live	• Forwarding Class
• Data Pattern	• Forwarding Profile
- 12 Click on the Results Configuration tab button.
- 13 Configure the parameters:
  - Probe History Size (rows)
  - Test Failure Threshold
  - Probe Failure Threshold
  - Trap Generation
- 14 Click on the Apply button to save the settings.
- 15 Click on the Execute button to start the ICMP ping. A deployed test is created and run.
- 16 Click on the Deployed Tests tab button to view the current state of the deployed test. When the test is complete, the deployed test is removed, and you can view the results.
- 17 View the test results on the Results tab. The results depend on the type of test. Result information includes:
  - Average Round-Trip Time
  - Maximum Round-Trip Time
  - Minimum Round-Trip Time
  - Round-Trip Jitter

- 18 To configure another ICMP ping, click on the Clear button and repeat steps 11 to 17. Otherwise, go to step 19.
  - 19 Click on the Cancel button to close the form.
- 

### Procedure 20-3 To configure and run an ICMP trace

---

- 1 Choose Tools→Service Test Manager (STM) from the 5620 SAM main menu. The Service Test Manager form opens.
- 2 Choose ICMP→Create ICMP Trace from the Create contextual menu. The ICMP Trace Test (Create) form opens with the General tab displayed.
- 3 Configure the parameters:
  - ID
  - Administrative State
  - Auto-Assign ID
  - NE Schedulable
  - Name
  - NE Persistent
  - Description

The NE Schedulable parameter is configurable only if the NE Persistent parameter is not enabled. The NE Persistent parameter is configurable only if the NE Schedulable parameter is not enabled.

- 4 Configure the Target Type parameter. Choose one of the following options:
  - a EPS Site. Go to step 5.
  - b EPS Path. Go to step 8.
- 5 Configure the EPS Instance Site parameter:
  - i Click on the Select button. The Select From Access Gateway - ICMP Trace - Test form opens.
  - ii Click on the Search button to list the available gateways.
  - iii Double-click on a gateway to select it. The form closes and the EPS Instance Site field is populated.
- 6 Type a value in the Target IP Address field.
- 7 Go to step 11.
- 8 Configure the EPS Instance Site parameter:
  - i Click on the Select button. The Select From Access Gateway - ICMP Trace - Test form opens.
  - ii Click on the Search button to list the available gateways.
  - iii Double-click on a gateway to select it. The form closes and the EPS Instance Site field is populated.

- 9 Configure the EPS Path ID parameter:
  - i Click on the Select button. The Select Using EPS Path - ICMP Trace - Test form opens.
  - ii Click on the Search button to list the available gateways.
  - iii Double-click on an EPS path to select it. The form closes and the EPS Path ID field is populated.

The value for the Type and Path Symmetry parameters are automatically populated when you select the EPS path ID.

- 10 Click on the Test Parameters tab button.
- 11 Configure the parameters:
  - Number of Test Probes
  - Probe Interval (seconds)
  - Probe Timeout (seconds)
  - Maximum Time To Live
  - DiffServ Field
  - Time to Wait (milliseconds)
- 12 Click on the Results Configuration tab button.
- 13 Configure the parameters:
  - Problem History Size (rows)
  - Maximum Failures
  - Trap Generation
- 14 Click on the Apply button to save the settings.
- 15 Click on the Execute button to start the ICMP trace. A deployed test is created and run. Click on the Deployed Tests tab button to view its current state of the deployed test. When the test is complete, the deployed test is removed, and you can view the results.
- 16 View the test results on the Results tab. The results depend on the type of test. Result information includes:
  - Current Hop Count
  - Current Probe Count
  - Minimum Round-Trip Time
  - Round-Trip Jitter



**Note** — Results of individually run ICMP Trace tests are viewed on the Results tab. The Results tab displays only the result of the last individually run ICMP trace test. Any previous individually run test results are overwritten.

Results from ICMP trace tests that are scheduled or are part of a test suite are also stored on the Results tab. The number of scheduled test results stored corresponds to the value configured in the Probe History Size (rows) parameter. Scheduled ICMP trace test results do not overwrite individually run test results or previously run scheduled test results.

- 17 To configure another ICMP trace, click on the Clear button and repeat steps 11 to 16. Otherwise, go to step 18.
  - 18 Click on the Cancel button to close the form.
- 

#### **Procedure 20-4 To view test suite results for mobile services or EPS paths**

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- 1 Choose Tools→Service Test Manager (STM) from the 5620 SAM main menu. The Manage Tests form appears.
  - 2 Choose Aggregated Result (Assurance)→Test Suite Result (Assurance) from the object drop-down list.
  - 3 Click on the Search button. The STM lists the test suites that you ran. Each entry includes information such as:
    - test suite name
    - completion status
    - timestamp for the test
    - success or failure of the test suite
  - 4 For more information about the test, choose an entry from the list and click on the Properties button. The Properties form appears, from which you can view the test criteria and results, or navigate to the properties form for the mobile service or EPS path for further analysis.
-

# ***Appendices***

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- A. 7750 MG Release 3.0 statistics counters    *A-1*
- B. 9471 MME statistics counters    *B-1*



## **A.           7750 MG Release 3.0 statistics counters**

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### **A.1 7750 MG Release 3.0 statistics counters   A-2**

## A.1 7750 MG Release 3.0 statistics counters

This appendix lists in tabular form the statistics counters that the 5620 SAM supports for the 7750 MG, Release 3.0. Each 5620 SAM counter entry in a table contains the name and description of the corresponding device MIB counter.

The 5620 SAM counter name in a table entry is the internal counter identifier that is required for statistics retrieval through the 5620 SAM OSSI. The displayed counter name in the 5620 SAM GUI is typically an expansion of this identifier. For example, the receivedBroadcastPackets counter name in the equipment table corresponds to the Received Broadcast Packets counter name on the Log Record form for an Ethernet port.



**Note 1** – The tables list the 5620 SAM-supported statistics counters for the current release of the device. Counters that are supported for a previous device release, but not for the current release, are not listed.

**Note 2** – A statistics counter in the 5620 SAM GUI whose displayed name ends with “Periodic” is a counter that records the difference between the current and previous values of an associated 5620 SAM counter. The OSS equivalent name for a Periodic counter is the name of the 5620 SAM counter with a “Periodic” suffix. The tables in this appendix do not list Periodic counters.

Table A-1 lists each statistics package and the associated statistics-counter table.

**Table A-1 Statistics packages and counter tables**

Package name	See
aapolicy	Table A-2
aclfilter	Table A-3
aps	Table A-4
arp	Table A-5
atm	Table A-6
bgp	Table A-7
bundle	Table A-8
cflowd	Table A-9
dhcp	Table A-10
diameter	Table A-11
equipment	Table A-12
ethernetequipment	Table A-13
fr	Table A-14
gsmpp	Table A-15
igmp	Table A-16
ipsec	Table A-17
isa	Table A-18

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Package name	See
isis	Table <a href="#">A-19</a>
l2fib	Table <a href="#">A-20</a>
l2fwd	Table <a href="#">A-21</a>
l2tp	Table <a href="#">A-22</a>
lag	Table <a href="#">A-23</a>
ldp	Table <a href="#">A-24</a>
lldp	Table <a href="#">A-25</a>
lte	Table <a href="#">A-26</a>
lteggsn	Table <a href="#">A-27</a>
lteli	Table <a href="#">A-28</a>
ltepmip	Table <a href="#">A-29</a>
lteradius	Table <a href="#">A-30</a>
mld	Table <a href="#">A-31</a>
mpls	Table <a href="#">A-32</a>
msdp	Table <a href="#">A-33</a>
multicast	Table <a href="#">A-34</a>
multichassis	Table <a href="#">A-35</a>
nat	Table <a href="#">A-36</a>
ospf	Table <a href="#">A-37</a>
pae802_1x	Table <a href="#">A-38</a>
pim	Table <a href="#">A-39</a>
ppp	Table <a href="#">A-40</a>
radiusaccounting	Table <a href="#">A-41</a>
ressubscr	Table <a href="#">A-42</a>
rip	Table <a href="#">A-43</a>
rsvp	Table <a href="#">A-44</a>
rtr	Table <a href="#">A-45</a>
service	Table <a href="#">A-46</a>
sitesec	Table <a href="#">A-47</a>
sonetequipment	Table <a href="#">A-48</a>
srrp	Table <a href="#">A-49</a>
subscrauth	Table <a href="#">A-50</a>
svq	Table <a href="#">A-51</a>
svt	Table <a href="#">A-52</a>
tdmequipment	Table <a href="#">A-53</a>
vpls	Table <a href="#">A-54</a>
vrrp	Table <a href="#">A-55</a>

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Table A-2 aapolicy statistics

5620 SAM counter name	Type	MIB counter name	Description
<b>BsxAaAccountingStats</b> MIB table name: TIMETRA-BSX-NG-MIB.tmnxBsxStatAaTable Monitored classes: <ul style="list-style-type: none"> <li>aapolicy.Application</li> <li>aapolicy.ApplicationGroup</li> <li>isa.AaGroup</li> <li>isa.AaPartition</li> </ul>			
activeFlowsFromSub	long	tmnxBsxStatAaActFlwsFmSb	The value of tmnxBsxStatAaActFlwsFmSb indicates the number of allowed flows in the subscriber to network direction that are active.
activeFlowsToSub	long	tmnxBsxStatAaActFlwsToSb	The value of tmnxBsxStatAaActFlwsToSb indicates the number of allowed flows in the network to subscriber direction that are active.
durationFlowsLong	UINT128	tmnxBsxStatAaHCLngDurFlws	The value of tmnxBsxStatAaHCLngDurFlws indicates the total number of flows with a duration greater than 180 seconds, that have completed. This object is a 64-bit version of tmnxBsxStatAaLngDurFlws.
durationFlowsMedium	UINT128	tmnxBsxStatAaHCMedDurFlws	The value of tmnxBsxStatAaHCMedDurFlws indicates the total number of flows with a duration less than or equal to 180 seconds, but greater than 30 seconds, that have completed. This object is a 64-bit version of tmnxBsxStatAaMedDurFlws.
durationFlowsShort	UINT128	tmnxBsxStatAaHCShrtDurFlws	The value of tmnxBsxStatAaHCShrtDurFlws indicates the total number of flows with a duration less than or equal to 30 seconds, that have completed. This object is a 64-bit version of tmnxBsxStatAaShrtDurFlws.
flowsAdmitFromSub	UINT128	tmnxBsxStatAaHCFlwsAdmFmSb	The value of tmnxBsxStatAaHCFlwsAdmFmSb indicates the total number of flows permitted for the subscriber to network direction. This object is a 64-bit version of tmnxBsxStatAaFlwsAdmFmSb.
flowsAdmitToSub	UINT128	tmnxBsxStatAaHCFlwsAdmToSb	The value of tmnxBsxStatAaHCFlwsAdmToSb indicates the total number of flows permitted for the network to subscriber direction. This object is a 64-bit version of tmnxBsxStatAaFlwsAdmToSb.
flowsDenyFromSub	UINT128	tmnxBsxStatAaHCFlwsDnyFmSb	The value of tmnxBsxStatAaHCFlwsDnyFmSb indicates the total number of flows the dropped subsequent packets in the subscriber to network direction. This object is a 64-bit version of tmnxBsxStatAaFlwsDnyFmSb.

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5620 SAM counter name	Type	MIB counter name	Description
flowsDenyToSub	UINT128	tmnxBsxStatAaHCFlwsDnyToSb	The value of tmnxBsxStatAaHCFlwsDnyToSb indicates the total number of flows that dropped subsequent packets in the network to subscriber direction. This object is a 64-bit version of tmnxBsxStatAaFlwsDnyToSb.
numOfSubscribers	long	tmnxBsxStatAaNumSubscribers	The value of tmnxBsxStatAaNumSubscribers indicates the number of subscribers at the most recent 5-minute snapshot of statistics.
octsAdmitFromSub	UINT128	tmnxBsxStatAaHCOctsAdmFmSb	The value of tmnxBsxStatAaHCOctsAdmFmSb indicates the total number of bytes permitted for the subscriber to network direction. This object is a 64-bit version of tmnxBsxStatAaOctsAdmFmSb.
octsAdmitToSub	UINT128	tmnxBsxStatAaHCOctsAdmToSb	The value of tmnxBsxStatAaHCOctsAdmToSb indicates the total number of bytes permitted for the network to subscriber direction. This object is a 64-bit version of tmnxBsxStatAaOctsAdmToSb.
octsDenyFromSub	UINT128	tmnxBsxStatAaHCOctsDnyFmSb	The value of tmnxBsxStatAaHCOctsDnyFmSb indicates the total number of bytes dropped for the subscriber to network direction. This object is a 64-bit version of tmnxBsxStatAaOctsDnyFmSb.
octsDenyToSub	UINT128	tmnxBsxStatAaHCOctsDnyToSb	The value of tmnxBsxStatAaHCOctsDnyToSb indicates the total number of bytes dropped for the network to subscriber direction. This object is a 64-bit version of tmnxBsxStatAaOctsDnyToSb.
pktsAdmitFromSub	UINT128	tmnxBsxStatAaHCPktsAdmFmSb	The value of tmnxBsxStatAaHCPktsAdmFmSb indicates the total number of packets permitted for the subscriber to network direction. This object is a 64-bit version of tmnxBsxStatAaPktsAdmFmSb.
pktsAdmitToSub	UINT128	tmnxBsxStatAaHCPktsAdmToSb	The value of tmnxBsxStatAaHCPktsAdmToSb indicates the total number of packets permitted for the network to subscriber direction. This object is a 64-bit version of tmnxBsxStatAaPktsAdmToSb.
pktsDenyFromSub	UINT128	tmnxBsxStatAaHCPktsDnyFmSb	The value of tmnxBsxStatAaHCPktsDnyFmSb indicates the total number of packets dropped for the subscriber to network direction. This object is a 64-bit version of tmnxBsxStatAaPktsDnyFmSb.

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5620 SAM counter name	Type	MIB counter name	Description
pktsDenyToSub	UINT128	tmnxBsxStatAaHCPktsDnyToSb	The value of tmnxBsxStatAaHCPktsDnyToSb indicates the total number of packets dropped for the network to subscriber direction. This object is a 64-bit version of tmnxBsxStatAaPktsDnyToSb.
termFlowDuration	UINT128	tmnxBsxStatAaHCTermFlwDur	The value of tmnxBsxStatAaHCTermFlwDur indicates the sum of all flow durations from first packet seen to last packet seen for flows that have terminated. This object is a 64-bit version of tmnxBsxStatAaTermFlwDur.
termFlows	UINT128	tmnxBsxStatAaHCTermFlws	The value of tmnxBsxStatAaHCTermFlws indicates the total number of allowed flows in both directions that have terminated. This object is a 64-bit version of tmnxBsxStatAaTermFlws.
<b>BsxAaSubAccountingStats</b> MIB table name: TIMETRA-BSX-NG-MIB.tmnxBsxStatAaSubSdyTable Monitored classes: <ul style="list-style-type: none"> <li>• ressubscr.ResidentialSubscriberInstance</li> <li>• service.AccessInterface</li> </ul>			
activeFlowsFromSub	long	tmnxBsxStatAaSubSdyActFlwsFmSb	The value of tmnxBsxStatAaSubSdyActFlwsFmSb indicates the number of allowed flows in the subscriber to network direction that are active.
activeFlowsToSub	long	tmnxBsxStatAaSubSdyActFlwsToSb	The value of tmnxBsxStatAaSubSdyActFlwsToSb indicates the number of allowed flows in the network to subscriber direction that are active.
durationFlowsLong	UINT128	tmnxBsxStatAaSubSdyHCLngDurFlws	The value of tmnxBsxStatAaSubSdyHCLngDurFlws indicates the total number of flows with a duration greater than 180 seconds, that have completed. This object is a 64-bit version of tmnxBsxStatAaSubSdyLngDurFlws.
durationFlowsMedium	UINT128	tmnxBsxStatAaSubSdyHCMedDurFlws	The value of tmnxBsxStatAaSubSdyHCMedDurFlws indicates the total number of flows with a duration less than or equal to 180 seconds, but greater than 30 seconds, that have completed. This object is a 64-bit version of tmnxBsxStatAaSubSdyMedDurFlws.
durationFlowsShort	UINT128	tmnxBsxStatAaSubSdyHCSHrtDurFlws	The value of tmnxBsxStatAaSubSdyHCSHrtDurFlws indicates the total number of flows with a duration less than or equal to 30 seconds, that have completed. This object is a 64-bit version of tmnxBsxStatAaSubSdyShrtDurFlws.

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5620 SAM counter name	Type	MIB counter name	Description
flowsAdmitFromSub	UINT128	tmnxBsxStatAaSubSdyHCF lwsAdmFmSb	The value of tmnxBsxStatAaSubSdyHCFlwsAdmFmSb indicates the total number of flows permitted for the subscriber to network direction. This object is a 64-bit version of tmnxBsxStatAaSubSdyFlwsAdmFmSb.
flowsAdmitToSub	UINT128	tmnxBsxStatAaSubSdyHCF lwsAdmToSb	The value of tmnxBsxStatAaSubSdyHCFlwsAdmToSb indicates the total number of flows permitted for the network to subscriber direction. This object is a 64-bit version of tmnxBsxStatAaSubSdyFlwsAdmToSb.
flowsDenyFromSub	UINT128	tmnxBsxStatAaSubSdyHCF lwsDnyFmSb	The value of tmnxBsxStatAaSubSdyHCFlwsDnyFmSb indicates the total number of flows that dropped subsequent packets in the subscriber to network direction. This object is a 64-bit version of tmnxBsxStatAaSubSdyFlwsDnyFmSb.
flowsDenyToSub	UINT128	tmnxBsxStatAaSubSdyHCF lwsDnyToSb	The value of tmnxBsxStatAaSubSdyHCFlwsDnyToSb indicates the total number of flows that dropped subsequent packets in the network to subscriber direction. This object is a 64-bit version of tmnxBsxStatAaSubSdyFlwsDnyToSb.
octsAdmitFromSub	UINT128	tmnxBsxStatAaSubSdyHC OctsAdmFmSb	The value of tmnxBsxStatAaSubSdyHCOctsAdmFmSb indicates the total number of bytes permitted for the subscriber to network direction. This object is a 64-bit version of tmnxBsxStatAaSubSdyOctsAdmFmSb.
octsAdmitFromSub	UINT128	tmnxBsxStatAaSubSdyOct sAdmFmSb	The value of tmnxBsxStatAaSubSdyOctsAdmFmSb indicates the total number of bytes permitted for the subscriber to network direction.
octsAdmitToSub	UINT128	tmnxBsxStatAaSubSdyHC OctsAdmToSb	The value of tmnxBsxStatAaSubSdyHCOctsAdmToSb indicates the total number of bytes permitted for the network to subscriber direction. This object is a 64-bit version of tmnxBsxStatAaSubSdyOctsAdmToSb.
octsDenyFromSub	UINT128	tmnxBsxStatAaSubSdyHC OctsDnyFmSb	The value of tmnxBsxStatAaSubSdyHCOctsDnyFmSb indicates the total number of bytes dropped for the subscriber to network direction. This object is a 64-bit version of tmnxBsxStatAaSubSdyOctsDnyFmSb.
octsDenyToSub	UINT128	tmnxBsxStatAaSubSdyHC OctsDnyToSb	The value of tmnxBsxStatAaSubSdyHCOctsDnyToSb indicates the total number of bytes dropped for the network to subscriber direction. This object is a 64-bit version of tmnxBsxStatAaSubSdyOctsDnyToSb.

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5620 SAM counter name	Type	MIB counter name	Description
pktsAdmitFromSub	UINT128	tmnxBsxStatAaSubSdyHCPktsAdmFmSb	The value of tmnxBsxStatAaSubSdyHCPktsAdmFmSb indicates the total number of packets permitted for the subscriber to network direction. This object is a 64-bit version of tmnxBsxStatAaSubSdyPktsAdmFmSb.
pktsAdmitToSub	UINT128	tmnxBsxStatAaSubSdyHCPktsAdmToSb	The value of tmnxBsxStatAaSubSdyHCPktsAdmToSb indicates the total number of packets permitted for the network to subscriber direction. This object is a 64-bit version of tmnxBsxStatAaSubSdyPktsAdmToSb.
pktsDenyFromSub	UINT128	tmnxBsxStatAaSubSdyHCPktsDnyFmSb	The value of tmnxBsxStatAaSubSdyHCPktsDnyFmSb indicates the total number of packets dropped for the subscriber to network direction. This object is a 64-bit version of tmnxBsxStatAaSubSdyPktsDnyFmSb.
pktsDenyToSub	UINT128	tmnxBsxStatAaSubSdyHCPktsDnyToSb	The value of tmnxBsxStatAaSubSdyHCPktsDnyToSb indicates the total number of packets dropped for the network to subscriber direction. This object is a 64-bit version of tmnxBsxStatAaSubSdyPktsDnyToSb.
termFlowDuration	UINT128	tmnxBsxStatAaSubSdyHCTermFlwDur	The value of tmnxBsxStatAaSubSdyHCTermFlwDur indicates the sum of all flow durations from first packet seen to last packet seen for flows that have terminated. This object is a 64-bit version of tmnxBsxStatAaSubSdyTermFlwDur.
termFlows	UINT128	tmnxBsxStatAaSubSdyHCTermFlws	The value of tmnxBsxStatAaSubSdyHCTermFlws indicates the total number of allowed flows that have terminated. This object is a 64-bit version of tmnxBsxStatAaSubSdyTermFlws.
<b>BsxAaSubAccountingStats</b> MIB table name: TIMETRA-BSX-NG-MIB.tmnxBsxStatAaSubTable Monitored classes: <ul style="list-style-type: none"> <li>ressubscr.ResidentialSubscriberInstance</li> <li>service.AccessInterface</li> </ul>			
activeFlowsFromSub	long	tmnxBsxStatAaSubActFlwsFmSb	The value of tmnxBsxStatAaSubActFlwsFmSb indicates the number of allowed flows in the subscriber to network direction that are active.
activeFlowsToSub	long	tmnxBsxStatAaSubActFlwsToSb	The value of tmnxBsxStatAaSubActFlwsToSb indicates the number of allowed flows in the network to subscriber direction that are active.

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5620 SAM counter name	Type	MIB counter name	Description
durationFlowsLong	UINT128	tmnxBsxStatAaSubHCLngDurFlws	The value of tmnxBsxStatAaSubHCLngDurFlws indicates the total number of flows with a duration greater than 180 seconds, that have completed. This object is a 64-bit version of tmnxBsxStatAaSubLngDurFlws.
durationFlowsMedium	UINT128	tmnxBsxStatAaSubHCMedDurFlws	The value of tmnxBsxStatAaSubHCMedDurFlws indicates the total number of flows with a duration less than or equal to 180 seconds, but greater than 30 seconds, that have completed. This object is a 64-bit version of tmnxBsxStatAaSubMedDurFlws.
durationFlowsShort	UINT128	tmnxBsxStatAaSubHCSHrtDurFlws	The value of tmnxBsxStatAaSubHCSHrtDurFlws indicates the total number of flows with a duration less than or equal to 30 seconds, that have completed. This object is a 64-bit version of tmnxBsxStatAaSubSHrtDurFlws.
flowsAdmitFromSub	UINT128	tmnxBsxStatAaSubHCFlwsAdmFmSb	The value of tmnxBsxStatAaSubHCFlwsAdmFmSb indicates the total number of flows permitted for the subscriber to network direction. This object is a 64-bit version of tmnxBsxStatAaSubFlwsAdmFmSb.
flowsAdmitToSub	UINT128	tmnxBsxStatAaSubHCFlwsAdmToSb	The value of tmnxBsxStatAaSubHCFlwsAdmToSb indicates the total number of flows permitted for the network to subscriber direction. This object is a 64-bit version of tmnxBsxStatAaSubFlwsAdmToSb.
flowsDenyFromSub	UINT128	tmnxBsxStatAaSubHCFlwsDnyFmSb	The value of tmnxBsxStatAaSubHCFlwsDnyFmSb indicates the total number of flows that dropped subsequent packets in the subscriber to network direction. This object is a 64-bit version of tmnxBsxStatAaSubFlwsDnyFmSb.
flowsDenyToSub	UINT128	tmnxBsxStatAaSubHCFlwsDnyToSb	The value of tmnxBsxStatAaSubHCFlwsDnyToSb indicates the total number of flows that dropped subsequent packets in the network to subscriber direction. This object is the 64-bit version of tmnxBsxStatAaSubFlwsDnyToSb.
octsAdmitFromSub	UINT128	tmnxBsxStatAaSubHCOctsAdmFmSb	The value of tmnxBsxStatAaSubHCOctsAdmFmSb indicates the total number of bytes permitted for the subscriber to network direction. This object is a 64-bit version of tmnxBsxStatAaSubOctsAdmFmSb.
octsAdmitToSub	UINT128	tmnxBsxStatAaSubHCOctsAdmToSb	The value of tmnxBsxStatAaSubHCOctsAdmToSb indicates the total number of bytes permitted for the network to subscriber direction. This object is a 64-bit version of tmnxBsxStatAaSubOctsAdmToSb.

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5620 SAM counter name	Type	MIB counter name	Description
octsDenyFromSub	UINT128	tmnxBsxStatAaSubHCOctsDnyFmSb	The value of tmnxBsxStatAaSubHCOctsDnyFmSb indicates the total number of bytes dropped for the subscriber to network direction. This object is a 64-bit version of tmnxBsxStatAaSubOctsDnyFmSb.
octsDenyToSub	UINT128	tmnxBsxStatAaSubHCOctsDnyToSb	The value of tmnxBsxStatAaSubHCOctsDnyToSb indicates the total number of bytes dropped for the network to subscriber direction. This object is a 64-bit version of tmnxBsxStatAaSubOctsDnyToSb.
pktsAdmitFromSub	UINT128	tmnxBsxStatAaSubHCPktsAdmFmSb	The value of tmnxBsxStatAaSubHCPktsAdmFmSb indicates the total number of packets permitted for the subscriber to network direction. This object is a 64-bit version of tmnxBsxStatAaSubPktsAdmFmSb.
pktsAdmitToSub	UINT128	tmnxBsxStatAaSubHCPktsAdmToSb	The value of tmnxBsxStatAaSubHCPktsAdmToSb indicates the total number of packets permitted for the network to subscriber direction. This object is a 64-bit version of tmnxBsxStatAaSubPktsAdmToSb.
pktsDenyFromSub	UINT128	tmnxBsxStatAaSubHCPktsDnyFmSb	The value of tmnxBsxStatAaSubHCPktsDnyFmSb indicates the total number of packets dropped for the subscriber to network direction. This object is a 64-bit version of tmnxBsxStatAaSubPktsDnyFmSb.
pktsDenyToSub	UINT128	tmnxBsxStatAaSubHCPktsDnyToSb	The value of tmnxBsxStatAaSubHCPktsDnyToSb indicates the total number of packets dropped for the network to subscriber direction. This object is a 64-bit version of tmnxBsxStatAaSubPktsDnyToSb.
termFlowDuration	UINT128	tmnxBsxStatAaSubHCTermFlwDur	The value of tmnxBsxStatAaSubHCTermFlwDur indicates the sum of all flow durations from first packet seen to last packet seen for flows that have terminated. This object is a 64-bit version of tmnxBsxStatAaSubTermFlwDur.
termFlows	UINT128	tmnxBsxStatAaSubHCTermFlws	The value of tmnxBsxStatAaSubHCTermFlws indicates the total number of allowed flows that have terminated. This object is a 64-bit version of tmnxBsxStatAaSubTermFlws.
<b>BsxAppGrpStats</b> MIB table name: TIMETRA-BSX-NG-MIB.tmnxBsxStatAaTable Monitored class: aapolicy.ApplicationGroup			
aaName	String	tmnxBsxStatAaName	The value of tmnxBsxStatAaName specifies either the ISA-AA protocol, application or app-group name for which statistics are requested. The tmnxBsxStatAaType is used to determine the statistics type.

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5620 SAM counter name	Type	MIB counter name	Description
activeFlowsFromSub	long	tmnxBsxStatAaActFlwsFmSb	The value of tmnxBsxStatAaActFlwsFmSb indicates the number of allowed flows in the subscriber to network direction that are active.
activeFlowsToSub	long	tmnxBsxStatAaActFlwsToSb	The value of tmnxBsxStatAaActFlwsToSb indicates the number of allowed flows in the network to subscriber direction that are active.
durationFlowsLong	UINT128	tmnxBsxStatAaHCLngDurFlws	The value of tmnxBsxStatAaHCLngDurFlws indicates the total number of flows with a duration greater than 180 seconds, that have completed. This object is a 64-bit version of tmnxBsxStatAaLngDurFlws.
durationFlowsMedium	UINT128	tmnxBsxStatAaHCMedDurFlws	The value of tmnxBsxStatAaHCMedDurFlws indicates the total number of flows with a duration less than or equal to 180 seconds, but greater than 30 seconds, that have completed. This object is a 64-bit version of tmnxBsxStatAaMedDurFlws.
durationFlowsShort	UINT128	tmnxBsxStatAaHCShtDurFlws	The value of tmnxBsxStatAaHCShtDurFlws indicates the total number of flows with a duration less than or equal to 30 seconds, that have completed. This object is a 64-bit version of tmnxBsxStatAaShtDurFlws.
flowsAdmitFromSub	UINT128	tmnxBsxStatAaHCFlwsAdmFmSb	The value of tmnxBsxStatAaHCFlwsAdmFmSb indicates the total number of flows permitted for the subscriber to network direction. This object is a 64-bit version of tmnxBsxStatAaFlwsAdmFmSb.
flowsAdmitToSub	UINT128	tmnxBsxStatAaHCFlwsAdmToSb	The value of tmnxBsxStatAaHCFlwsAdmToSb indicates the total number of flows permitted for the network to subscriber direction. This object is a 64-bit version of tmnxBsxStatAaFlwsAdmToSb.
flowsDenyFromSub	UINT128	tmnxBsxStatAaHCFlwsDnyFmSb	The value of tmnxBsxStatAaHCFlwsDnyFmSb indicates the total number of flows the dropped subsequent packets in the subscriber to network direction. This object is a 64-bit version of tmnxBsxStatAaFlwsDnyFmSb.
flowsDenyToSub	UINT128	tmnxBsxStatAaHCFlwsDnyToSb	The value of tmnxBsxStatAaHCFlwsDnyToSb indicates the total number of flows that dropped subsequent packets in the network to subscriber direction. This object is a 64-bit version of tmnxBsxStatAaFlwsDnyToSb.
numOfSubscribers	long	tmnxBsxStatAaNumSubscribers	The value of tmnxBsxStatAaNumSubscribers indicates the number of subscribers at the most recent 5-minute snapshot of statistics.

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5620 SAM counter name	Type	MIB counter name	Description
octsAdmitFromSub	UINT128	tmnxBsxStatAaHCOctsAdmFmSb	The value of tmnxBsxStatAaHCOctsAdmFmSb indicates the total number of bytes permitted for the subscriber to network direction. This object is a 64-bit version of tmnxBsxStatAaOctsAdmFmSb.
octsAdmitToSub	UINT128	tmnxBsxStatAaHCOctsAdmToSb	The value of tmnxBsxStatAaHCOctsAdmToSb indicates the total number of bytes permitted for the network to subscriber direction. This object is a 64-bit version of tmnxBsxStatAaOctsAdmToSb.
octsDenyFromSub	UINT128	tmnxBsxStatAaHCOctsDnyFmSb	The value of tmnxBsxStatAaHCOctsDnyFmSb indicates the total number of bytes dropped for the subscriber to network direction. This object is a 64-bit version of tmnxBsxStatAaOctsDnyFmSb.
octsDenyToSub	UINT128	tmnxBsxStatAaHCOctsDnyToSb	The value of tmnxBsxStatAaHCOctsDnyToSb indicates the total number of bytes dropped for the network to subscriber direction. This object is a 64-bit version of tmnxBsxStatAaOctsDnyToSb.
pktsAdmitFromSub	UINT128	tmnxBsxStatAaHCPktsAdmFmSb	The value of tmnxBsxStatAaHCPktsAdmFmSb indicates the total number of packets permitted for the subscriber to network direction. This object is a 64-bit version of tmnxBsxStatAaPktsAdmFmSb.
pktsAdmitToSub	UINT128	tmnxBsxStatAaHCPktsAdmToSb	The value of tmnxBsxStatAaHCPktsAdmToSb indicates the total number of packets permitted for the network to subscriber direction. This object is a 64-bit version of tmnxBsxStatAaPktsAdmToSb.
pktsDenyFromSub	UINT128	tmnxBsxStatAaHCPktsDnyFmSb	The value of tmnxBsxStatAaHCPktsDnyFmSb indicates the total number of packets dropped for the subscriber to network direction. This object is a 64-bit version of tmnxBsxStatAaPktsDnyFmSb.
pktsDenyToSub	UINT128	tmnxBsxStatAaHCPktsDnyToSb	The value of tmnxBsxStatAaHCPktsDnyToSb indicates the total number of packets dropped for the network to subscriber direction. This object is a 64-bit version of tmnxBsxStatAaPktsDnyToSb.
termFlowDuration	UINT128	tmnxBsxStatAaHCTermFlwDur	The value of tmnxBsxStatAaHCTermFlwDur indicates the sum of all flow durations from first packet seen to last packet seen for flows that have terminated. This object is a 64-bit version of tmnxBsxStatAaTermFlwDur.

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5620 SAM counter name	Type	MIB counter name	Description
termFlows	UINT128	tmnxBsxStatAaHCTermFlws	The value of tmnxBsxStatAaHCTermFlws indicates the total number of allowed flows in both directions that have terminated. This object is a 64-bit version of tmnxBsxStatAaTermFlws.
<b>BsxAppQosPolicyStats</b> MIB table name: TIMETRA-BSX-NG-MIB.tmnxBsxAppStatsTable Monitored class: aapolicy.AppQosPolicy			
conflicts	long	tmnxBsxAppStatsConflicts	The value of tmnxBsxAppStatsConflicts indicates the number of flows that have hit this AQP entry, but resulted in a conflict with the match criteria.
flows	long	tmnxBsxAppStatsFlows	The value of tmnxBsxAppStatsFlows indicates the number of flows that have hit this entry. In certain cases, a flow may change its attributes thus undergoing a second policy evaluation. In these cases, the flow may be counted against two different AQP entries.
<b>BsxAppStats</b> MIB table name: TIMETRA-BSX-NG-MIB.tmnxBsxStatAaTable Monitored class: aapolicy.Application			
aaName	String	tmnxBsxStatAaName	The value of tmnxBsxStatAaName specifies either the ISA-AA protocol, application or app-group name for which statistics are requested. The tmnxBsxStatAaType is used to determine the statistics type.
activeFlowsFromSub	long	tmnxBsxStatAaActFlwsFmSb	The value of tmnxBsxStatAaActFlwsFmSb indicates the number of allowed flows in the subscriber to network direction that are active.
activeFlowsToSub	long	tmnxBsxStatAaActFlwsToSb	The value of tmnxBsxStatAaActFlwsToSb indicates the number of allowed flows in the network to subscriber direction that are active.
durationFlowsLong	UINT128	tmnxBsxStatAaHCLngDurFlws	The value of tmnxBsxStatAaHCLngDurFlws indicates the total number of flows with a duration greater than 180 seconds, that have completed. This object is a 64-bit version of tmnxBsxStatAaLngDurFlws.
durationFlowsMedium	UINT128	tmnxBsxStatAaHCMedDurFlws	The value of tmnxBsxStatAaHCMedDurFlws indicates the total number of flows with a duration less than or equal to 180 seconds, but greater than 30 seconds, that have completed. This object is a 64-bit version of tmnxBsxStatAaMedDurFlws.
durationFlowsShort	UINT128	tmnxBsxStatAaHCSHrtDurFlws	The value of tmnxBsxStatAaHCSHrtDurFlws indicates the total number of flows with a duration less than or equal to 30 seconds, that have completed. This object is a 64-bit version of tmnxBsxStatAaShrtDurFlws.

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5620 SAM counter name	Type	MIB counter name	Description
flowsAdmitFromSub	UINT128	tmnxBsxStatAaHCFlwsAdmFmSb	The value of tmnxBsxStatAaHCFlwsAdmFmSb indicates the total number of flows permitted for the subscriber to network direction. This object is a 64-bit version of tmnxBsxStatAaFlwsAdmFmSb.
flowsAdmitToSub	UINT128	tmnxBsxStatAaHCFlwsAdmToSb	The value of tmnxBsxStatAaHCFlwsAdmToSb indicates the total number of flows permitted for the network to subscriber direction. This object is a 64-bit version of tmnxBsxStatAaFlwsAdmToSb.
flowsDenyFromSub	UINT128	tmnxBsxStatAaHCFlwsDnyFmSb	The value of tmnxBsxStatAaHCFlwsDnyFmSb indicates the total number of flows the dropped subsequent packets in the subscriber to network direction. This object is a 64-bit version of tmnxBsxStatAaFlwsDnyFmSb.
flowsDenyToSub	UINT128	tmnxBsxStatAaHCFlwsDnyToSb	The value of tmnxBsxStatAaHCFlwsDnyToSb indicates the total number of flows that dropped subsequent packets in the network to subscriber direction. This object is a 64-bit version of tmnxBsxStatAaFlwsDnyToSb.
numOfSubscribers	long	tmnxBsxStatAaNumSubscribers	The value of tmnxBsxStatAaNumSubscribers indicates the number of subscribers at the most recent 5-minute snapshot of statistics.
octsAdmitFromSub	UINT128	tmnxBsxStatAaHCOctsAdmFmSb	The value of tmnxBsxStatAaHCOctsAdmFmSb indicates the total number of bytes permitted for the subscriber to network direction. This object is a 64-bit version of tmnxBsxStatAaOctsAdmFmSb.
octsAdmitToSub	UINT128	tmnxBsxStatAaHCOctsAdmToSb	The value of tmnxBsxStatAaHCOctsAdmToSb indicates the total number of bytes permitted for the network to subscriber direction. This object is a 64-bit version of tmnxBsxStatAaOctsAdmToSb.
octsDenyFromSub	UINT128	tmnxBsxStatAaHCOctsDnyFmSb	The value of tmnxBsxStatAaHCOctsDnyFmSb indicates the total number of bytes dropped for the subscriber to network direction. This object is a 64-bit version of tmnxBsxStatAaOctsDnyFmSb.
octsDenyToSub	UINT128	tmnxBsxStatAaHCOctsDnyToSb	The value of tmnxBsxStatAaHCOctsDnyToSb indicates the total number of bytes dropped for the network to subscriber direction. This object is a 64-bit version of tmnxBsxStatAaOctsDnyToSb.

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5620 SAM counter name	Type	MIB counter name	Description
pktsAdmitFromSub	UINT128	tmnxBsxStatAaHCPktsAdmFmSb	The value of tmnxBsxStatAaHCPktsAdmFmSb indicates the total number of packets permitted for the subscriber to network direction. This object is a 64-bit version of tmnxBsxStatAaPktsAdmFmSb.
pktsAdmitToSub	UINT128	tmnxBsxStatAaHCPktsAdmToSb	The value of tmnxBsxStatAaHCPktsAdmToSb indicates the total number of packets permitted for the network to subscriber direction. This object is a 64-bit version of tmnxBsxStatAaPktsAdmToSb.
pktsDenyFromSub	UINT128	tmnxBsxStatAaHCPktsDnyFmSb	The value of tmnxBsxStatAaHCPktsDnyFmSb indicates the total number of packets dropped for the subscriber to network direction. This object is a 64-bit version of tmnxBsxStatAaPktsDnyFmSb.
pktsDenyToSub	UINT128	tmnxBsxStatAaHCPktsDnyToSb	The value of tmnxBsxStatAaHCPktsDnyToSb indicates the total number of packets dropped for the network to subscriber direction. This object is a 64-bit version of tmnxBsxStatAaPktsDnyToSb.
termFlowDuration	UINT128	tmnxBsxStatAaHCTermFlwDur	The value of tmnxBsxStatAaHCTermFlwDur indicates the sum of all flow durations from first packet seen to last packet seen for flows that have terminated. This object is a 64-bit version of tmnxBsxStatAaTermFlwDur.
termFlows	UINT128	tmnxBsxStatAaHCTermFlws	The value of tmnxBsxStatAaHCTermFlws indicates the total number of allowed flows in both directions that have terminated. This object is a 64-bit version of tmnxBsxStatAaTermFlws.
<b>BsxCustProtStats</b> MIB table name: TIMETRA-BSX-NG-MIB.tmnxBsxStatAaTable Monitored class: aapolicy.CustomProtocol			
aaName	String	tmnxBsxStatAaName	The value of tmnxBsxStatAaName specifies either the ISA-AA protocol, application or app-group name for which statistics are requested. The tmnxBsxStatAaType is used to determine the statistics type.
activeFlowsFromSub	long	tmnxBsxStatAaActFlwsFmSb	The value of tmnxBsxStatAaActFlwsFmSb indicates the number of allowed flows in the subscriber to network direction that are active.
activeFlowsToSub	long	tmnxBsxStatAaActFlwsToSb	The value of tmnxBsxStatAaActFlwsToSb indicates the number of allowed flows in the network to subscriber direction that are active.

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5620 SAM counter name	Type	MIB counter name	Description
durationFlowsLong	UINT128	tmnxBsxStatAaHCLngDurFlws	The value of tmnxBsxStatAaHCLngDurFlws indicates the total number of flows with a duration greater than 180 seconds, that have completed. This object is a 64-bit version of tmnxBsxStatAaLngDurFlws.
durationFlowsMedium	UINT128	tmnxBsxStatAaHCMedDurFlws	The value of tmnxBsxStatAaHCMedDurFlws indicates the total number of flows with a duration less than or equal to 180 seconds, but greater than 30 seconds, that have completed. This object is a 64-bit version of tmnxBsxStatAaMedDurFlws.
durationFlowsShort	UINT128	tmnxBsxStatAaHCShrtDurFlws	The value of tmnxBsxStatAaHCShrtDurFlws indicates the total number of flows with a duration less than or equal to 30 seconds, that have completed. This object is a 64-bit version of tmnxBsxStatAaShrtDurFlws.
flowsAdmitFromSub	UINT128	tmnxBsxStatAaHCFlwsAdmFmSb	The value of tmnxBsxStatAaHCFlwsAdmFmSb indicates the total number of flows permitted for the subscriber to network direction. This object is a 64-bit version of tmnxBsxStatAaFlwsAdmFmSb.
flowsAdmitToSub	UINT128	tmnxBsxStatAaHCFlwsAdmToSb	The value of tmnxBsxStatAaHCFlwsAdmToSb indicates the total number of flows permitted for the network to subscriber direction. This object is a 64-bit version of tmnxBsxStatAaFlwsAdmToSb.
flowsDenyFromSub	UINT128	tmnxBsxStatAaHCFlwsDnyFmSb	The value of tmnxBsxStatAaHCFlwsDnyFmSb indicates the total number of flows the dropped subsequent packets in the subscriber to network direction. This object is a 64-bit version of tmnxBsxStatAaFlwsDnyFmSb.
flowsDenyToSub	UINT128	tmnxBsxStatAaHCFlwsDnyToSb	The value of tmnxBsxStatAaHCFlwsDnyToSb indicates the total number of flows that dropped subsequent packets in the network to subscriber direction. This object is a 64-bit version of tmnxBsxStatAaFlwsDnyToSb.
numOfSubscribers	long	tmnxBsxStatAaNumSubscribers	The value of tmnxBsxStatAaNumSubscribers indicates the number of subscribers at the most recent 5-minute snapshot of statistics.
octsAdmitFromSub	UINT128	tmnxBsxStatAaHCOctsAdmFmSb	The value of tmnxBsxStatAaHCOctsAdmFmSb indicates the total number of bytes permitted for the subscriber to network direction. This object is a 64-bit version of tmnxBsxStatAaOctsAdmFmSb.

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5620 SAM counter name	Type	MIB counter name	Description
octsAdmitToSub	UINT128	tmnxBsxStatAaHCOctsAdmToSb	The value of tmnxBsxStatAaHCOctsAdmToSb indicates the total number of bytes permitted for the network to subscriber direction. This object is a 64-bit version of tmnxBsxStatAaOctsAdmToSb.
octsDenyFromSub	UINT128	tmnxBsxStatAaHCOctsDnyFmSb	The value of tmnxBsxStatAaHCOctsDnyFmSb indicates the total number of bytes dropped for the subscriber to network direction. This object is a 64-bit version of tmnxBsxStatAaOctsDnyFmSb.
octsDenyToSub	UINT128	tmnxBsxStatAaHCOctsDnyToSb	The value of tmnxBsxStatAaHCOctsDnyToSb indicates the total number of bytes dropped for the network to subscriber direction. This object is a 64-bit version of tmnxBsxStatAaOctsDnyToSb.
pktsAdmitFromSub	UINT128	tmnxBsxStatAaHCPktsAdmFmSb	The value of tmnxBsxStatAaHCPktsAdmFmSb indicates the total number of packets permitted for the subscriber to network direction. This object is a 64-bit version of tmnxBsxStatAaPktsAdmFmSb.
pktsAdmitToSub	UINT128	tmnxBsxStatAaHCPktsAdmToSb	The value of tmnxBsxStatAaHCPktsAdmToSb indicates the total number of packets permitted for the network to subscriber direction. This object is a 64-bit version of tmnxBsxStatAaPktsAdmToSb.
pktsDenyFromSub	UINT128	tmnxBsxStatAaHCPktsDnyFmSb	The value of tmnxBsxStatAaHCPktsDnyFmSb indicates the total number of packets dropped for the subscriber to network direction. This object is a 64-bit version of tmnxBsxStatAaPktsDnyFmSb.
pktsDenyToSub	UINT128	tmnxBsxStatAaHCPktsDnyToSb	The value of tmnxBsxStatAaHCPktsDnyToSb indicates the total number of packets dropped for the network to subscriber direction. This object is a 64-bit version of tmnxBsxStatAaPktsDnyToSb.
termFlowDuration	UINT128	tmnxBsxStatAaHCTermFlwDur	The value of tmnxBsxStatAaHCTermFlwDur indicates the sum of all flow durations from first packet seen to last packet seen for flows that have terminated. This object is a 64-bit version of tmnxBsxStatAaTermFlwDur.
termFlows	UINT128	tmnxBsxStatAaHCTermFlws	The value of tmnxBsxStatAaHCTermFlws indicates the total number of allowed flows in both directions that have terminated. This object is a 64-bit version of tmnxBsxStatAaTermFlws.

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5620 SAM counter name	Type	MIB counter name	Description
<b>BsxProtStats</b> MIB table name: TIMETRA-BSX-NG-MIB.tmnxBsxStatAaTable Monitored classes: <ul style="list-style-type: none"> <li>isa.AaGroup</li> <li>isa.AaPartition</li> </ul>			
aaName	String	tmnxBsxStatAaName	The value of tmnxBsxStatAaName specifies either the ISA-AA protocol, application or app-group name for which statistics are requested. The tmnxBsxStatAaType is used to determine the statistics type.
activeFlowsFromSub	long	tmnxBsxStatAaActFlwsFmSb	The value of tmnxBsxStatAaActFlwsFmSb indicates the number of allowed flows in the subscriber to network direction that are active.
activeFlowsToSub	long	tmnxBsxStatAaActFlwsToSb	The value of tmnxBsxStatAaActFlwsToSb indicates the number of allowed flows in the network to subscriber direction that are active.
durationFlowsLong	UINT128	tmnxBsxStatAaHCLngDurFlws	The value of tmnxBsxStatAaHCLngDurFlws indicates the total number of flows with a duration greater than 180 seconds, that have completed. This object is a 64-bit version of tmnxBsxStatAaLngDurFlws.
durationFlowsMedium	UINT128	tmnxBsxStatAaHCMedDurFlws	The value of tmnxBsxStatAaHCMedDurFlws indicates the total number of flows with a duration less than or equal to 180 seconds, but greater than 30 seconds, that have completed. This object is a 64-bit version of tmnxBsxStatAaMedDurFlws.
durationFlowsShort	UINT128	tmnxBsxStatAaHCShtDurFlws	The value of tmnxBsxStatAaHCShtDurFlws indicates the total number of flows with a duration less than or equal to 30 seconds, that have completed. This object is a 64-bit version of tmnxBsxStatAaShtDurFlws.
flowsAdmitFromSub	UINT128	tmnxBsxStatAaHCFlwsAdmFmSb	The value of tmnxBsxStatAaHCFlwsAdmFmSb indicates the total number of flows permitted for the subscriber to network direction. This object is a 64-bit version of tmnxBsxStatAaFlwsAdmFmSb.
flowsAdmitToSub	UINT128	tmnxBsxStatAaHCFlwsAdmToSb	The value of tmnxBsxStatAaHCFlwsAdmToSb indicates the total number of flows permitted for the network to subscriber direction. This object is a 64-bit version of tmnxBsxStatAaFlwsAdmToSb.
flowsDenyFromSub	UINT128	tmnxBsxStatAaHCFlwsDnyFmSb	The value of tmnxBsxStatAaHCFlwsDnyFmSb indicates the total number of flows the dropped subsequent packets in the subscriber to network direction. This object is a 64-bit version of tmnxBsxStatAaFlwsDnyFmSb.

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5620 SAM counter name	Type	MIB counter name	Description
flowsDenyToSub	UINT128	tmnxBsxStatAaHCFlwsDnyToSb	The value of tmnxBsxStatAaHCFlwsDnyToSb indicates the total number of flows that dropped subsequent packets in the network to subscriber direction. This object is a 64-bit version of tmnxBsxStatAaFlwsDnyToSb.
numOfSubscribers	long	tmnxBsxStatAaNumSubscribers	The value of tmnxBsxStatAaNumSubscribers indicates the number of subscribers at the most recent 5-minute snapshot of statistics.
octsAdmitFromSub	UINT128	tmnxBsxStatAaHCOctsAdmFmSb	The value of tmnxBsxStatAaHCOctsAdmFmSb indicates the total number of bytes permitted for the subscriber to network direction. This object is a 64-bit version of tmnxBsxStatAaOctsAdmFmSb.
octsAdmitToSub	UINT128	tmnxBsxStatAaHCOctsAdmToSb	The value of tmnxBsxStatAaHCOctsAdmToSb indicates the total number of bytes permitted for the network to subscriber direction. This object is a 64-bit version of tmnxBsxStatAaOctsAdmToSb.
octsDenyFromSub	UINT128	tmnxBsxStatAaHCOctsDnyFmSb	The value of tmnxBsxStatAaHCOctsDnyFmSb indicates the total number of bytes dropped for the subscriber to network direction. This object is a 64-bit version of tmnxBsxStatAaOctsDnyFmSb.
octsDenyToSub	UINT128	tmnxBsxStatAaHCOctsDnyToSb	The value of tmnxBsxStatAaHCOctsDnyToSb indicates the total number of bytes dropped for the network to subscriber direction. This object is a 64-bit version of tmnxBsxStatAaOctsDnyToSb.
pktsAdmitFromSub	UINT128	tmnxBsxStatAaHCPktsAdmFmSb	The value of tmnxBsxStatAaHCPktsAdmFmSb indicates the total number of packets permitted for the subscriber to network direction. This object is a 64-bit version of tmnxBsxStatAaPktsAdmFmSb.
pktsAdmitToSub	UINT128	tmnxBsxStatAaHCPktsAdmToSb	The value of tmnxBsxStatAaHCPktsAdmToSb indicates the total number of packets permitted for the network to subscriber direction. This object is a 64-bit version of tmnxBsxStatAaPktsAdmToSb.
pktsDenyFromSub	UINT128	tmnxBsxStatAaHCPktsDnyFmSb	The value of tmnxBsxStatAaHCPktsDnyFmSb indicates the total number of packets dropped for the subscriber to network direction. This object is a 64-bit version of tmnxBsxStatAaPktsDnyFmSb.

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5620 SAM counter name	Type	MIB counter name	Description
pktsDenyToSub	UINT128	tmnxBsxStatAaHCPktsDnyToSb	The value of tmnxBsxStatAaHCPktsDnyToSb indicates the total number of packets dropped for the network to subscriber direction. This object is a 64-bit version of tmnxBsxStatAaPktsDnyToSb.
termFlowDuration	UINT128	tmnxBsxStatAaHCTermFlwDur	The value of tmnxBsxStatAaHCTermFlwDur indicates the sum of all flow durations from first packet seen to last packet seen for flows that have terminated. This object is a 64-bit version of tmnxBsxStatAaTermFlwDur.
termFlows	UINT128	tmnxBsxStatAaHCTermFlws	The value of tmnxBsxStatAaHCTermFlws indicates the total number of allowed flows in both directions that have terminated. This object is a 64-bit version of tmnxBsxStatAaTermFlws.
<b>BsxSapCustRecAppGrpStats</b> MIB table name: TIMETRA-BSX-NG-MIB.tmnxBsxStatAaSubTable Monitored class: service.AccessInterface			
activeFlowsFromSub	long	tmnxBsxStatAaSubActFlwsFmSb	The value of tmnxBsxStatAaSubActFlwsFmSb indicates the number of allowed flows in the subscriber to network direction that are active.
activeFlowsToSub	long	tmnxBsxStatAaSubActFlwsToSb	The value of tmnxBsxStatAaSubActFlwsToSb indicates the number of allowed flows in the network to subscriber direction that are active.
appGrpName	String	tmnxBsxStatAaName	The value of tmnxBsxStatAaName specifies either the ISA-AA protocol, application or app-group name for which statistics are requested. The tmnxBsxStatAaType is used to determine the statistics type.
durationFlowsLong	UINT128	tmnxBsxStatAaSubHCLngDurFlws	The value of tmnxBsxStatAaSubHCLngDurFlws indicates the total number of flows with a duration greater than 180 seconds, that have completed. This object is a 64-bit version of tmnxBsxStatAaSubLngDurFlws.
durationFlowsMedium	UINT128	tmnxBsxStatAaSubHCMedDurFlws	The value of tmnxBsxStatAaSubHCMedDurFlws indicates the total number of flows with a duration less than or equal to 180 seconds, but greater than 30 seconds, that have completed. This object is a 64-bit version of tmnxBsxStatAaSubMedDurFlws.

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5620 SAM counter name	Type	MIB counter name	Description
durationFlowsShort	UINT128	tmnxBsxStatAaSubHCShrtDurFlws	The value of tmnxBsxStatAaSubHCShrtDurFlws indicates the total number of flows with a duration less than or equal to 30 seconds, that have completed. This object is a 64-bit version of tmnxBsxStatAaSubShrtDurFlws.
flowsAdmitFromSub	UINT128	tmnxBsxStatAaSubHCFlwsAdmFmSb	The value of tmnxBsxStatAaSubHCFlwsAdmFmSb indicates the total number of flows permitted for the subscriber to network direction. This object is a 64-bit version of tmnxBsxStatAaSubFlwsAdmFmSb.
flowsAdmitToSub	UINT128	tmnxBsxStatAaSubHCFlwsAdmToSb	The value of tmnxBsxStatAaSubHCFlwsAdmToSb indicates the total number of flows permitted for the network to subscriber direction. This object is a 64-bit version of tmnxBsxStatAaSubFlwsAdmToSb.
flowsDenyFromSub	UINT128	tmnxBsxStatAaSubHCFlwsDnyFmSb	The value of tmnxBsxStatAaSubHCFlwsDnyFmSb indicates the total number of flows that dropped subsequent packets in the subscriber to network direction. This object is a 64-bit version of tmnxBsxStatAaSubFlwsDnyFmSb.
flowsDenyToSub	UINT128	tmnxBsxStatAaSubHCFlwsDnyToSb	The value of tmnxBsxStatAaSubHCFlwsDnyToSb indicates the total number of flows that dropped subsequent packets in the network to subscriber direction. This object is the 64-bit version of tmnxBsxStatAaSubFlwsDnyToSb.
octsAdmitFromSub	UINT128	tmnxBsxStatAaSubHCOctsAdmFmSb	The value of tmnxBsxStatAaSubHCOctsAdmFmSb indicates the total number of bytes permitted for the subscriber to network direction. This object is a 64-bit version of tmnxBsxStatAaSubOctsAdmFmSb.
octsAdmitToSub	UINT128	tmnxBsxStatAaSubHCOctsAdmToSb	The value of tmnxBsxStatAaSubHCOctsAdmToSb indicates the total number of bytes permitted for the network to subscriber direction. This object is a 64-bit version of tmnxBsxStatAaSubOctsAdmToSb.
octsDenyFromSub	UINT128	tmnxBsxStatAaSubHCOctsDnyFmSb	The value of tmnxBsxStatAaSubHCOctsDnyFmSb indicates the total number of bytes dropped for the subscriber to network direction. This object is a 64-bit version of tmnxBsxStatAaSubOctsDnyFmSb.
octsDenyToSub	UINT128	tmnxBsxStatAaSubHCOctsDnyToSb	The value of tmnxBsxStatAaSubHCOctsDnyToSb indicates the total number of bytes dropped for the network to subscriber direction. This object is a 64-bit version of tmnxBsxStatAaSubOctsDnyToSb.

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5620 SAM counter name	Type	MIB counter name	Description
pktsAdmitFromSub	UINT128	tmnxBsxStatAaSubHCPktsAdmFmSb	The value of tmnxBsxStatAaSubHCPktsAdmFmSb indicates the total number of packets permitted for the subscriber to network direction. This object is a 64-bit version of tmnxBsxStatAaSubPktsAdmFmSb.
pktsAdmitToSub	UINT128	tmnxBsxStatAaSubHCPktsAdmToSb	The value of tmnxBsxStatAaSubHCPktsAdmToSb indicates the total number of packets permitted for the network to subscriber direction. This object is a 64-bit version of tmnxBsxStatAaSubPktsAdmToSb.
pktsDenyFromSub	UINT128	tmnxBsxStatAaSubHCPktsDnyFmSb	The value of tmnxBsxStatAaSubHCPktsDnyFmSb indicates the total number of packets dropped for the subscriber to network direction. This object is a 64-bit version of tmnxBsxStatAaSubPktsDnyFmSb.
pktsDenyToSub	UINT128	tmnxBsxStatAaSubHCPktsDnyToSb	The value of tmnxBsxStatAaSubHCPktsDnyToSb indicates the total number of packets dropped for the network to subscriber direction. This object is a 64-bit version of tmnxBsxStatAaSubPktsDnyToSb.
statsInterval	int	tmnxBsxStatAaSubStatsInterval	The tmnxBsxStatAaSubStatsInterval specifies the interval for the retrieval of application assurance subscriber statistics.
termFlowDuration	UINT128	tmnxBsxStatAaSubHCTermFlwDur	The value of tmnxBsxStatAaSubHCTermFlwDur indicates the sum of all flow durations from first packet seen to last packet seen for flows that have terminated. This object is a 64-bit version of tmnxBsxStatAaSubTermFlwDur.
termFlows	UINT128	tmnxBsxStatAaSubHCTermFlws	The value of tmnxBsxStatAaSubHCTermFlws indicates the total number of allowed flows that have terminated. This object is a 64-bit version of tmnxBsxStatAaSubTermFlws.
<b>BsxSapCustRecAppStats</b> MIB table name: TIMETRA-BSX-NG-MIB.tmnxBsxStatAaSubTable Monitored class: service.AccessInterface			
activeFlowsFromSub	long	tmnxBsxStatAaSubActFlwsFmSb	The value of tmnxBsxStatAaSubActFlwsFmSb indicates the number of allowed flows in the subscriber to network direction that are active.
activeFlowsToSub	long	tmnxBsxStatAaSubActFlwsToSb	The value of tmnxBsxStatAaSubActFlwsToSb indicates the number of allowed flows in the network to subscriber direction that are active.

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5620 SAM counter name	Type	MIB counter name	Description
durationFlowsLong	UINT128	tmnxBsxStatAaSubHCLngDurFlws	The value of tmnxBsxStatAaSubHCLngDurFlws indicates the total number of flows with a duration greater than 180 seconds, that have completed. This object is a 64-bit version of tmnxBsxStatAaSubLngDurFlws.
durationFlowsMedium	UINT128	tmnxBsxStatAaSubHCLMedDurFlws	The value of tmnxBsxStatAaSubHCLMedDurFlws indicates the total number of flows with a duration less than or equal to 180 seconds, but greater than 30 seconds, that have completed. This object is a 64-bit version of tmnxBsxStatAaSubMedDurFlws.
durationFlowsShort	UINT128	tmnxBsxStatAaSubHCLShrtDurFlws	The value of tmnxBsxStatAaSubHCLShrtDurFlws indicates the total number of flows with a duration less than or equal to 30 seconds, that have completed. This object is a 64-bit version of tmnxBsxStatAaSubShrtDurFlws.
flowsAdmitFromSub	UINT128	tmnxBsxStatAaSubHCLFlwsAdmFmSb	The value of tmnxBsxStatAaSubHCLFlwsAdmFmSb indicates the total number of flows permitted for the subscriber to network direction. This object is a 64-bit version of tmnxBsxStatAaSubFlwsAdmFmSb.
flowsAdmitToSub	UINT128	tmnxBsxStatAaSubHCLFlwsAdmToSb	The value of tmnxBsxStatAaSubHCLFlwsAdmToSb indicates the total number of flows permitted for the network to subscriber direction. This object is a 64-bit version of tmnxBsxStatAaSubFlwsAdmToSb.
flowsDenyFromSub	UINT128	tmnxBsxStatAaSubHCLFlwsDnyFmSb	The value of tmnxBsxStatAaSubHCLFlwsDnyFmSb indicates the total number of flows that dropped subsequent packets in the subscriber to network direction. This object is a 64-bit version of tmnxBsxStatAaSubFlwsDnyFmSb.
flowsDenyToSub	UINT128	tmnxBsxStatAaSubHCLFlwsDnyToSb	The value of tmnxBsxStatAaSubHCLFlwsDnyToSb indicates the total number of flows that dropped subsequent packets in the network to subscriber direction. This object is the 64-bit version of tmnxBsxStatAaSubFlwsDnyToSb.
octsAdmitFromSub	UINT128	tmnxBsxStatAaSubHCOctsAdmFmSb	The value of tmnxBsxStatAaSubHCOctsAdmFmSb indicates the total number of bytes permitted for the subscriber to network direction. This object is a 64-bit version of tmnxBsxStatAaSubOctsAdmFmSb.
octsAdmitToSub	UINT128	tmnxBsxStatAaSubHCOctsAdmToSb	The value of tmnxBsxStatAaSubHCOctsAdmToSb indicates the total number of bytes permitted for the network to subscriber direction. This object is a 64-bit version of tmnxBsxStatAaSubOctsAdmToSb.

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5620 SAM counter name	Type	MIB counter name	Description
octsDenyFromSub	UINT128	tmnxBsxStatAaSubHCOctsDnyFmSb	The value of tmnxBsxStatAaSubHCOctsDnyFmSb indicates the total number of bytes dropped for the subscriber to network direction. This object is a 64-bit version of tmnxBsxStatAaSubOctsDnyFmSb.
octsDenyToSub	UINT128	tmnxBsxStatAaSubHCOctsDnyToSb	The value of tmnxBsxStatAaSubHCOctsDnyToSb indicates the total number of bytes dropped for the network to subscriber direction. This object is a 64-bit version of tmnxBsxStatAaSubOctsDnyToSb.
pktsAdmitFromSub	UINT128	tmnxBsxStatAaSubHCPktsAdmFmSb	The value of tmnxBsxStatAaSubHCPktsAdmFmSb indicates the total number of packets permitted for the subscriber to network direction. This object is a 64-bit version of tmnxBsxStatAaSubPktsAdmFmSb.
pktsAdmitToSub	UINT128	tmnxBsxStatAaSubHCPktsAdmToSb	The value of tmnxBsxStatAaSubHCPktsAdmToSb indicates the total number of packets permitted for the network to subscriber direction. This object is a 64-bit version of tmnxBsxStatAaSubPktsAdmToSb.
pktsDenyFromSub	UINT128	tmnxBsxStatAaSubHCPktsDnyFmSb	The value of tmnxBsxStatAaSubHCPktsDnyFmSb indicates the total number of packets dropped for the subscriber to network direction. This object is a 64-bit version of tmnxBsxStatAaSubPktsDnyFmSb.
pktsDenyToSub	UINT128	tmnxBsxStatAaSubHCPktsDnyToSb	The value of tmnxBsxStatAaSubHCPktsDnyToSb indicates the total number of packets dropped for the network to subscriber direction. This object is a 64-bit version of tmnxBsxStatAaSubPktsDnyToSb.
statsInterval	int	tmnxBsxStatAaSubStatsInterval	The tmnxBsxStatAaSubStatsInterval specifies the interval for the retrieval of application assurance subscriber statistics.
termFlowDuration	UINT128	tmnxBsxStatAaSubHCTermFlwDur	The value of tmnxBsxStatAaSubHCTermFlwDur indicates the sum of all flow durations from first packet seen to last packet seen for flows that have terminated. This object is a 64-bit version of tmnxBsxStatAaSubTermFlwDur.
termFlows	UINT128	tmnxBsxStatAaSubHCTermFlws	The value of tmnxBsxStatAaSubHCTermFlws indicates the total number of allowed flows that have terminated. This object is a 64-bit version of tmnxBsxStatAaSubTermFlws.
<b>BsxSapCustRecProtStats</b> MIB table name: TIMETRA-BSX-NG-MIB.tmnxBsxStatAaSubTable Monitored class: service.AccessInterface			

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5620 SAM counter name	Type	MIB counter name	Description
activeFlowsFromSub	long	tmnxBsxStatAaSubActFlwsFmSb	The value of tmnxBsxStatAaSubActFlwsFmSb indicates the number of allowed flows in the subscriber to network direction that are active.
activeFlowsToSub	long	tmnxBsxStatAaSubActFlwsToSb	The value of tmnxBsxStatAaSubActFlwsToSb indicates the number of allowed flows in the network to subscriber direction that are active.
durationFlowsLong	UINT128	tmnxBsxStatAaSubHCLngDurFlws	The value of tmnxBsxStatAaSubHCLngDurFlws indicates the total number of flows with a duration greater than 180 seconds, that have completed. This object is a 64-bit version of tmnxBsxStatAaSubLngDurFlws.
durationFlowsMedium	UINT128	tmnxBsxStatAaSubHCMedDurFlws	The value of tmnxBsxStatAaSubHCMedDurFlws indicates the total number of flows with a duration less than or equal to 180 seconds, but greater than 30 seconds, that have completed. This object is a 64-bit version of tmnxBsxStatAaSubMedDurFlws.
durationFlowsShort	UINT128	tmnxBsxStatAaSubHCShrtDurFlws	The value of tmnxBsxStatAaSubHCShrtDurFlws indicates the total number of flows with a duration less than or equal to 30 seconds, that have completed. This object is a 64-bit version of tmnxBsxStatAaSubShrtDurFlws.
flowsAdmitFromSub	UINT128	tmnxBsxStatAaSubHCFlwsAdmFmSb	The value of tmnxBsxStatAaSubHCFlwsAdmFmSb indicates the total number of flows permitted for the subscriber to network direction. This object is a 64-bit version of tmnxBsxStatAaSubFlwsAdmFmSb.
flowsAdmitToSub	UINT128	tmnxBsxStatAaSubHCFlwsAdmToSb	The value of tmnxBsxStatAaSubHCFlwsAdmToSb indicates the total number of flows permitted for the network to subscriber direction. This object is a 64-bit version of tmnxBsxStatAaSubFlwsAdmToSb.
flowsDenyFromSub	UINT128	tmnxBsxStatAaSubHCFlwsDnyFmSb	The value of tmnxBsxStatAaSubHCFlwsDnyFmSb indicates the total number of flows that dropped subsequent packets in the subscriber to network direction. This object is a 64-bit version of tmnxBsxStatAaSubFlwsDnyFmSb.
flowsDenyToSub	UINT128	tmnxBsxStatAaSubHCFlwsDnyToSb	The value of tmnxBsxStatAaSubHCFlwsDnyToSb indicates the total number of flows that dropped subsequent packets in the network to subscriber direction. This object is the 64-bit version of tmnxBsxStatAaSubFlwsDnyToSb.

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5620 SAM counter name	Type	MIB counter name	Description
octsAdmitFromSub	UINT128	tmnxBsxStatAaSubHCOctsAdmFmSb	The value of tmnxBsxStatAaSubHCOctsAdmFmSb indicates the total number of bytes permitted for the subscriber to network direction. This object is a 64-bit version of tmnxBsxStatAaSubOctsAdmFmSb.
octsAdmitToSub	UINT128	tmnxBsxStatAaSubHCOctsAdmToSb	The value of tmnxBsxStatAaSubHCOctsAdmToSb indicates the total number of bytes permitted for the network to subscriber direction. This object is a 64-bit version of tmnxBsxStatAaSubOctsAdmToSb.
octsDenyFromSub	UINT128	tmnxBsxStatAaSubHCOctsDnyFmSb	The value of tmnxBsxStatAaSubHCOctsDnyFmSb indicates the total number of bytes dropped for the subscriber to network direction. This object is a 64-bit version of tmnxBsxStatAaSubOctsDnyFmSb.
octsDenyToSub	UINT128	tmnxBsxStatAaSubHCOctsDnyToSb	The value of tmnxBsxStatAaSubHCOctsDnyToSb indicates the total number of bytes dropped for the network to subscriber direction. This object is a 64-bit version of tmnxBsxStatAaSubOctsDnyToSb.
pktsAdmitFromSub	UINT128	tmnxBsxStatAaSubHCPktsAdmFmSb	The value of tmnxBsxStatAaSubHCPktsAdmFmSb indicates the total number of packets permitted for the subscriber to network direction. This object is a 64-bit version of tmnxBsxStatAaSubPktsAdmFmSb.
pktsAdmitToSub	UINT128	tmnxBsxStatAaSubHCPktsAdmToSb	The value of tmnxBsxStatAaSubHCPktsAdmToSb indicates the total number of packets permitted for the network to subscriber direction. This object is a 64-bit version of tmnxBsxStatAaSubPktsAdmToSb.
pktsDenyFromSub	UINT128	tmnxBsxStatAaSubHCPktsDnyFmSb	The value of tmnxBsxStatAaSubHCPktsDnyFmSb indicates the total number of packets dropped for the subscriber to network direction. This object is a 64-bit version of tmnxBsxStatAaSubPktsDnyFmSb.
pktsDenyToSub	UINT128	tmnxBsxStatAaSubHCPktsDnyToSb	The value of tmnxBsxStatAaSubHCPktsDnyToSb indicates the total number of packets dropped for the network to subscriber direction. This object is a 64-bit version of tmnxBsxStatAaSubPktsDnyToSb.
statsInterval	int	tmnxBsxAaSubStatsInterval	The tmnxBsxAaSubStatsInterval specifies the interval for the retrieval of application assurance subscriber statistics.

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5620 SAM counter name	Type	MIB counter name	Description
termFlowDuration	UINT128	tmnxBsxStatAaSubHCTermFlwDur	The value of tmnxBsxStatAaSubHCTermFlwDur indicates the sum of all flow durations from first packet seen to last packet seen for flows that have terminated. This object is a 64-bit version of tmnxBsxStatAaSubTermFlwDur.
termFlows	UINT128	tmnxBsxStatAaSubHCTermFlws	The value of tmnxBsxStatAaSubHCTermFlws indicates the total number of allowed flows that have terminated. This object is a 64-bit version of tmnxBsxStatAaSubTermFlws.
<b>BsxSapStudyAppStats</b> MIB table name: TIMETRA-BSX-NG-MIB.tmnxBsxStatAaSubSdyTable Monitored class: service.AccessInterface			
activeFlowsFromSub	long	tmnxBsxStatAaSubSdyActFlwsFmSb	The value of tmnxBsxStatAaSubSdyActFlwsFmSb indicates the number of allowed flows in the subscriber to network direction that are active.
activeFlowsToSub	long	tmnxBsxStatAaSubSdyActFlwsToSb	The value of tmnxBsxStatAaSubSdyActFlwsToSb indicates the number of allowed flows in the network to subscriber direction that are active.
durationFlowsLong	UINT128	tmnxBsxStatAaSubSdyHCLngDurFlws	The value of tmnxBsxStatAaSubSdyHCLngDurFlws indicates the total number of flows with a duration greater than 180 seconds, that have completed. This object is a 64-bit version of tmnxBsxStatAaSubSdyLngDurFlws.
durationFlowsMedium	UINT128	tmnxBsxStatAaSubSdyHCMedDurFlws	The value of tmnxBsxStatAaSubSdyHCMedDurFlws indicates the total number of flows with a duration less than or equal to 180 seconds, but greater than 30 seconds, that have completed. This object is a 64-bit version of tmnxBsxStatAaSubSdyMedDurFlws.
durationFlowsShort	UINT128	tmnxBsxStatAaSubSdyHCSHrtDurFlws	The value of tmnxBsxStatAaSubSdyHCSHrtDurFlws indicates the total number of flows with a duration less than or equal to 30 seconds, that have completed. This object is a 64-bit version of tmnxBsxStatAaSubSdyShrtDurFlws.
flowsAdmitFromSub	UINT128	tmnxBsxStatAaSubSdyHCFFlwsAdmFmSb	The value of tmnxBsxStatAaSubSdyHCFFlwsAdmFmSb indicates the total number of flows permitted for the subscriber to network direction. This object is a 64-bit version of tmnxBsxStatAaSubSdyFlwsAdmFmSb.

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5620 SAM counter name	Type	MIB counter name	Description
flowsAdmitToSub	UINT128	tmnxBsxStatAaSubSdyHCF lwsAdmToSb	The value of tmnxBsxStatAaSubSdyHCFlwsAdmToSb indicates the total number of flows permitted for the network to subscriber direction. This object is a 64-bit version of tmnxBsxStatAaSubSdyFlwsAdmToSb.
flowsDenyFromSub	UINT128	tmnxBsxStatAaSubSdyHCF lwsDnyFmSb	The value of tmnxBsxStatAaSubSdyHCFlwsDnyFmSb indicates the total number of flows that dropped subsequent packets in the subscriber to network direction. This object is a 64-bit version of tmnxBsxStatAaSubSdyFlwsDnyFmSb.
flowsDenyToSub	UINT128	tmnxBsxStatAaSubSdyHCF lwsDnyToSb	The value of tmnxBsxStatAaSubSdyHCFlwsDnyToSb indicates the total number of flows that dropped subsequent packets in the network to subscriber direction. This object is a 64-bit version of tmnxBsxStatAaSubSdyFlwsDnyToSb.
octsAdmitFromSub	UINT128	tmnxBsxStatAaSubSdyHC OctsAdmFmSb	The value of tmnxBsxStatAaSubSdyHCOctsAdmFmSb indicates the total number of bytes permitted for the subscriber to network direction. This object is a 64-bit version of tmnxBsxStatAaSubSdyOctsAdmFmSb.
octsAdmitFromSub	UINT128	tmnxBsxStatAaSubSdyOct sAdmFmSb	The value of tmnxBsxStatAaSubSdyOctsAdmFmSb indicates the total number of bytes permitted for the subscriber to network direction.
octsAdmitToSub	UINT128	tmnxBsxStatAaSubSdyHC OctsAdmToSb	The value of tmnxBsxStatAaSubSdyHCOctsAdmToSb indicates the total number of bytes permitted for the network to subscriber direction. This object is a 64-bit version of tmnxBsxStatAaSubSdyOctsAdmToSb.
octsDenyFromSub	UINT128	tmnxBsxStatAaSubSdyHC OctsDnyFmSb	The value of tmnxBsxStatAaSubSdyHCOctsDnyFmSb indicates the total number of bytes dropped for the subscriber to network direction. This object is a 64-bit version of tmnxBsxStatAaSubSdyOctsDnyFmSb.
octsDenyToSub	UINT128	tmnxBsxStatAaSubSdyHC OctsDnyToSb	The value of tmnxBsxStatAaSubSdyHCOctsDnyToSb indicates the total number of bytes dropped for the network to subscriber direction. This object is a 64-bit version of tmnxBsxStatAaSubSdyOctsDnyToSb.
pktsAdmitFromSub	UINT128	tmnxBsxStatAaSubSdyHC PktsAdmFmSb	The value of tmnxBsxStatAaSubSdyHCPktsAdmFmSb indicates the total number of packets permitted for the subscriber to network direction. This object is a 64-bit version of tmnxBsxStatAaSubSdyPktsAdmFmSb.

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5620 SAM counter name	Type	MIB counter name	Description
pktsAdmitToSub	UINT128	tmnxBsxStatAaSubSdyHCPktsAdmToSb	The value of tmnxBsxStatAaSubSdyHCPktsAdmToSb indicates the total number of packets permitted for the network to subscriber direction. This object is a 64-bit version of tmnxBsxStatAaSubSdyPktsAdmToSb.
pktsDenyFromSub	UINT128	tmnxBsxStatAaSubSdyHCPktsDnyFmSb	The value of tmnxBsxStatAaSubSdyHCPktsDnyFmSb indicates the total number of packets dropped for the subscriber to network direction. This object is a 64-bit version of tmnxBsxStatAaSubSdyPktsDnyFmSb.
pktsDenyToSub	UINT128	tmnxBsxStatAaSubSdyHCPktsDnyToSb	The value of tmnxBsxStatAaSubSdyHCPktsDnyToSb indicates the total number of packets dropped for the network to subscriber direction. This object is a 64-bit version of tmnxBsxStatAaSubSdyPktsDnyToSb.
termFlowDuration	UINT128	tmnxBsxStatAaSubSdyHCTermFlwDur	The value of tmnxBsxStatAaSubSdyHCTermFlwDur indicates the sum of all flow durations from first packet seen to last packet seen for flows that have terminated. This object is a 64-bit version of tmnxBsxStatAaSubSdyTermFlwDur.
termFlows	UINT128	tmnxBsxStatAaSubSdyHCTermFlws	The value of tmnxBsxStatAaSubSdyHCTermFlws indicates the total number of allowed flows that have terminated. This object is a 64-bit version of tmnxBsxStatAaSubSdyTermFlws.
<b>BsxSapStudyProtStats</b> MIB table name: TIMETRA-BSX-NG-MIB.tmnxBsxStatAaSubSdyTable Monitored class: service.AccessInterface			
activeFlowsFromSub	long	tmnxBsxStatAaSubSdyActFlwsFmSb	The value of tmnxBsxStatAaSubSdyActFlwsFmSb indicates the number of allowed flows in the subscriber to network direction that are active.
activeFlowsToSub	long	tmnxBsxStatAaSubSdyActFlwsToSb	The value of tmnxBsxStatAaSubSdyActFlwsToSb indicates the number of allowed flows in the network to subscriber direction that are active.
durationFlowsLong	UINT128	tmnxBsxStatAaSubSdyHCLngDurFlws	The value of tmnxBsxStatAaSubSdyHCLngDurFlws indicates the total number of flows with a duration greater than 180 seconds, that have completed. This object is a 64-bit version of tmnxBsxStatAaSubSdyLngDurFlws.

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5620 SAM counter name	Type	MIB counter name	Description
durationFlowsMedium	UINT128	tmnxBsxStatAaSubSdyHCMedDurFlws	The value of tmnxBsxStatAaSubSdyHCMedDurFlws indicates the total number of flows with a duration less than or equal to 180 seconds, but greater than 30 seconds, that have completed. This object is a 64-bit version of tmnxBsxStatAaSubSdyMedDurFlws.
durationFlowsShort	UINT128	tmnxBsxStatAaSubSdyHCShtDurFlws	The value of tmnxBsxStatAaSubSdyHCShtDurFlws indicates the total number of flows with a duration less than or equal to 30 seconds, that have completed. This object is a 64-bit version of tmnxBsxStatAaSubSdyHCShtDurFlws.
flowsAdmitFromSub	UINT128	tmnxBsxStatAaSubSdyHCF lwsAdmFmSb	The value of tmnxBsxStatAaSubSdyHCF lwsAdmFmSb indicates the total number of flows permitted for the subscriber to network direction. This object is a 64-bit version of tmnxBsxStatAaSubSdyFlwsAdmFmSb.
flowsAdmitToSub	UINT128	tmnxBsxStatAaSubSdyHCF lwsAdmToSb	The value of tmnxBsxStatAaSubSdyHCF lwsAdmToSb indicates the total number of flows permitted for the network to subscriber direction. This object is a 64-bit version of tmnxBsxStatAaSubSdyFlwsAdmToSb.
flowsDenyFromSub	UINT128	tmnxBsxStatAaSubSdyHCF lwsDnyFmSb	The value of tmnxBsxStatAaSubSdyHCF lwsDnyFmSb indicates the total number of flows that dropped subsequent packets in the subscriber to network direction. This object is a 64-bit version of tmnxBsxStatAaSubSdyFlwsDnyFmSb.
flowsDenyToSub	UINT128	tmnxBsxStatAaSubSdyHCF lwsDnyToSb	The value of tmnxBsxStatAaSubSdyHCF lwsDnyToSb indicates the total number of flows that dropped subsequent packets in the network to subscriber direction. This object is a 64-bit version of tmnxBsxStatAaSubSdyFlwsDnyToSb.
octsAdmitFromSub	UINT128	tmnxBsxStatAaSubSdyHCOctsAdmFmSb	The value of tmnxBsxStatAaSubSdyHCOctsAdmFmSb indicates the total number of bytes permitted for the subscriber to network direction. This object is a 64-bit version of tmnxBsxStatAaSubSdyOctsAdmFmSb.
octsAdmitFromSub	UINT128	tmnxBsxStatAaSubSdyOct sAdmFmSb	The value of tmnxBsxStatAaSubSdyOctsAdmFmSb indicates the total number of bytes permitted for the subscriber to network direction.
octsAdmitToSub	UINT128	tmnxBsxStatAaSubSdyHCOctsAdmToSb	The value of tmnxBsxStatAaSubSdyHCOctsAdmToSb indicates the total number of bytes permitted for the network to subscriber direction. This object is a 64-bit version of tmnxBsxStatAaSubSdyOctsAdmToSb.

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5620 SAM counter name	Type	MIB counter name	Description
octsDenyFromSub	UINT128	tmnxBsxStatAaSubSdyHCOctsDnyFmSb	The value of tmnxBsxStatAaSubSdyHCOctsDnyFmSb indicates the total number of bytes dropped for the subscriber to network direction. This object is a 64-bit version of tmnxBsxStatAaSubSdyOctsDnyFmSb.
octsDenyToSub	UINT128	tmnxBsxStatAaSubSdyHCOctsDnyToSb	The value of tmnxBsxStatAaSubSdyHCOctsDnyToSb indicates the total number of bytes dropped for the network to subscriber direction. This object is a 64-bit version of tmnxBsxStatAaSubSdyOctsDnyToSb.
pktsAdmitFromSub	UINT128	tmnxBsxStatAaSubSdyHCPktsAdmFmSb	The value of tmnxBsxStatAaSubSdyHCPktsAdmFmSb indicates the total number of packets permitted for the subscriber to network direction. This object is a 64-bit version of tmnxBsxStatAaSubSdyPktsAdmFmSb.
pktsAdmitToSub	UINT128	tmnxBsxStatAaSubSdyHCPktsAdmToSb	The value of tmnxBsxStatAaSubSdyHCPktsAdmToSb indicates the total number of packets permitted for the network to subscriber direction. This object is a 64-bit version of tmnxBsxStatAaSubSdyPktsAdmToSb.
pktsDenyFromSub	UINT128	tmnxBsxStatAaSubSdyHCPktsDnyFmSb	The value of tmnxBsxStatAaSubSdyHCPktsDnyFmSb indicates the total number of packets dropped for the subscriber to network direction. This object is a 64-bit version of tmnxBsxStatAaSubSdyPktsDnyFmSb.
pktsDenyToSub	UINT128	tmnxBsxStatAaSubSdyHCPktsDnyToSb	The value of tmnxBsxStatAaSubSdyHCPktsDnyToSb indicates the total number of packets dropped for the network to subscriber direction. This object is a 64-bit version of tmnxBsxStatAaSubSdyPktsDnyToSb.
protName	String	tmnxBsxStatAaName	The value of tmnxBsxStatAaName specifies either the ISA-AA protocol, application or app-group name for which statistics are requested. The tmnxBsxStatAaType is used to determine the statistics type.
termFlowDuration	UINT128	tmnxBsxStatAaSubSdyHCTermFlwDur	The value of tmnxBsxStatAaSubSdyHCTermFlwDur indicates the sum of all flow durations from first packet seen to last packet seen for flows that have terminated. This object is a 64-bit version of tmnxBsxStatAaSubSdyTermFlwDur.
termFlows	UINT128	tmnxBsxStatAaSubSdyHCTermFlws	The value of tmnxBsxStatAaSubSdyHCTermFlws indicates the total number of allowed flows that have terminated. This object is a 64-bit version of tmnxBsxStatAaSubSdyTermFlws.

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Table A-3 aclfilter statistics

5620 SAM counter name	Type	MIB counter name	Description
<b>HitCountStats</b> MIB table name: TIMETRA-FILTER-MIB.tIPFilterParamsTable Monitored class: aclfilter.IpFilterEntry			
egressHitByteCount	UINT128	tIPFilterParamsEgrHitByteCount	The value of tIPFilterParamsEgrHitByteCount indicates the number of bytes of all egress packets that matched this entry.
egressHitCount	UINT128	tIPFilterParamsEgressHitCount	This object indicates the number of times an egress packet matched this entry.
ingressHitByteCount	UINT128	tIPFilterParamsIngrHitByteCount	The value of tIPFilterParamsIngrHitByteCount indicates the number of bytes of all ingress packets that matched this entry.
ingressHitCount	UINT128	tIPFilterParamsIngressHitCount	This object indicates the number of times an ingress packet matched this entry.
<b>Ipv6HitCountStats</b> MIB table name: TIMETRA-FILTER-MIB.tIPv6FilterParamsTable Monitored class: aclfilter.Ipv6FilterEntry			
egressHitByteCount	UINT128	tIPv6FilterParamsEgrHitByteCount	This tIPv6FilterParamsEgrHitByteCount indicates the number of bytes of all egress packets that matched this entry.
egressHitCount	UINT128	tIPv6FilterParamsEgressHitCount	This object indicates the number of times an egress packet matched this entry.
ingressHitByteCount	UINT128	tIPv6FilterParamsIngrHitByteCount	The value of tIPv6FilterParamsIngrHitByteCount indicates the number of bytes of all ingress packets that matched this entry.
ingressHitCount	UINT128	tIPv6FilterParamsIngressHitCount	This object indicates the number of times an ingress packet matched this entry.
<b>MacHitCountStats</b> MIB table name: TIMETRA-FILTER-MIB.tMacFilterParamsTable Monitored class: aclfilter.MacFilterEntry			
egressHitByteCount	UINT128	tMacFilterParamsEgrHitByteCount	The value of tMacFilterParamsEgrHitByteCount indicates the number of bytes of all egress packets that matched this entry.
egressHitCount	UINT128	tMacFilterParamsEgressHitCount	This object indicates the number of times an egress packet matched this entry.
ingressHitByteCount	UINT128	tMacFilterParamsIngrHitByteCount	The value of tMacFilterParamsIngrHitByteCount indicates the number of bytes of all ingress packets that matched this entry.
ingressHitCount	UINT128	tMacFilterParamsIngressHitCount	This object indicates the number of times an ingress packet matched this entry.

Table A-4 aps statistics

5620 SAM counter name	Type	MIB counter name	Description
<b>ApsChannelStats</b> MIB table name: APS-MIB.apsChanStatusTable Monitored class: aps.ApsChannel			
discontinuityTime	long	apsChanStatusDiscontinuityTime	The value of sysUpTime on the most recent occasion at which any one or more of this channel's counters suffered a discontinuity. The relevant counters are the specific instances associated with this channel of any Counter32 object contained in apsChanStatusTable. If no such discontinuities have occurred since the last re-initialization of the local management subsystem, then this object contains a zero value.
lastSwitchover	long	apsChanStatusLastSwitchover	When queried with index value apsChanConfigNumber other than 0, this object will return the value of sysUpTime when this channel last completed a switch to the protection line. If this channel has never switched to the protection line, the value 0 will be returned. When queried with index value apsChanConfigNumber set to 0, which is the protection line, this object will return the value of sysUpTime the last time that a working channel was switched back to the working line from this protection line. If no working channel has ever switched back to the working line from this protection line, the value 0 will be returned.
signalDegrades	long	apsChanStatusSignalDegrades	A count of Signal Degrade conditions. This condition occurs when the line Bit Error Rate exceeds the currently configured value of the relevant instance of apsConfigSdBerThreshold. Discontinuities in the value of this counter can occur at re-initialization of the management system, and at other times as indicated by the value of apsChanStatusDiscontinuityTime.
signalFailures	long	apsChanStatusSignalFailures	A count of Signal Failure conditions that have been detected on the incoming signal. This condition occurs when a loss of signal, loss of frame, AIS-L or a Line bit error rate exceeding the currently configured value of the relevant instance of apsConfigSfBerThreshold. Discontinuities in the value of this counter can occur at re-initialization of the management system, and at other times as indicated by the value of apsChanStatusDiscontinuityTime.

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5620 SAM counter name	Type	MIB counter name	Description
switchovers	long	apsChanStatusSwitchovers	When queried with index value apsChanConfigNumber other than 0, this object will return the number of times this channel has switched to the protection line. When queried with index value apsChanConfigNumber set to 0, which is the protection line, this object will return the number of times that any working channel has been switched back to the working line from this protection line. Discontinuities in the value of this counter can occur at re-initialization of the management system, and at other times as indicated by the value of apsChanStatusDiscontinuityTime.
switchoverSeconds	long	apsChanStatusSwitchoverSeconds	The cumulative Protection Switching Duration (PSD) time in seconds. For a working channel, this is the cumulative number of seconds that service was carried on the protection line. For the protection line, this is the cumulative number of seconds that the protection line has been used to carry any working channel traffic. This information is only valid if revertive switching is enabled. The value 0 will be returned otherwise. Discontinuities in the value of this counter can occur at re-initialization of the management system, and at other times as indicated by the value of apsChanStatusDiscontinuityTime. For example, if the value of an instance of apsChanStatusSwitchoverSeconds changes from a non-zero value to zero due to revertive switching being disabled, it is expected that the corresponding value of apsChanStatusDiscontinuityTime will be updated to reflect the time of the configuration change.
<b>ApsGroupStats</b> MIB table name: APS-MIB.apsStatusTable Monitored class: aps.ApsGroup			
channelMismatches	long	apsStatusChannelMismatches	A count of Channel Mismatch conditions. Discontinuities in the value of this counter can occur at re-initialization of the management system, and at other times as indicated by the value of apsStatusDiscontinuityTime.
discontinuityTime	long	apsStatusDiscontinuityTime	The value of sysUpTime on the most recent occasion at which any one or more of this APS group's counters suffered a discontinuity. The relevant counters are the specific instances associated with this APS group of any Counter32 object contained in apsStatusTable. If no such discontinuities have occurred since the last re-initialization of the local management subsystem, then this object contains a zero value.

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5620 SAM counter name	Type	MIB counter name	Description
fePLFs	long	apsStatusFEPLFs	A count of Far-End Protection-Line Failure conditions. This condition is declared based on receiving SF on the protection line in the K1 byte. Discontinuities in the value of this counter can occur at re-initialization of the management system, and at other times as indicated by the value of apsStatusDiscontinuityTime.
modeMismatches	long	apsStatusModeMismatches	A count of Mode Mismatch conditions. Discontinuities in the value of this counter can occur at re-initialization of the management system, and at other times as indicated by the value of apsStatusDiscontinuityTime.
pSBFs	long	apsStatusPSBFs	A count of Protection Switch Byte Failure conditions. This condition occurs when either an inconsistent APS byte or an invalid code is detected. An inconsistent APS byte occurs when no three consecutive K1 bytes of the last 12 successive frames are identical, starting with the last frame containing a previously consistent byte. An invalid code occurs when the incoming K1 byte contains an unused code or a code irrelevant for the specific switching operation (e.g., Reverse Request while no switching request is outstanding) in three consecutive frames. An invalid code also occurs when the incoming K1 byte contains an invalid channel number in three consecutive frames. Discontinuities in the value of this counter can occur at re-initialization of the management system, and at other times as indicated by the value of apsStatusDiscontinuityTime.

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Table A-5 arp statistics

5620 SAM counter name	Type	MIB counter name	Description
<b>SapArpHostStats</b> MIB table name: TIMETRA-SAP-MIB.sapArpHostStatTable Monitored classes: <ul style="list-style-type: none"> <li>vpls.AbstractL2AccessInterface</li> <li>ies.ServiceAccessPoint</li> <li>vprn.ServiceAccessPoint</li> </ul>			
numAuthReq	long	sapArpHostStatNumAuthReq	The value of sapArpHostStatNumAuthReq indicates the number of times that the system initiated an authentication request for an ARP host on this SAP since the last re-initialization of the local network management subsystem, or the last time the system statistics were cleared.

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5620 SAM counter name	Type	MIB counter name	Description
numCreated	long	sapArpHostStatNumCreated	The value of sapArpHostStatNumCreated indicates the number of times that an ARP host was created on this SAP since the last re-initialization of the local network management subsystem, or the last time the system statistics were cleared.
numDeleted	long	sapArpHostStatNumDeleted	The value of sapArpHostStatNumDeleted indicates the number of times that an ARP host was deleted on this SAP since the last re-initialization of the local network management subsystem, or the last time the system statistics were cleared.
numForcedVerif	long	sapArpHostStatNumForcedVerif	The value of sapArpHostStatNumForcedVerif indicates the number of times that the system started a forced subscriber host connectivity verification for an ARP host on this SAP since the last re-initialization of the local network management subsystem, or the last time the system statistics were cleared.
numHosts	long	sapArpHostStatNumHosts	The value of sapArpHostStatNumHosts indicates the actual number of ARP hosts on this SAP.
numUpdated	long	sapArpHostStatNumUpdated	The value of sapArpHostStatNumUpdated indicates the number of times that an ARP host was updated on this SAP since the last re-initialization of the local network management subsystem, or the last time the system statistics were cleared.
triggersIgnored	long	sapArpHostStatTriggersIgnored	The value of sapArpHostStatTriggersIgnored indicates the number of ARP triggers received on this SAP that did not result in the creation of a new ARP host since the last re-initialization of the local network management subsystem, or the last time the system statistics were cleared. This number does not include the number indicated by sapArpHostStatTrigIgnQFull.
triggersRx	long	sapArpHostStatTriggersRx	The value of sapArpHostStatTriggersRx indicates the number of ARP triggers received on this SAP since the last re-initialization of the local network management subsystem, or the last time the system statistics were cleared.
trigIgnQFull	long	sapArpHostStatTrigIgnQFull	The value of sapArpHostStatTrigIgnQFull indicates the number of ARP triggers received on this SAP that did not result in the creation of a new ARP host because the internal ARP trigger event queue of the system was full, since the last re-initialization of the local network management subsystem, or the last time the system statistics were cleared.

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Table A-6 atm statistics

5620 SAM counter name	Type	MIB counter name	Description
<b>AtmIfcStatistics</b> MIB table name: TIMETRA-ATM-MIB.tAtmIfcStatisticsTable Monitored class: atm.IfConnection			
tAtmIfcStatsDrpCellsRxd	long	tAtmIfcStatsDrpCellsRxd	The value of tAtmIfcStatsDrpCellsRxd indicates the number of all policer cells discards (CLP=0+1) of the IFC. This excludes any buffer management discards (if applicable).
tAtmIfcStatsDrpClp0CellsRxd	long	tAtmIfcStatsDrpClp0CellsRxd	The value of tAtmIfcStatsDrpClp0CellsRxd indicates the number of all policer CLP=0 cells discards of the IFC. This excludes any buffer management discards (if applicable).
tAtmIfcStatsDrpClp0CellsTxd	long	tAtmIfcStatsDrpClp0CellsTxd	The value of tAtmIfcStatsDrpClp0CellsTxd indicates the number of all CLP=0 cells discards of this IFC. This includes both discards due to buffer management and policer.
tAtmIfcStatsTagCells	long	tAtmIfcStatsTagCells	The value of tAtmIfcStatsTagCells indicates the number of tagged CLP=0 cells of the IFC. The egress may or may not discard these cells.
tAtmIfcStatsTotalBytesRxd	UINT128	tAtmIfcStatsTotalBytesTxd	The value of tAtmIfcStatsTotalBytesTxd indicates the number of bytes transmitted by this IFC. This is the number of tAtmIfcStatsTotalCellsTxd multiplied by 53.
tAtmIfcStatsTotalBytesTxd	UINT128	tAtmIfcStatsTotalBytesRxd	The value of tAtmIfcStatsTotalBytesRxd indicates the number of bytes received by this IFC. This is the number of tAtmIfcStatsTotalCellsRxd multiplied by 53.
tAtmIfcStatsTotalCellsRxd	UINT128	tAtmIfcStatsTotalCellsRxd	The value of tAtmIfcStatsTotalCellsRxd indicates the number of valid ATM cells received by the IFC including both CLP=0 and CLP=1 cells. If traffic policing is implemented, then cells are counted prior to the application of traffic policing.
tAtmIfcStatsTotalCellsTxd	UINT128	tAtmIfcStatsTotalCellsTxd	The value of tAtmIfcStatsTotalCellsTxd indicates the number of valid ATM cells transmitted by the IFC including both CLP=0 and CLP=1 cells. If traffic policing is implemented, then cells are counted prior to the application of traffic policing.
tAtmIfcStatsTotalClp0CellsRxd	UINT128	tAtmIfcStatsTotalClp0CellsRxd	The value of tAtmIfcStatsTotalClp0CellsRxd indicates the number of valid ATM CLP=0 cells received by the IFC. If traffic policing is implemented, then cells are counted prior to the application of traffic policing.

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5620 SAM counter name	Type	MIB counter name	Description
tAtmIfcStatsTotalClp0CellsTxd	UINT128	tAtmIfcStatsTotalClp0CellsTxd	The value of tAtmIfcStatsTotalClp0CellsTxd indicates the number of valid ATM CLP=0 cells transmitted by the IFC. If traffic policing is implemented, then cells are counted prior to the application of traffic policing.
<b>AtmOamVplStatistics</b> MIB table name: TIMETRA-ATM-MIB.tAtmOamVplStatisticsTable Monitored class: atm.VPConnection			
tAtmOamVplStatsAISCellsRxd	long	tAtmOamVplStatsAISCellsRxd	The value of tAtmOamVplStatsAISCellsRxd indicates the number of AIS cells received on this VPL for both end to end and segment.
tAtmOamVplStatsAISCellsTxd	long	tAtmOamVplStatsAISCellsTxd	The value of tAtmOamVplStatsAISCellsTxd indicates the number of AIS cells transmitted on this VPL for both end to end and segment.
tAtmOamVplStatsCrc10Errors	long	tAtmOamVplStatsCrc10Errors	The value of tAtmOamVplStatsCrc10Errors indicates the number of OAM cells discarded on this VPL with CRC 10 errors.
tAtmOamVplStatsLoopbackCellsRxd	long	tAtmOamVplStatsLoopbackCellsRxd	The value of tAtmOamVplStatsLoopbackCellsRxd indicates the number of loopback requests and responses received on this VPL for both end to end and segment.
tAtmOamVplStatsLoopbackCellsTxd	long	tAtmOamVplStatsLoopbackCellsTxd	The value of tAtmOamVplStatsLoopbackCellsTxd indicates the number of loopback requests and responses transmitted on this VPL for both end to end and segment.
tAtmOamVplStatsOtherCellsRxd	long	tAtmOamVplStatsOtherCellsRxd	This value of tAtmOamVplStatsOtherCellsRxd indicates the number of OAM cells that are received on this VPL but not identified.
tAtmOamVplStatsRDICellsRxd	long	tAtmOamVplStatsRDICellsRxd	The value of tAtmOamVplStatsRDICellsRxd indicates the number of RDI cells received on this VPL for both end to end and segment.
tAtmOamVplStatsRDICellsTxd	long	tAtmOamVplStatsRDICellsTxd	The value of tAtmOamVplStatsRDICellsTxd indicates the number of RDI cells transmitted on this VPL for both end to end and segment.
<b>AtmVplStatistics</b> MIB table name: TIMETRA-ATM-MIB.tAtmVplStatisticsTable Monitored class: atm.VPConnection			
tAtmVplStatsDrpCellsRxd	long	tAtmVplStatsDrpCellsRxd	The value of tAtmVplStatsDrpCellsRxd indicates the number of all policer cells discards (CLP=0+1) of the VPL. This excludes any buffer management discards (if applicable).

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5620 SAM counter name	Type	MIB counter name	Description
tAtmVplStatsDrpClp0CellsRxd	long	tAtmVplStatsDrpClp0CellsRxd	The value of tAtmVplStatsDrpClp0CellsRxd indicates the number of all policer CLP=0 cells discards of the VPL. This excludes any buffer management discards (if applicable).
tAtmVplStatsDrpClp0CellsTxd	long	tAtmVplStatsDrpClp0CellsTxd	The value of tAtmVplStatsDrpClp0CellsTxd indicates the number of all CLP=0 cells discards of this VPL. This includes both discards due to buffer management and policer.
tAtmVplStatsTagCells	long	tAtmVplStatsTagCells	The value of tAtmVplStatsTagCells indicates the number of tagged CLP=0 cells of the VPL. The egress may or may not discard these cells.
tAtmVplStatsTotalBytesRxd	UINT128	tAtmVplStatsTotalBytesRxd	The value of tAtmVplStatsTotalBytesRxd indicates the number of bytes received by this VPL. This is the number of tAtmVplStatsTotalCellsRxd multiplied by 53.
tAtmVplStatsTotalBytesTxd	UINT128	tAtmVplStatsTotalBytesTxd	The value of tAtmVplStatsTotalBytesTxd indicates the number of bytes transmitted by this VPL. This is the number of tAtmVplStatsTotalCellsTxd multiplied by 53.
tAtmVplStatsTotalCellsRxd	UINT128	tAtmVplStatsTotalCellsRxd	The value of tAtmVplStatsTotalCellsRxd indicates the number of valid ATM cells received by the VPL including both CLP=0 and CLP=1 cells. If traffic policing is implemented, then cells are counted prior to the application of traffic policing.
tAtmVplStatsTotalCellsTxd	UINT128	tAtmVplStatsTotalCellsTxd	The value of tAtmVplStatsTotalCellsTxd indicates the number of valid ATM cells transmitted by the VPL including both CLP=0 and CLP=1 cells. If traffic policing is implemented, then cells are counted prior to the application of traffic policing.
tAtmVplStatsTotalClp0CellsRxd	UINT128	tAtmVplStatsTotalClp0CellsRxd	The value of tAtmVplStatsTotalClp0CellsRxd indicates the number of valid ATM CLP=0 cells received by the VPL. If traffic policing is implemented, then cells are counted prior to the application of traffic policing.
tAtmVplStatsTotalClp0CellsTxd	UINT128	tAtmVplStatsTotalClp0CellsTxd	The value of tAtmVplStatsTotalClp0CellsTxd indicates the number of valid ATM CLP=0 cells transmitted by the VPL. If traffic policing is implemented, then cells are counted prior to the application of traffic policing.
<b>AtmVtlStatistics</b> MIB table name: TIMETRA-ATM-MIB.tAtmVtlStatisticsTable Monitored class: atm.VTConnection			

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5620 SAM counter name	Type	MIB counter name	Description
tAtmVtlStatsDrpCellsRxd	long	tAtmVtlStatsDrpCellsRxd	The value of tAtmVtlStatsDrpCellsRxd indicates the number of all policer cells discards (CLP=0+1) of the VTL. This excludes any buffer management discards (if applicable).
tAtmVtlStatsDrpClp0CellsRxd	long	tAtmVtlStatsDrpClp0CellsRxd	The value of tAtmVtlStatsDrpClp0CellsRxd indicates the number of all policer CLP=0 cells discards of the VTL. This excludes any buffer management discards (if applicable).
tAtmVtlStatsDrpClp0CellsTxd	long	tAtmVtlStatsDrpClp0CellsTxd	The value of tAtmVtlStatsDrpClp0CellsTxd indicates the number of all CLP=0 cells discards of this VTL. This includes both discards due to buffer management and policer.
tAtmVtlStatsTagCells	long	tAtmVtlStatsTagCells	The value of tAtmVtlStatsTagCells indicates the number of tagged CLP=0 cells of the VTL. The egress may or may not discard these cells.
tAtmVtlStatsTotalBytesRxd	UINT128	tAtmVtlStatsTotalBytesTxd	The value of tAtmVtlStatsTotalBytesTxd indicates the number of bytes transmitted by this VTL. This is the number of tAtmVtlStatsTotalCellsTxd multiplied by 53.
tAtmVtlStatsTotalBytesTxd	UINT128	tAtmVtlStatsTotalBytesRxd	The value of tAtmVtlStatsTotalBytesRxd indicates the number of bytes received by this VTL. This is the number of tAtmVtlStatsTotalCellsRxd multiplied by 53.
tAtmVtlStatsTotalCellsRxd	UINT128	tAtmVtlStatsTotalCellsRxd	The value of tAtmVtlStatsTotalCellsRxd indicates the number of valid ATM cells received by the VTL including both CLP=0 and CLP=1 cells. If traffic policing is implemented, then cells are counted prior to the application of traffic policing.
tAtmVtlStatsTotalCellsTxd	UINT128	tAtmVtlStatsTotalCellsTxd	The value of tAtmVtlStatsTotalCellsTxd indicates the number of valid ATM cells transmitted by the VTL including both CLP=0 and CLP=1 cells. If traffic policing is implemented, then cells are counted prior to the application of traffic policing.
tAtmVtlStatsTotalClp0CellsRxd	UINT128	tAtmVtlStatsTotalClp0CellsRxd	The value of tAtmVtlStatsTotalClp0CellsRxd indicates the number of valid ATM CLP=0 cells received by the VTL. If traffic policing is implemented, then cells are counted prior to the application of traffic policing.
tAtmVtlStatsTotalClp0CellsTxd	UINT128	tAtmVtlStatsTotalClp0CellsTxd	The value of tAtmVtlStatsTotalClp0CellsTxd indicates the number of valid ATM CLP=0 cells transmitted by the VTL. If traffic policing is implemented, then cells are counted prior to the application of traffic policing.
<b>IlmiStatistics</b> MIB table name: TIMETRA-ATM-MIB.tAtmIlmiLinkStatisticsTable Monitored class: atm.IlmiLink			

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5620 SAM counter name	Type	MIB counter name	Description
inBadValueErrors	long	tAtmIlliLinkInBadValueErrors	The value of tAtmIlliLinkInBadValueErrors indicates the total number SNMP 'BadValue' error messages received on this ILMI link.
inGeneralErrors	long	tAtmIlliLinkInGeneralErrors	The value of tAtmIlliLinkInGeneralErrors indicates the total number SNMP 'General' error messages received on this ILMI link.
inGetNextRequest	long	tAtmIlliLinkInGetNextRequestPdu	The value of tAtmIlliLinkInGetNextRequestPdu indicates the total number 'GetNextRequest' SNMP PDUs received on this ILMI link.
inGetRequest	long	tAtmIlliLinkInGetRequestPdu	The value of tAtmIlliLinkInGetRequestPdu indicates the total number GetRequest SNMP PDUs received on this ILMI link.
inGetResponse	long	tAtmIlliLinkInGetResponsePdu	The value of tAtmIlliLinkInGetResponsePdu indicates the total number 'GetResponse' SNMP PDUs received on this ILMI link in response to 'GetRequest', 'GetNextRequest' and 'SetRequests' sent.
inNoSuchNameErrors	long	tAtmIlliLinkInNoSuchNameErrors	The value of tAtmIlliLinkInNoSuchNameErrors indicates the total number SNMP 'NoSuchName' error messages received on this ILMI link.
inPdu	long	tAtmIlliLinkInPdu	The value of tAtmIlliLinkInPdu indicates the total number SNMP PDUs received on this ILMI link.
inReadOnlyErrors	long	tAtmIlliLinkInReadOnlyErrors	The value of tAtmIlliLinkInReadOnlyErrors indicates the total number SNMP 'ReadOnly' error messages received on this ILMI link.
inSetRequestPackets	long	tAtmIlliLinkInSetRequestPdu	The value of tAtmIlliLinkInSetRequestPdu indicates the total number 'SetRequest' SNMP PDUs received on this ILMI link.
inTooBigErrors	long	tAtmIlliLinkInTooBigErrors	The value of tAtmIlliLinkInTooBigErrors indicates the total number SNMP 'TooBig' error messages received on this ILMI link.
inTraps	long	tAtmIlliLinkInTrapPdu	The value of tAtmIlliLinkInTrapPdu indicates the total number Trap SNMP PDUs received on this ILMI link.
outBadValueErrors	long	tAtmIlliLinkOutBadValueErrors	The value of tAtmIlliLinkOutBadValueErrors indicates the total number SNMP 'BadValue' error messages sent on this ILMI link.
outGeneralErrors	long	tAtmIlliLinkOutGeneralErrors	The value of tAtmIlliLinkOutGeneralErrors indicates the total number SNMP 'General' error messages sent on this ILMI link.

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5620 SAM counter name	Type	MIB counter name	Description
outGetNextRequest	long	tAtmIlmiLinkOutGetNextRequestPdu	The value of tAtmIlmiLinkOutGetNextRequestPdu indicates the total number GetNextRequest SNMP PDUs sent on this ILMI link.
outGetRequest	long	tAtmIlmiLinkOutGetRequestPdu	The value of tAtmIlmiLinkOutGetRequestPdu indicates the total number GetRequest SNMP PDUs sent on this ILMI link.
outGetResponse	long	tAtmIlmiLinkOutGetResponsePdu	The value of tAtmIlmiLinkOutGetResponsePdu indicates the total number GetResponse SNMP PDUs sent on this ILMI link in response to GetRequest, GetNextRequest and 'SetRequests' received.
outNoSuchNameErrors	long	tAtmIlmiLinkOutNoSuchNameErrors	The value of tAtmIlmiLinkOutNoSuchNameErrors indicates the total number SNMP 'NoSuchName' error messages sent on this ILMI link.
outPdu	long	tAtmIlmiLinkOutPdu	The value of tAtmIlmiLinkOutPdu indicates the total number SNMP PDUs sent on this ILMI link.
outReadOnlyErrors	long	tAtmIlmiLinkOutReadOnlyErrors	The value of tAtmIlmiLinkOutReadOnlyErrors indicates the total number SNMP 'ReadOnly' error messages sent on this ILMI link.
outSetRequestPackets	long	tAtmIlmiLinkOutSetRequestPdu	The value of tAtmIlmiLinkOutSetRequestPdu indicates the total number 'SetRequest' SNMP PDUs sent on this ILMI link.
outTooBigErrors	long	tAtmIlmiLinkOutTooBigErrors	The value of tAtmIlmiLinkOutTooBigErrors indicates the total number SNMP 'TooBig' error messages sent on this ILMI link.
outTraps	long	tAtmIlmiLinkOutTrapPdu	The value of tAtmIlmiLinkOutTrapPdu indicates the total number Trap SNMP PDUs sent on this ILMI link.
snmpCommStringErrors	long	tAtmIlmiLinkInInvalidSnmpCommunityStringPdu	The value of tAtmIlmiLinkInInvalidSnmpCommunityStringPdu indicates the total number SNMP PDUs received with invalid community string on this ILMI link.
snmpFormatErrors	long	tAtmIlmiLinkInInvalidSnmpFormatPdu	The value of tAtmIlmiLinkInInvalidSnmpFormatPdu indicates the total number SNMP PDUs received with invalid ASN.1 format on this ILMI link.
snmpVersionErrors	long	tAtmIlmiLinkInInvalidSnmpVersionPdu	The value of tAtmIlmiLinkInInvalidSnmpVersionPdu indicates the total number SNMP PDUs received with invalid version on this ILMI link.
<b>InterfaceAal5Stats</b> MIB table name: TIMETRA-ATM-MIB.tAtmIntfAal5StatsTable Monitored class: atm.Interface			

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5620 SAM counter name	Type	MIB counter name	Description
tAtmInterfaceAal5StatsTotalCrc32Errors	UINT128	tAtmIntfAal5StatsTotalCrc32Err	The value of tAtmIntfAal5StatsTotalCrc32Err indicates the number of Errors detected by the 32 bit cyclic redundancy check.
tAtmInterfaceAal5StatsTotalPktsDroppedRxd	UINT128	tAtmIntfAal5StatsTotalPktsDrpRxd	The value of tAtmIntfAal5StatsTotalPktsDrpRxd indicates the number of AAL5 PDUs dropped by the ATM interface in the receive direction. This count does not include crc32 Errors or oversized SDU discards.
tAtmInterfaceAal5StatsTotalPktsDroppedTxd	UINT128	tAtmIntfAal5StatsTotalPktsDrpTxd	The value of tAtmIntfAal5StatsTotalPktsDrpTxd indicates the number of AAL5 PDUs dropped in the transmit direction. This count does not include crc32 Errors or oversized SDU discards.
tAtmInterfaceAal5StatsTotalPktsRxd	UINT128	tAtmIntfAal5StatsTotalPktsRxd	The value of tAtmIntfAal5StatsTotalPktsRxd indicates the number of AAL5 PDUs that are received by the ATM interface.
tAtmInterfaceAal5StatsTotalPktsTxd	UINT128	tAtmIntfAal5StatsTotalPktsTxd	The value of tAtmIntfAal5StatsTotalPktsTxd indicates the number of AAL5 PDUs that are transmitted by the ATM interface.
<b>InterfaceStats</b> MIB table name: TIMETRA-ATM-MIB.tAtmIntfStatsTable Monitored class: atm.Interface			
tAtmInterfaceStatsTotalBytesRxd	UINT128	tAtmIntfStatsTotalBytesRxd	The value of tAtmIntfStatsTotalBytesRxd indicates the number of bytes received on this interface. This is the number of tAtmIntfStatsTotalCellsRxd multiplied by 53.
tAtmInterfaceStatsTotalBytesTxd	UINT128	tAtmIntfStatsTotalBytesTxd	The value of tAtmIntfStatsTotalBytesTxd indicates the number of bytes transmitted on this interface. This is the number of tAtmIntfStatsTotalCellsTxd multiplied by 53.
tAtmInterfaceStatsTotalCellsRxd	UINT128	tAtmIntfStatsTotalCellsRxd	The value of tAtmIntfStatsTotalCellsRxd indicates the number of valid ATM cells received by the ATM interface including both CLP=0 and CLP=1 cells. If traffic policing is implemented, then cells are counted prior to the application of traffic policing.
tAtmInterfaceStatsTotalCellsTxd	UINT128	tAtmIntfStatsTotalCellsTxd	The value of tAtmIntfStatsTotalCellsTxd indicates the number of valid ATM cells transmitted by the ATM interface including both CLP=0 and CLP=1 cells.
tAtmInterfaceStatsTotalUnknownCellsDropped	long	tAtmIntfStatsTotalUnknCellsDrp	The value of tAtmIntfStatsTotalUnknCellsDrp indicates the number of cells dropped due to an unknown VPI/VCI.

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5620 SAM counter name	Type	MIB counter name	Description
<b>PvcConnectionAal5PerformanceStats</b> MIB table name: ATM-MIB.aal5VccTable Monitored class: atm.PvcConnection			
aal5CrcErrors	long	aal5VccCrcErrors	The number of AAL5 CPCS PDUs received with CRC-32 errors on this AAL5 VCC at the interface associated with an AAL5 entity.
aal5OverSizedSDUs	long	aal5VccOverSizedSDUs	The number of AAL5 CPCS PDUs discarded on this AAL5 VCC at the interface associated with an AAL5 entity because the AAL5 SDUs were too large.
aal5SarTimeOuts	long	aal5VccSarTimeOuts	The number of partially re-assembled AAL5 CPCS PDUs which were discarded on this AAL5 VCC at the interface associated with an AAL5 entity because they were not fully re-assembled within the required time period. If the re-assembly timer is not supported, then this object contains a zero value.
<b>PvcConnectionAal5Stats</b> MIB table name: TIMETRA-ATM-MIB.tAal5VccStatisticsTable Monitored class: atm.PvcConnection			
aal5DroppedPacketsRxd	UINT128	tAal5VccStatsDrpPacketsRxd	The value of tAal5VccStatsDrpPacketsRxd indicates the number of dropped AAL-5 SDUs that have been received on the AAL-5 VCC.
aal5DroppedPacketsTxd	UINT128	tAal5VccStatsDrpPacketsTxd	The value of tAal5VccStatsDrpPacketsTxd indicates the number of dropped AAL-5 SDUs that would have been transmitted on the AAL-5 VCC.
aal5PacketsRxd	UINT128	tAal5VccStatsPacketsRxd	The value of tAal5VccStatsPacketsRxd indicates the number of valid AAL-5 SDUs and AAL-5 SDUs with CRC-32 errors received by the AAL-5 VCC.
aal5PacketsTxd	UINT128	tAal5VccStatsPacketsTxd	The value of tAal5VccStatsPacketsTxd indicates the number of AAL-5 SDUs transmitted by the AAL-5 VCC.
<b>PvcConnectionOamStats</b> MIB table name: TIMETRA-ATM-MIB.tAtmOamVclStatisticsTable Monitored class: atm.PvcConnection			
oamAISCellsRxd	long	tAtmOamVclStatsAISCellsRxd	The value of tAtmOamVclStatsAISCellsRxd indicates the number of AIS cells received on this VC for both end to end and segment.
oamAISCellsTxd	long	tAtmOamVclStatsAISCellsTxd	The value of tAtmOamVclStatsAISCellsTxd indicates the number of AIS cells transmitted on this VC for both end to end and segment.
oamCrc10Errors	long	tAtmOamVclStatsCrc10Err	The value of tAtmOamVclStatsCrc10Err indicates the number of oam cells discarded with CRC 10 Errors.

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5620 SAM counter name	Type	MIB counter name	Description
oamLoopbackCellsRxd	long	tAtmOamVclStatsLoopbackCellsRxd	The value of tAtmOamVclStatsLoopbackCellsRxd indicates the number of loopback requests and responses received on this VC for both end to end and segment.
oamLoopbackCellsTxd	long	tAtmOamVclStatsLoopbackCellsTxd	The value of tAtmOamVclStatsLoopbackCellsTxd indicates the number of loopback requests and responses transmitted on this VC for both end to end and segment.
oamOtherCellsRxd	long	tAtmOamVclStatsOtherCellsRxd	This value of tAtmOamVclStatsOtherCellsRxd indicates the number of oam cells that are received but not identified.
oamRDICellsRxd	long	tAtmOamVclStatsRDICellsRxd	The value of tAtmOamVclStatsRDICellsRxd indicates the number of RDI cells received on this VC for both end to end and segment.
oamRDICellsTxd	long	tAtmOamVclStatsRDICellsTxd	The value of tAtmOamVclStatsRDICellsTxd indicates the number of RDI cells transmitted on this VC for both end to end and segment.
<b>PvcConnectionStats</b> MIB table name: TIMETRA-ATM-MIB.tAtmVclStatisticsTable Monitored class: atm.PvcConnection			
totalBytesRxd	UINT128	tAtmVclStatsTotalBytesRxd	The value of tAtmVclStatsTotalBytesRxd indicates the number of bytes received by this Vcl. This is the number of tAtmVclStatsTotalCellsRxd multiplied by 53.
totalBytesTxd	UINT128	tAtmVclStatsTotalBytesTxd	The value of tAtmVclStatsTotalBytesTxd indicates the number of bytes transmitted by this Vcl. This is the number of tAtmVclStatsTotalCellsTxd multiplied by 53.
totalPacketsRxd	UINT128	tAtmVclStatsTotalCellsRxd	The value of tAtmVclStatsTotalCellsRxd indicates the number of valid ATM cells received by the VCL including both CLP=0 and CLP=1 cells. If traffic policing is implemented, then cells are counted prior to the application of traffic policing.
totalPacketsTxd	UINT128	tAtmVclStatsTotalCellsTxd	The value of tAtmVclStatsTotalCellsTxd indicates the number of valid ATM cells transmitted by the VCL including both CLP=0 and CLP=1 cells. If traffic policing is implemented, then cells are counted prior to the application of traffic policing.
<b>TCStats</b> MIB table name: ATM-MIB.atmInterfaceTCTable Monitored class: atm.Interface			

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5620 SAM counter name	Type	MIB counter name	Description
ocdEvents	long	atmInterfaceOCDEvents	The number of times the Out of Cell Delineation (OCD) events occur. If seven consecutive ATM cells have Header Error Control (HEC) violations, an OCD event occurs. A high number of OCD events may indicate a problem with the TC Sublayer.
<b>TCSUBLayerStats</b> MIB table name: TIMETRA-ATM-MIB.tAtmTCSublayerTable Monitored class: atm.Interface			
hecErrors	long	tAtmTCSublayerHecErrors	The value of tAtmTCSublayerHecErrors indicates the number of cells with uncorrectable HEC Errors on this interface.
hecErrorsFixed	long	tAtmTCSublayerHecErrorsFixed	The value of tAtmTCSublayerHecErrorsFixed indicates the number of cells with correctable HEC Errors on this interface.

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Table A-7 bgp statistics

5620 SAM counter name	Type	MIB counter name	Description
<b>PeerAdditionalStats</b> MIB table name: BGP4-MIB.bgpPeerTable Monitored class: bgp.Peer			
fsmEstablishedTime	long	bgpPeerFsmEstablishedTime	This timer indicates how long (in seconds) this peer has been in the Established state or how long since this peer was last in the Established state. It is set to zero when a new peer is configured or the router is booted.
<b>PeerStats</b> MIB table name: TIMETRA-BGP-MIB.tBgpPeerNgOperTable Monitored class: bgp.Peer			
flaps	long	tBgpPeerNgOperFlaps	tBgpPeerNgOperFlaps indicates the number of flaps of updates from this peer.
inputQueueMessages	long	tBgpPeerNgOperInputQueueMsgs	tBgpPeerNgOperInputQueueMsgs indicates the number of unprocessed messages in the queue, from this peer.
lastEvent	long	tBgpPeerNgOperLastEvent	tBgpPeerNgOperLastEvent indicates the last BGP event of this peer.
lastRestartTime	long	tBgpPeerNgOperLastRestartTime	tBgpPeerNgOperLastRestartTime indicates the last time the peer attempted restart.
lastState	long	tBgpPeerNgOperLastState	tBgpPeerNgOperLastState indicates the last BGP state of this peer.
mcastActivePrefixes	long	tBgpPeerNgOperMcastV4ActivePfxs	The value of tBgpPeerNgOperMcastV4ActivePfxs indicates the number of active IPv4 multicast prefixes from this peer.

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5620 SAM counter name	Type	MIB counter name	Description
mcastPrefixesSuppressedByDamping	long	tBgpPeerNgOperMCastV4SuppPfxDamp	The value of tBgpPeerNgOperMCastV4SuppPfxDamp indicates the number of IPv4 multicast prefixes from this peer, which have been suppressed by damping.
mcastReceivedPrefixes	long	tBgpPeerNgOperMCastV4RecvPfxs	The value of tBgpPeerNgOperMCastV4RecvPfxs indicates the number of IPv4 multicast prefixes received from this peer.
mcastSentPrefixes	long	tBgpPeerNgOperMCastV4SentPfxs	The value of tBgpPeerNgOperMCastV4SentPfxs indicates the number of IPv4 multicast prefixes transmitted to this peer.
mdtSafiActivePrefixes	long	tBgpPeerNgOperMdtSafiActivePfxs	The value of tBgpPeerNgOperMdtSafiActivePfxs indicates the number of active MDT-SAFI prefixes from this peer.
mdtSafiPrefixesSuppressedByDamping	long	tBgpPeerNgOperMdtSafiSuppPfxDamp	The value of tBgpPeerNgOperMdtSafiSuppPfxDamp indicates the number of MDT-SAFI prefixes from this peer, which have been suppressed by damping.
mdtSafiReceivedPrefixes	long	tBgpPeerNgOperMdtSafiRecvPfxs	The value of tBgpPeerNgOperMdtSafiRecvPfxs indicates the number of MDT-SAFI prefixes received from this peer.
mdtSafiSentPrefixes	long	tBgpPeerNgOperMdtSafiSentPfxs	The value of tBgpPeerNgOperMdtSafiSentPfxs indicates the number of MDT-SAFI prefixes transmitted to this peer.
messageOctetsReceived	UINT128	tBgpPeerNgOperMsgOctetsRcvd	tBgpPeerNgOperMsgOctetsRcvd indicates the number of octets received from this peer.
messageOctetsSent	UINT128	tBgpPeerNgOperMsgOctetsSent	tBgpPeerNgOperMsgOctetsSent indicates the number of octets transmitted to this peer.
numberOfRestarts	long	tBgpPeerNgOperNumRestarts	tBgpPeerNgOperNumRestarts indicates the number of times the peer has attempted restart.
outputQueueMessages	long	tBgpPeerNgOperOutputQueueMsgs	tBgpPeerNgOperOutputQueueMsgs indicates the number of untransmitted messages in the queue, to this peer.
pathsReceived	long	tBgpPeerNgOperReceivedPaths	tBgpPeerNgOperReceivedPaths indicates the number of paths received from this peer.
prefixesActive	long	tBgpPeerNgOperActivePrefixes	tBgpPeerNgOperActivePrefixes indicates the number of active IPv4 prefixes from this peer.
prefixesReceived	long	tBgpPeerNgOperReceivedPrefixes	tBgpPeerNgOperReceivedPrefixes indicates the number of IPv4 prefixes received from this peer.
prefixesSent	long	tBgpPeerNgOperSentPrefixes	tBgpPeerNgOperSentPrefixes indicates the number of IPv4 prefixes transmitted to this peer.

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5620 SAM counter name	Type	MIB counter name	Description
prefixesSuppressedByDamping	long	tBgpPeerNgOperV4SuppPfxDamp	The value of tBgpPeerNgOperV4SuppPfxDamp indicates the number of IPv6 prefixes from this peer, which have been suppressed by damping.
v6ActivePrefixes	long	tBgpPeerNgOperV6ActivePrefixes	The value of tBgpPeerNgOperV6ActivePrefixes indicates the number of active IPv6 prefixes from this peer.
v6PrefixesSuppressedByDamping	long	tBgpPeerNgOperV6SuppPfxDamp	The value of tBgpPeerNgOperV6SuppPfxDamp indicates the number of IPv6 prefixes from this peer, which have been suppressed by damping.
v6ReceivedPrefixes	long	tBgpPeerNgOperV6ReceivedPrefixes	The value of tBgpPeerNgOperV6ReceivedPrefixes indicates the number of IPv6 prefixes received from this peer.
v6SentPrefixes	long	tBgpPeerNgOperV6SentPrefixes	The value of tBgpPeerNgOperV6SentPrefixes indicates the number of IPv6 prefixes transmitted to this peer.
vpnActivePrefixes	long	tBgpPeerNgOperVpnActivePrefixes	tBgpPeerNgOperVpnActivePrefixes indicates the number of active VPN IPv4 prefixes from this BGP peer.
vpnPrefixesSuppressedByDamping	long	tBgpPeerNgOperVpnSuppPfxDamp	The value of tBgpPeerNgOperVpnSuppPfxDamp indicates the number of VPN IPv4 prefixes from this peer, which have been suppressed by damping.
vpnReceivedPrefixes	long	tBgpPeerNgOperVpnRecvPrefixes	tBgpPeerNgOperVpnRecvPrefixes indicates the number of received VPN IPv4 prefixes.
vpnSentPrefixes	long	tBgpPeerNgOperVpnSentPrefixes	tBgpPeerNgOperVpnSentPrefixes indicates the number of transmitted VPN IPv4 prefixes.
<b>PeerVpnIpv6Stats</b> MIB table name: TIMETRA-BGP-MIB.tBgpPeerNgOperTable Monitored class: bgp.Peer			
vpnIpv6ActivePfxs	long	tBgpPeerNgOperVpnIpv6ActivePfxs	The value of tBgpPeerNgOperVpnIpv6ActivePfxs indicates the number of active VPN IPv6 prefixes from this peer.
vpnIpv6RecvPfxs	long	tBgpPeerNgOperVpnIpv6RecvPfxs	The value of tBgpPeerNgOperVpnIpv6RecvPfxs indicates the number of VPN IPv6 prefixes received from this peer.
vpnIpv6SentPfxs	long	tBgpPeerNgOperVpnIpv6SentPfxs	The value of tBgpPeerNgOperVpnIpv6SentPfxs indicates the number of VPN IPv6 prefixes transmitted to this peer.

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5620 SAM counter name	Type	MIB counter name	Description
vpnIpv6SuppPfxDamp	long	tBgpPeerNgOperVpnIpv6SuppPfxDamp	The value of tBgpPeerNgOperVpnIpv6SuppPfxDamp indicates the number of VPN IPv6 prefixes from this peer, which have been suppressed by damping.

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Table A-8 bundle statistics

5620 SAM counter name	Type	MIB counter name	Description
<b>BundleStats</b> MIB table name: TIMETRA-PORT-MIB.tmnxBundleTable Monitored class: bundle.Interface			
inputDiscards	long	tmnxBundleInputDiscards	tmnxBundleInputDiscards indicates the number of LCP packets that were discarded. This object is only supported for a tmnxBundleType value of mlppp.
upTime	long	tmnxBundleUpTime	tmnxBundleUpTime indicates the time since the bundle is operationally 'inService'.
<b>MultiClassMlpppStats</b> MIB table name: TIMETRA-PORT-MIB.tmnxMcMlpppStatsTable Monitored class: bundle.MultiClassMlpppSpecifics			
mcMlpppStatsEgressErrPkt	long	tmnxMcMlpppStatsEgressErrPkt	The value of tmnxMcMlpppStatsEgressErrPkt indicates the total number of packets discarded due to segmentation errors on the bundle for the given class on egress.
mcMlpppStatsEgressOct	long	tmnxMcMlpppStatsEgressOct	The value of tmnxMcMlpppStatsEgressOct indicates the total number of octets in all packets received on the bundle for the given class on egress before segmentation.
mcMlpppStatsEgressPkt	long	tmnxMcMlpppStatsEgressPkt	The value of tmnxMcMlpppStatsEgressPkt indicates the total number of packets forwarded on the bundle for the given class on egress towards the line.
mcMlpppStatsIngressErrPkt	long	tmnxMcMlpppStatsIngressErrPkt	The value of tmnxMcMlpppStatsIngressErrPkt indicates the total number of packets discarded due to reassembly errors on the bundle for the given class on ingress.
mcMlpppStatsIngressOct	long	tmnxMcMlpppStatsIngressOct	The value of tmnxMcMlpppStatsIngressOct indicates the total number of octets in all packets received on the bundle for the given class on ingress before reassembly.
mcMlpppStatsIngressPkt	long	tmnxMcMlpppStatsIngressPkt	The value of tmnxMcMlpppStatsIngressPkt indicates the total number of packets forwarded on the bundle for the given class on ingress towards higher layer protocols.

Table A-9 cflowd statistics

5620 SAM counter name	Type	MIB counter name	Description
<b>AAGroupCflowdStats</b> MIB table name: TIMETRA-BSX-NG-MIB.tmnxBsxCflowdStatusTable Monitored class: cflowd.AAGroupCflowd			
activeFlowCurrent	long	tmnxBsxCflowdStatusActFlowsCurr	The value of tmnxBsxCflowdStatusActFlowsCurr indicates the number of active flows currently marked for export using Cflowd in the ISA-AA MDA(s).
activeRateCurrent	long	tmnxBsxCflowdStatusRecRateCurr	The value of tmnxBsxCflowdStatusRecRateCurr indicates the number of flow records per second being exported using Cflowd from the ISA-AA MDA(s). The calculation is based on the number of flow records inserted into Cflowd packets within the last 10 seconds.
discontinueTime	long	tmnxBsxCflowdStatusDiscontTime	The value of tmnxBsxCflowdStatusDiscontTime indicates the SNMPv2-MIB::sysUpTime (hundredths of a second) when the ISA-AA MDA within the group has last changed status.
expType	int	tmnxBsxCflowdExpType	The value of tmnxBsxCflowdExpType specifies the type of the Application Assurance statistic exported using Cflowd.
flowExported	long	tmnxBsxCflowdStatusFlowsNoRes	The value of tmnxBsxCflowdStatusFlowsNoRes indicates the total number of flows that were selected for export but failed to obtain Cflows resources in the ISA-AA MDA(s).
hcFlowExported	UINT128	tmnxBsxCflowdStatusHCFlowsNoRes	The value of tmnxBsxCflowdStatusHCFlowsNoRes indicates the total number of flows that were selected for export but failed to obtain Cflows resources in the ISA-AA MDA(s). This object is the 64-bit version of tmnxBsxCflowdStatusFlowsNoRes.
hcPacketsSent	UINT128	tmnxBsxCflowdStatusHCPktsSent	The value of tmnxBsxCflowdStatusHCPktsSent indicates the total number of Cflowd packets sent from the ISA-AA MDA(s). This object is the 64-bit version of tmnxBsxCflowdStatusPktsSent.
hcRecDropped	UINT128	tmnxBsxCflowdStatusHCRcDropped	The value of tmnxBsxCflowdStatusHCRcDropped indicates the total number of flow records dropped in the ISA-AA MDA(s). This object is the 64-bit version of tmnxBsxCflowdStatusRecDropped.

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5620 SAM counter name	Type	MIB counter name	Description
hcRecReported	UINT128	tmnxBsxCflowdStatusHCR ecReported	The value of tmnxBsxCflowdStatusHCR ecReported indicates the total number of flow records reported from the ISA-AA MDA(s). This object is the 64-bit version of tmnxBsxCflowdStatusRecReported.
packetRateCurrent	long	tmnxBsxCflowdStatusPkt RateCurr	The value of tmnxBsxCflowdStatusPktRateCurr indicates the number of Cflowd packets per second being exported from the ISA-AA MDA(s). The calculation is based on the number of Cflowd packets generated within the last 10 seconds.
packetsSent	long	tmnxBsxCflowdStatusPkts Sent	The value of tmnxBsxCflowdStatusPktsSent indicates the total number of Cflowd packets sent from the ISA-AA MDA(s).
recDropped	long	tmnxBsxCflowdStatusRec Dropped	The value of tmnxBsxCflowdStatusRecDropped indicates the total number of flow records dropped in the ISA-AA MDA(s).
recReported	long	tmnxBsxCflowdStatusRec Reported	The value of tmnxBsxCflowdStatusRecReported indicates the total number of flow records reported from the ISA-AA MDA(s).
<b>AAGroupCollectorStats</b> MIB table name: TIMETRA-BSX-NG-MIB.tmnxBsxCflowdCollStatTable Monitored class: cflowd.AAGroupCollector			
discontinueTime	long	tmnxBsxCflowdCollStatDi scontTime	The value of tmnxBsxCflowdCollStatDiscontTime indicates the SNMPv2-MIB::sysUpTime (hundredths of a second) when the Cflowd collector has last changed status.
hcRecordSent	UINT128	tmnxBsxCflowdCollStatH CRecSent	The value of tmnxBsxCflowdCollStatHCR ecSent indicates the total number of flow records sent to the remote Cflowd collector. This object is the 64-bit version of tmnxBsxCflowdCollStatRecSent.
recordSent	long	tmnxBsxCflowdCollStatRe cSent	The value of tmnxBsxCflowdCollStatRecSent indicates the total number of flow records sent to the remote Cflowd collector.
<b>CflowdPerfExpStats</b> MIB table name: TIMETRA-BSX-NG-MIB.tmnxBsxCflowdExpStatTable Monitored class: cflowd.AAGroupCflowd			
discontinueTime	long	tmnxBsxCflowdExpStatDis contTime	The value of tmnxBsxCflowdExpStatDiscontTime indicates the SNMPv2-MIB::sysUpTime (hundredths of a second) when the export of cflowd records has last changed status.
expType	int	tmnxBsxCflowdExpType	The value of tmnxBsxCflowdExpType specifies the type of the Application Assurance statistic exported using Cflowd.

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5620 SAM counter name	Type	MIB counter name	Description
flowExported	long	tmnxBsxCflowdExpStatFlowsNoRes	The value of tmnxBsxCflowdExpStatFlowsNoRes indicates the total number of flows that were selected for export but failed to obtain Cflowd resources.
hcFlowExported	UINT128	tmnxBsxCflowdExpStatHCFlowsNoRes	The value of tmnxBsxCflowdExpStatHCFlowsNoRes indicates the total number of flows that were selected for export but failed to obtain Cflowd resources. This object is the 64-bit version of tmnxBsxCflowdExpStatFlowsNoRes.
hcRecDropped	UINT128	tmnxBsxCflowdExpStatHCRecDropped	The value of tmnxBsxCflowdExpStatHCRecDropped indicates the total number of Cflowd flow records dropped. This object is the 64-bit version of tmnxBsxCflowdExpStatRecDropped.
hcRecReport	UINT128	tmnxBsxCflowdExpStatHCRecReport	The value of tmnxBsxCflowdExpStatHCRecReport indicates the total number of flow records reported. This object is the 64-bit version of tmnxBsxCflowdExpStatRecReport.
recDropped	long	tmnxBsxCflowdExpStatRecDropped	The value of tmnxBsxCflowdExpStatRecDropped indicates the total number of flow records dropped.
recReport	long	tmnxBsxCflowdExpStatRecReport	The value of tmnxBsxCflowdExpStatRecReport indicates the total number of flow records reported.
<b>NeCflowdStats</b> MIB table name: TIMETRA-CFLOWD-MIB.tmnxCflowdVersionStatsTable Monitored class: cflowd.NeCollector			
packetErrors	long	tmnxCflowdVersionErrors	The value of tmnxCflowdVersionErrors indicates the number of errored packets for the specified version.
packetsOpen	long	tmnxCflowdVersionOpen	The value of tmnxCflowdVersionOpen indicates the number of open packets pending for the specified version.
packetsSent	long	tmnxCflowdVersionSent	The value of tmnxCflowdVersionSent indicates the number of packets transmitted for the specified version.
version	long	tmnxCflowdVersionIndex	The value of tmnxCflowdVersionIndex specifies the row in the tmnxCflowdVersionStatsTable that pertains to the cflowd collector version.
versionStatus	int	tmnxCflowdVersionStatus	The value of tmnxCflowdVersionStatus indicates whether or not the version is in use in the system.
<b>NeCollectorV5Stats</b> MIB table name: TIMETRA-CFLOWD-MIB.tmnxCflowdV5StatsTable Monitored class: cflowd.NeCollector			

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5620 SAM counter name	Type	MIB counter name	Description
v5PacketErrors	long	tmnxCflowdV5Errors	The value of tmnxCflowdV5Errors indicates the number of errored packets for the specified remote collector host.
v5PacketOpen	long	tmnxCflowdV5Open	The value of tmnxCflowdV5Open indicates the number of open packets pending for the specified remote collector host.
v5PacketSent	long	tmnxCflowdV5Sent	The value of tmnxCflowdV5Sent indicates the number of packets transmitted for the specified remote collector host.
<b>NeCollectorV8Stats</b> MIB table name: TIMETRA-CFLOWD-MIB.tmnxCflowdAggregationStatsTable Monitored class: cflowd.NeCollector			
aggPacketErrors	long	tmnxCflowdAggregationErrors	The value of tmnxCflowdAggregationErrors indicates the number of errored packets for the specified aggregation type.
aggPacketOpen	long	tmnxCflowdAggregationOpen	The value of tmnxCflowdAggregationOpen indicates the number of open packets pending for the specified aggregation type.
aggPacketSent	long	tmnxCflowdAggregationSent	The value of tmnxCflowdAggregationSent indicates the number of packets transmitted for the specified aggregation type.
aggregationIndex	int	tmnxCflowdAggregationIndex	The value of tmnxCflowdAggregationIndex specifies the row in the tmnxCflowdAggregationStatsTable that pertains to the cflowd collector aggregation type.
aggregationStatus	int	tmnxCflowdAggregationStatus	The value of tmnxCflowdAggregationStatus indicates whether or not the aggregation is in use in the remote collector host entry.
<b>NeCollectorV9Stats</b> MIB table name: TIMETRA-CFLOWD-MIB.tmnxCflowdTemplateStatsTable Monitored class: cflowd.NeCollector			
templateErrors	long	tmnxCflowdTemplateErrors	The value of tmnxCflowdTemplateErrors indicates the number of errored packets for the specified Template type.
templateFlowIndex	int	tmnxCflowdTemplateFlowIndex	The value of tmnxCflowdTemplateFlowIndex specifies the row in the tmnxCflowdTemplateStatsTable that pertains to the cflowd collector Template type.
templateOpen	long	tmnxCflowdTemplateOpen	The value of tmnxCflowdTemplateOpen indicates the number of open packets pending for the specified Template type.

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5620 SAM counter name	Type	MIB counter name	Description
templateSent	long	tmnxCflowdTemplateSent	The value of tmnxCflowdTemplateSent indicates the number of packets transmitted for the specified Template type.
transmitTime	long	tmnxCflowdTemplateLastTxTime	The value of tmnxCflowdTemplateLastTxTime indicates the time, since system startup, when the specified template was last transmitted.

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Table A-10 dhcp statistics

5620 SAM counter name	Type	MIB counter name	Description
<b>LocalDhcpServerFailoverStats</b> MIB table name: TIMETRA-DHCP-SERVER-MIB.tmnxDhcpsFoStatsTable Monitored class: dhcp.LocalDhcpServerFailover			
addressConflictPkts	UINT128	tmnxDhcpsFoStatsAddressConflict	The value of tmnxDhcpsFoStatsAddressConflict indicates how many BNDUPD 'add' packets were dropped because this DHCP server instance has already leased another address to this host.
dropInvalidPkts	UINT128	tmnxDhcpsFoStatsDropInvalidPkts	The value of tmnxDhcpsFoStatsDropInvalidPkts indicates how many BNDUPD packets were dropped because the packet was malformed.
hostConflictPkts	UINT128	tmnxDhcpsFoStatsHostConflict	The value of tmnxDhcpsFoStatsHostConflict indicates how many BNDUPD 'add' packets were dropped because this DHCP server instance has already leased this address to another host.
leaseExpiredPkts	UINT128	tmnxDhcpsFoStatsExpired	The value of tmnxDhcpsFoStatsExpired indicates how many BNDUPD 'add' packets were dropped because the corresponding lease has expired. This may indicate that the clock of the failover peer is not in sync with the clock of this system.
leaseNotFoundPkts	UINT128	tmnxDhcpsFoStatsLeaseNotFound	The value of tmnxDhcpsFoStatsLeaseNotFound indicates how many Binding Database Update (BNDUPD) 'remove' packets were dropped because the corresponding lease could not be found.
maxLeasePkts	UINT128	tmnxDhcpsFoStatsMaxReached	The value of tmnxDhcpsFoStatsMaxReached indicates how many BNDUPD 'add' packets were dropped because the maximum number of leases was reached. The maximum number of leases is indicated by the value of the object tmnxDhcpSvrMaxLeases.

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5620 SAM counter name	Type	MIB counter name	Description
peerConflictPkts	UINT128	tmnxDhcpsFoStatsPeerConflict	The value of tmnxDhcpsFoStatsPeerConflict indicates how many BNDUPD 'add' packets were dropped because the failover peer has leased an address within a subnet range of which the failover control is set to 'local' on this local DHCP server instance.
rangeNotFoundPkts	UINT128	tmnxDhcpsFoStatsRangeNotFound	The value of tmnxDhcpsFoStatsSubnetNotFound indicates how many BNDUPD 'add' packets were dropped because a valid include range could not be found for the lease.
shutdownPkts	UINT128	tmnxDhcpsFoStatsFoShutdown	The value of tmnxDhcpsFoStatsFoShutdown indicates how many BNDUPD packets were dropped because the failover state if the DHCP Server instance is 'shutdown'.
subnetNotFoundPkts	UINT128	tmnxDhcpsFoStatsSubnetNotFound	The value of tmnxDhcpsFoStatsSubnetNotFound indicates how many BNDUPD 'add' packets were dropped because a valid subnet could not be found for the lease.
<b>LocalDhcpServerStats</b> MIB table name: TIMETRA-DHCP-SERVER-MIB.tmnxDhcpServerStatsTable Monitored class: dhcp.LocalDhcpServer			
addressUnavailableDropped	long	tmnxDhcpSvrStatsDropAddrUnavail	The value of tmnxDhcpSvrStatsDropAddrUnavail indicates the number of DHCP requests dropped by the server instance because the requested address is not available.
corruptedPacketsDropped	long	tmnxDhcpSvrStatsDropBadPackets	The value of tmnxDhcpSvrStatsDropBadPackets indicates the number of DHCP packets received which were corrupt.
destinedToOtherDropped	long	tmnxDhcpSvrStatsDropDestOther	The value of tmnxDhcpSvrStatsDropDestOther indicates the number of DHCP requests dropped by the server instance because the (broadcast) request was not destined to this server.
genericErrorDropped	long	tmnxDhcpSvrStatsDropGenericError	The value of tmnxDhcpSvrStatsDropGenError indicates the number of DHCP packets dropped by the server instance because of a generic error.
invalidMessageTypesDropped	long	tmnxDhcpSvrStatsDropInvalidTypes	The value of tmnxDhcpSvrStatsDropInvalidTypes indicates the number of DHCP packets received which had an invalid message type (option 53).

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5620 SAM counter name	Type	MIB counter name	Description
invalidUserDropped	long	tmnxDhcpSvrStatsDropInvalidUsr	The value of tmnxDhcpSvrStatsDropInvalidUsr indicates the number of DHCP packets dropped by the server instance because the MAC address of the sender or the option 82 didn't match the host lease state.
leaseNotFoundDropped	long	tmnxDhcpSvrStatsDropNoLeaseFound	The value of tmnxDhcpSvrStatsDropNoLeaseFound indicates the number of DHCP packets dropped by the server instance because no (valid) lease was found.
leaseNotReadyDropped	long	tmnxDhcpSvrStatsDropLseNotReady	The value of tmnxDhcpSvrStatsDropLseNotReady indicates the number of DHCP packets dropped by the server instance before the lease database was ready.
leasesExpired	long	tmnxDhcpSvrStatsLeasesExpired	The value of tmnxDhcpSvrStatsLeasesExpired indicates the number of DHCP leases that were expired (because no release was received).
localUserDbNotFoundDropped	long	tmnxDhcpSvrStatsDropNoUsrDbFound	The value of tmnxDhcpSvrStatsDropNoUsrDbFound indicates the number of DHCP packets dropped because the value of the object tmnxDhcpServerCfgUserDatabase of this server instance is not equal to the default value and a local user database with that name could not be found.
noFreeAddressesInPoolDropped	long	tmnxDhcpSvrStatsDropNoSrvngPool	The value of tmnxDhcpSvrStatsDropNotSrvngPool indicates the number of DHCP packets dropped by the server instance because there were no more free addresses in the pool.
offersIgnored	long	tmnxDhcpSvrStatsOffersIgnore	The value of tmnxDhcpSvrStatsOffersIgnore indicates the number of DHCP OFFER (option 52 with value 2) packets sent by the DHCP server instance that were ignored by the clients.
overloadDropped	long	tmnxDhcpSvrStatsDropOverload	The value of tmnxDhcpSvrStatsDropOverload indicates the number of DHCP packets dropped by the server instance because they were received in excess of what the server instance can handle.
persistenceOverloadDropped	long	tmnxDhcpSvrStatsDropPersOverload	The value of tmnxDhcpSvrStatsDropPersOverload indicates the number of DHCP packets dropped by the server instance because they were received in excess of what the DHCP persistence system can handle. If this occurs, only releases and declines are still processed.

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5620 SAM counter name	Type	MIB counter name	Description
receivedDhcpDeclines	UINT128	tmnxDhcpSvrStatsRxDeclines	The value of tmnxDhcpSvrStatsRxDeclines indicates the number of DHCPDECLINE (option 53 with value 4) packets received by the DHCP server instance.
receivedDhcpDiscovers	UINT128	tmnxDhcpSvrStatsRxDiscovers	The value of tmnxDhcpSvrStatsRxDiscovers indicates the number of DHCPDISCOVER (option 53 with value 1) packets received by the DHCP server instance.
receivedDhcpInforms	UINT128	tmnxDhcpSvrStatsRxInforms	The value of tmnxDhcpSvrStatsRxInforms indicates the number of DHCPINFORM (option 53 with value 8) packets received by the DHCP server instance.
receivedDhcpReleases	UINT128	tmnxDhcpSvrStatsRxReleases	The value of tmnxDhcpSvrStatsRxReleases indicates the number of DHCPRELEASE (option 53 with value 7) packets received by the DHCP server instance.
receivedDhcpRequests	UINT128	tmnxDhcpSvrStatsRxRequests	The value of tmnxDhcpSvrStatsRxRequests indicates the number of DHCPREQUEST (option 53 with value 3) packets received by the DHCP server instance.
sentDhcpAcks	UINT128	tmnxDhcpSvrStatsTxAcks	The value of tmnxDhcpSvrStatsTxAcks indicates the number of DHCPACK (option 53 with value 5) packets sent by the DHCP server instance.
sentDhcpForceRenews	UINT128	tmnxDhcpSvrStatsTxForceRenews	The value of tmnxDhcpSvrStatsTxForceRenews indicates the number of DHCPFORCERENEW (option 53 with value 9) packets sent by the DHCP server instance.
sentDhcpNaks	UINT128	tmnxDhcpSvrStatsTxNaks	The value of tmnxDhcpSvrStatsTxNaks indicates the number of DHCPNAK (option 53 with value 6) packets sent by the DHCP server instance.
sentDhcpOffers	UINT128	tmnxDhcpSvrStatsTxOffers	The value of tmnxDhcpSvrStatsTxOffers indicates the number of DHCPOFFER (option 53 with value 2) packets sent by the DHCP server instance.
unknownHostsDropped	long	tmnxDhcpSvrStatsDropUnknownHosts	The value of tmnxDhcpSvrStatsDropUnknownHosts indicates the number of DHCP packets dropped from hosts which were not found in the user database when tmnxDhcpServerCfgUseGiAddress was disabled.
userNotAllowedDropped	long	tmnxDhcpSvrStatsDropUserNotAllowed	The value of tmnxDhcpSvrStatsDropUserNotAllowed indicates the number of DHCP packets dropped from hosts which are found in the user database, but which have no address or pool specified, nor has tmnxDhcpServerCfgUseGiAddress set to 'true'.

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5620 SAM counter name	Type	MIB counter name	Description
<b>LocalDhcpServerSubnetStats</b> MIB table name: TIMETRA-DHCP-SERVER-MIB.tmnxDhcpSvrSubnetStatsTable Monitored class: dhcp.Subnet			
declinedAddresses	long	tmnxDhcpSvrSubnetStats Declined	The value of tmnxDhcpSvrSubnetStatsDeclined indicates the number of addresses in this subnet that are declined.
forceRenewPendingLeases	long	tmnxDhcpSvrSubnetStats FRPending	The value of tmnxDhcpSvrSubnetStatsFRPending indicates the number of leases in this subnet that are in state 'forceRenewPending'.
freeAddresses	long	tmnxDhcpSvrSubnetStats Free	The value of tmnxDhcpSvrSubnetStatsFree indicates the number of addresses in this subnet that are free.
offeredLeases	long	tmnxDhcpSvrSubnetStats Offered	The value of tmnxDhcpSvrSubnetStatsOffered indicates the number of leases in this subnet that are in state 'offered'.
removePendingLeases	long	tmnxDhcpSvrSubnetStats RemPending	The value of tmnxDhcpSvrSubnetStatsRemPending indicates the number of leases in this subnet that are in state 'removePending'.
stableLeases	long	tmnxDhcpSvrSubnetStats Stable	The value of tmnxDhcpSvrSubnetStatsStable indicates the number of leases in this subnet that are in state 'stable'.

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Table A-11 diameter statistics

5620 SAM counter name	Type	MIB counter name	Description
<b>DiameterPeerStats</b> MIB table name: TIMETRA-DIAMETER-MIB.tmnxDiamPlcyPeerStatsTable Monitored class: diameter.DiameterPeer			
asaTx	long	tmnxDiamPeerStAsaTx	The value of tmnxDiamPeerStAsaTx indicates the number of Abort-Session-Answer messages that are transmitted to the server. REFERENCE RFC 3588 Diameter Based Protocol, section 8.5.2.
asrRx	long	tmnxDiamPeerStAsrRx	The value of tmnxDiamPeerStAsrRx indicates the number of Abort-Session-Request messages that are received from the server. REFERENCE RFC 3588 Diameter Based Protocol, section 8.5.1.

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5620 SAM counter name	Type	MIB counter name	Description
ccalInitialRx	long	tmnxDiamPeerStCcalInitialRx	The value of tmnxDiamPeerStCcalInitialRx indicates the number of Credit Control Answer messages in response to the CCR INITIAL_REQUEST that are received from the server. REFERENCE RFC 4006 Diameter Credit-Control Application, section 8.3 and Appendix A1.
ccaTerminateRx	long	tmnxDiamPeerStCcaTerminateRx	The value of tmnxDiamPeerStCcaTerminateRx indicates the number of Credit Control Answer messages in response to the CCR TERMINATION_REQUEST that are received from the server. REFERENCE RFC 4006 Diameter Credit-Control Application, section 8.3 and Appendix A1.
ccaUpdateRx	long	tmnxDiamPeerStCcaUpdateRx	The value of tmnxDiamPeerStCcaUpdateRx indicates the number of Credit Control Answer messages in response to the CCR UPDATE_REQUEST that are received from the server. REFERENCE RFC 4006 Diameter Credit-Control Application, section 8.3 and Appendix A1.
ccrInitialTx	long	tmnxDiamPeerStCcrInitialTx	The value of tmnxDiamPeerStCcrInitialTx indicates the number of Credit Control Request messages with CC-Request-Type AVP equal to INITIAL_REQUEST that are transmitted to the server. REFERENCE RFC 4006 Diameter Credit-Control Application, section 8.3 and Appendix A1.
ccrTerminateTx	long	tmnxDiamPeerStCcrTerminateTx	The value of tmnxDiamPeerStCcrTerminateTx indicates the number of Credit Control Request messages with CC-Request-Type AVP equal to TERMINATION_REQUEST that are transmitted to the server. REFERENCE RFC 4006 Diameter Credit-Control Application, section 8.3 and Appendix A1.
ccrUpdateTx	long	tmnxDiamPeerStCcrUpdateTx	The value of tmnxDiamPeerStCcrUpdateTx indicates the number of Credit Control Request messages with CC-Request-Type AVP equal to UPDATE_REQUEST that are transmitted to the server. REFERENCE RFC 4006 Diameter Credit-Control Application, section 8.3 and Appendix A1.
ceaRx	long	tmnxDiamPeerStCeaRx	The value of tmnxDiamPeerStCeaRx indicates the number of Capabilities-Exchange-Answer messages that are received from the server. REFERENCE RFC 3588 Diameter Based Protocol, section 5.3.2.
cerTx	long	tmnxDiamPeerStCerTx	The value of tmnxDiamPeerStCerTx indicates the number of Capabilities-Exchange-Request messages that are transmitted to the server. REFERENCE RFC 3588 Diameter Based Protocol, section 5.3.1.

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5620 SAM counter name	Type	MIB counter name	Description
clientInitiatedPendingMsgsPMQ	long	tmnxDiamPeerStCiPendMsgsPMQ	The value of tmnxDiamPeerStCiPendMsgsPMQ indicates client initiated roundtrip DIAMETER statistics regarding the number of request messages in the Pending Message Queue waiting to be matched with corresponding response messages from the server.
clientInitiatedReqTimeoutsPMQ	long	tmnxDiamPeerStCiReqTimeoutsPMQ	The value of tmnxDiamPeerStCiReqTimeoutsPMQ indicates client initiated roundtrip DIAMETER statistics regarding the number of request messages that were removed from the Pending Message Queue due to a match timeout.
dpaRx	long	tmnxDiamPeerStDpaRx	The value of tmnxDiamPeerStDpaRx indicates the number of Disconnect-Peer-Answer messages that are received from the server. REFERENCE RFC 3588 Diameter Based Protocol, section 5.4.2.
dpaTx	long	tmnxDiamPeerStDpaTx	The value of tmnxDiamPeerStDpaTx indicates the number of Disconnect-Peer-Answer messages that are transmitted to the server. REFERENCE RFC 3588 Diameter Based Protocol, section 5.4.2.
dprRx	long	tmnxDiamPeerStDprRx	The value of tmnxDiamPeerStDprRx indicates the number of Disconnect-Peer-Request messages that are received from the server. REFERENCE RFC 3588 Diameter Based Protocol, section 5.4.1.
dprTx	long	tmnxDiamPeerStDprTx	The value of tmnxDiamPeerStDprTx indicates the number of Disconnect-Peer-Request messages that are transmitted to the server. REFERENCE RFC 3588 Diameter Based Protocol, section 5.4.1.
raaTx	long	tmnxDiamPeerStRaaTx	The value of tmnxDiamPeerStRaaTx indicates the number of Re-Auth-Answer messages that are transmitted to the server. REFERENCE RFC 3588 Diameter Based Protocol, section 8.3.2.
rarRx	long	tmnxDiamPeerStRarRx	The value of tmnxDiamPeerStRarRx indicates the number of Re-Auth-Request messages that are received from the server. REFERENCE RFC 3588 Diameter Based Protocol, section 8.3.1.
siDiameterRxDropCount	long	tmnxDiamPeerStSiDiamRxDropCnt	The value of tmnxDiamPeerStSiDiamRxDropCnt indicates client initiated roundtrip DIAMETER statistics regarding the number of dropped request messages upon reception from server.

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5620 SAM counter name	Type	MIB counter name	Description
siDiameterRxRequests	long	tmnxDiamPeerStSiDiamRxReqs	The value of tmnxDiamPeerStSiDiamRxReqs indicates client initiated roundtrip DIAMETER statistics regarding the number of request messages received from server.
siDiameterTxResponses	long	tmnxDiamPeerStSiDiamTxResps	The value of tmnxDiamPeerStSiDiamTxResps indicates client initiated roundtrip DIAMETER statistics regarding the number of response messages sent to server.
siTcpSendFailed	long	tmnxDiamPeerStSiTcpSendFailed	The value of tmnxDiamPeerStSiTcpSendFailed indicates client initiated roundtrip DIAMETER statistics regarding the number of TCP send failures.
wdaRx	long	tmnxDiamPeerStWdaRx	The value of tmnxDiamPeerStWdaRx indicates the number of Device-Watchdog-Answer messages that are received from the server. REFERENCE RFC 3588 Diameter Based Protocol, section 5.5.2.
wdaTx	long	tmnxDiamPeerStWdaTx	The value of tmnxDiamPeerStWdaTx indicates the number of Device-Watchdog-Answer messages that are transmitted to the server. REFERENCE RFC 3588 Diameter Based Protocol, section 5.5.2.
wdrRx	long	tmnxDiamPeerStWdrRx	The value of tmnxDiamPeerStWdrRx indicates the number of Device-Watchdog-Request messages that are received from the server. REFERENCE RFC 3588 Diameter Based Protocol, section 5.5.1.
wdrTx	long	tmnxDiamPeerStWdrTx	The value of tmnxDiamPeerStWdrTx indicates the number of Device-Watchdog-Request messages that are transmitted to the server. REFERENCE RFC 3588 Diameter Based Protocol, section 5.5.1.

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Table A-12 equipment statistics

5620 SAM counter name	Type	MIB counter name	Description
<b>AllocatedMemoryStats</b> MIB table name: TIMETRA-SYSTEM-MIB.sgiMemoryPoolAllocated Monitored class: equipment.SystemStatsHolder			
allocatedMemory	long	sgiMemoryPoolAllocated	The value of sgiMemoryPoolAllocated indicates the total memory currently allocated in memory-pools on the system. This memory may or may not be currently in use, but is pre-allocated should the software need to use it.

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5620 SAM counter name	Type	MIB counter name	Description
<b>AvailableMemoryStats</b> MIB table name: TIMETRA-SYSTEM-MIB.sgiMemoryAvailable Monitored class: equipment.SystemStatsHolder			
availableMemory	long	sgiMemoryAvailable	The value of sgiMemoryAvailable indicates the amount of free memory in the overall system that is not allocated to memory pools, but is available in case a memory pool needs to grow.
<b>CiscoHDLCStats</b> MIB table name: TIMETRA-PORT-MIB.tmnxCiscoHDLCStatsTable Monitored classes: <ul style="list-style-type: none"> <li>tdmequipment.DS3E3Channel</li> <li>tdmequipment.DS0ChannelGroup</li> </ul>			
discardStatInPkts	long	tmnxCiscoHDLCDiscardStatInPkts	tmnxCiscoHDLCDiscardStatInPkts indicates the number of inbound Cisco HDLC packets discarded.
discardStatOutPkts	long	tmnxCiscoHDLCDiscardStatOutPkts	tmnxCiscoHDLCDiscardStatOutPkts indicates the number of outbound Cisco HDLC packets discarded.
statInOctets	long	tmnxCiscoHDLCStatInOctets	tmnxCiscoHDLCStatInOctets indicates the number of inbound Cisco HDLC octets.
statInPkts	long	tmnxCiscoHDLCStatInPkts	tmnxCiscoHDLCStatInPkts indicates the number of inbound Cisco HDLC packets.
statOutOctets	long	tmnxCiscoHDLCStatOutOctets	tmnxCiscoHDLCStatOutOctets indicates the number of outbound Cisco HDLC octets.
statOutPkts	long	tmnxCiscoHDLCStatOutPkts	tmnxCiscoHDLCStatOutPkts indicates the number of outbound Cisco HDLC packets.
<b>FibNextHopStats</b> MIB table name: TIMETRA-VRTR-MIB.vRtrFibStatNextHopTable Monitored class: equipment.BaseCard			
ipActive	long	vRtrFibStatNextHopIPActive	vRtrFibStatNextHopIPActive indicates current active IP next-hop counts for the FIB on the IOM.
ipAvailable	long	vRtrFibStatNextHopIPAvailable	vRtrFibStatNextHopIPAvailable indicates the available IP next-hop counts for the FIB on the IOM.
tunnelActive	long	vRtrFibStatNextHopTunnelActive	vRtrFibStatNextHopTunnelActive indicates current active Tunnel next-hop counts for the FIB on the IOM.
tunnelAvailable	long	vRtrFibStatNextHopTunnelAvailable	vRtrFibStatNextHopTunnelAvailable indicates the available Tunnel next-hop counts for the FIB on the IOM.
<b>FibStats</b> MIB table name: TIMETRA-VRTR-MIB.vRtrFibStatTable Monitored class: equipment.BaseCard			
aggrRoutes	long	vRtrFibStatAggrRoutes	vRtrFibStatAggrRoutes indicates current aggregate route counts for the virtual router.

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5620 SAM counter name	Type	MIB counter name	Description
alarmCount	long	vRtrFibStatAlarmCount	vRtrFibStatAlarmCount indicates the number of times the FIB has raised an alarm due to high FIB usage.
bgpRoutes	long	vRtrFibStatBGPRoutes	vRtrFibStatBGPRoutes indicates current BGP route counts for the virtual router.
bgpVpnRoutes	long	vRtrFibStatBGPVpnRoutes	vRtrFibStatBGPVpnRoutes indicates current BGP VPN route counts for the virtual router.
directRoutes	long	vRtrFibStatDirectRoutes	vRtrFibStatDirectRoutes indicates current direct route counts for the virtual router.
highUtilization	boolean	vRtrFibStatHighUtilization	vRtrFibStatHighUtilization indicates whether or not the FIB on the IOM is experiences persistent high occupancy.
hostRoutes	long	vRtrFibStatHostRoutes	vRtrFibStatHostRoutes indicates current host route counts for the virtual router.
isisRoutes	long	vRtrFibStatISIRoutes	vRtrFibStatISIRoutes indicates current ISIS route counts for the virtual router.
lastAlarmTime	long	vRtrFibStatLastAlarmTime	vRtrFibStatLastAlarmTime indicates the last time a high FIB usage alarm was raised.
managedRoutes	long	vRtrFibStatManagedRoutes	vRtrFibStatManagedRoutes indicates current managed route counts for the virtual router.
ospfRoutes	long	vRtrFibStatOSPFRoutes	vRtrFibStatOSPFRoutes indicates current OSPF route counts for the virtual router.
overflows	long	vRtrFibStatOverflows	vRtrFibStatOverflows indicates the number of times the FIB has run out of space.
ripRoutes	long	vRtrFibStatRIPRoutes	vRtrFibStatRIPRoutes indicates current RIP route counts for the virtual router.
staticRoutes	long	vRtrFibStatStaticRoutes	vRtrFibStatStaticRoutes indicates current static route counts for the virtual router.
subMgmtRoutes	long	vRtrFibStatSubMgmtRoutes	vRtrFibStatSubMgmtRoutes indicates current Sub-management route counts for the virtual router.
v6AggrRoutes	long	vRtrFibStatV6AggrRoutes	vRtrFibStatV6AggrRoutes indicates current aggregate route counts for the virtual router.
v6BGPRoutes	long	vRtrFibStatV6BGPRoutes	vRtrFibStatV6BGPRoutes indicates current BGP route counts for the virtual router.
v6BGPVpnRoutes	long	vRtrFibStatV6BGPVpnRoutes	vRtrFibStatV6BGPVpnRoutes indicates current BGP VPN route counts for the virtual router.
v6DirectRoutes	long	vRtrFibStatV6DirectRoutes	vRtrFibStatV6DirectRoutes indicates current direct route counts for the virtual router.
v6HostRoutes	long	vRtrFibStatV6HostRoutes	vRtrFibStatV6HostRoutes indicates current host route counts for the virtual router.

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5620 SAM counter name	Type	MIB counter name	Description
v6ISISRoutes	long	vRtrFibStatV6ISISRoutes	vRtrFibStatV6ISISRoutes indicates current ISIS route counts for the virtual router.
v6ManagedRoutes	long	vRtrFibStatV6ManagedRoutes	vRtrFibStatV6ManagedRoutes indicates current managed route counts for the virtual router.
v6OSPFRoutes	long	vRtrFibStatV6OSPFRoutes	vRtrFibStatV6OSPFRoutes indicates current OSPF route counts for the virtual router.
v6RIPRoutes	long	vRtrFibStatV6RIPRoutes	vRtrFibStatV6RIPRoutes indicates current RIP route counts for the virtual router.
v6StaticRoutes	long	vRtrFibStatV6StaticRoutes	vRtrFibStatV6StaticRoutes indicates current static route counts for the virtual router.
v6SubMgmtRoutes	long	vRtrFibStatV6SubMgmtRoutes	vRtrFibStatV6SubMgmtRoutes indicates current Sub-management route counts for the virtual router.
v6VpnLeakRoutes	long	vRtrFibStatV6VPNLeakRoutes	vRtrFibStatV6VPNLeakRoutes indicates current IPv6 VPN Leak route counts for the virtual router.
vpnLeakRoutes	long	vRtrFibStatVPNLeakRoutes	vRtrFibStatVPNLeakRoutes indicates current VPN Leak route counts for the virtual router.
<b>InterfaceAdditionalStats</b> MIB table name: IF-MIB.ifXTable Monitored classes: equipment.PhysicalPort; equipment.ManagementPort; lag.Interface; bundle.Interface; sonetequipment.Sts1Channel; sonetequipment.Sts3Channel; sonetequipment.Sts12Channel; sonetequipment.Sts48Channel; sonetequipment.Sts192Channel; tdmequipment.DS3E3Channel; tdmequipment.DS1E1Channel; tdmequipment.DS0ChannelGroup; ccag.CcagPathCcNetSap; ccag.CcagPathCcSapSap; sonetequipment.Tu3Channel; sonetequipment.TributaryChannel			
receivedBroadcastPackets	UINT128	ifHCInBroadcastPkts	The number of packets, delivered by this sub-layer to a higher (sub-)layer, which were addressed to a broadcast address at this sub-layer. This object is a 64-bit version of ifInBroadcastPkts. Discontinuities in the value of this counter can occur at re-initialization of the management system, and at other times as indicated by the value of ifCounterDiscontinuityTime.
receivedMulticastPackets	UINT128	ifHCInMulticastPkts	The number of packets, delivered by this sub-layer to a higher (sub-)layer, which were addressed to a multicast address at this sub-layer. For a MAC layer protocol, this includes both Group and Functional addresses. This object is a 64-bit version of ifInMulticastPkts. Discontinuities in the value of this counter can occur at re-initialization of the management system, and at other times as indicated by the value of ifCounterDiscontinuityTime.

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5620 SAM counter name	Type	MIB counter name	Description
receivedTotalOctets	UINT128	ifHCInOctets	The total number of octets received on the interface, including framing characters. This object is a 64-bit version of ifInOctets. Discontinuities in the value of this counter can occur at re-initialization of the management system, and at other times as indicated by the value of ifCounterDiscontinuityTime.
receivedUnicastPackets	UINT128	ifHCInUcastPkts	The number of packets, delivered by this sub-layer to a higher (sub-)layer, which were not addressed to a multicast or broadcast address at this sub-layer. This object is a 64-bit version of ifInUcastPkts. Discontinuities in the value of this counter can occur at re-initialization of the management system, and at other times as indicated by the value of ifCounterDiscontinuityTime.
transmittedBroadcastPackets	UINT128	ifHCOutBroadcastPkts	The total number of packets that higher-level protocols requested be transmitted, and which were addressed to a broadcast address at this sub-layer, including those that were discarded or not sent. This object is a 64-bit version of ifOutBroadcastPkts. Discontinuities in the value of this counter can occur at re-initialization of the management system, and at other times as indicated by the value of ifCounterDiscontinuityTime.
transmittedMulticastPackets	UINT128	ifHCOutMulticastPkts	The total number of packets that higher-level protocols requested be transmitted, and which were addressed to a multicast address at this sub-layer, including those that were discarded or not sent. For a MAC layer protocol, this includes both Group and Functional addresses. This object is a 64-bit version of ifOutMulticastPkts. Discontinuities in the value of this counter can occur at re-initialization of the management system, and at other times as indicated by the value of ifCounterDiscontinuityTime.
transmittedTotalOctets	UINT128	ifHCOutOctets	The total number of octets transmitted out of the interface, including framing characters. This object is a 64-bit version of ifOutOctets. Discontinuities in the value of this counter can occur at re-initialization of the management system, and at other times as indicated by the value of ifCounterDiscontinuityTime.

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5620 SAM counter name	Type	MIB counter name	Description
transmittedUnicastPackets	UINT128	ifHCOutUcastPkts	The total number of packets that higher-level protocols requested be transmitted, and which were not addressed to a multicast or broadcast address at this sub-layer, including those that were discarded or not sent. This object is a 64-bit version of ifOutUcastPkts. Discontinuities in the value of this counter can occur at re-initialization of the management system, and at other times as indicated by the value of ifCounterDiscontinuityTime.
<b>InterfaceStats</b> MIB table name: IF-MIB.ifTable Monitored classes: equipment.PhysicalPort; equipment.ManagementPort; lag.Interface; bundle.Interface; sonetequipment.Sts1Channel; sonetequipment.Sts3Channel; sonetequipment.Sts12Channel; sonetequipment.Sts48Channel; sonetequipment.Sts192Channel; tdmequipment.DS3E3Channel; tdmequipment.DS1E1Channel; tdmequipment.DS0ChannelGroup; ccag.CcagPathCcNetSap; ccag.CcagPathCcSapNet; ccag.CcagPathCcSapSap; sonetequipment.Tu3Channel; sonetequipment.TributaryChannel			
outboundBadPackets	long	ifOutErrors	For packet-oriented interfaces, the number of outbound packets that could not be transmitted because of errors. For character-oriented or fixed-length interfaces, the number of outbound transmission units that could not be transmitted because of errors. Discontinuities in the value of this counter can occur at re-initialization of the management system, and at other times as indicated by the value of ifCounterDiscontinuityTime.
outboundPacketsDiscarded	long	ifOutDiscards	The number of outbound packets which were chosen to be discarded even though no errors had been detected to prevent their being transmitted. One possible reason for discarding such a packet could be to free up buffer space. Discontinuities in the value of this counter can occur at re-initialization of the management system, and at other times as indicated by the value of ifCounterDiscontinuityTime.
receivedBadPackets	long	ifInErrors	For packet-oriented interfaces, the number of inbound packets that contained errors preventing them from being deliverable to a higher-layer protocol. For character-oriented or fixed-length interfaces, the number of inbound transmission units that contained errors preventing them from being deliverable to a higher-layer protocol. Discontinuities in the value of this counter can occur at re-initialization of the management system, and at other times as indicated by the value of ifCounterDiscontinuityTime.

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5620 SAM counter name	Type	MIB counter name	Description
receivedOctets	long	ifInOctets	The total number of octets received on the interface, including framing characters. Discontinuities in the value of this counter can occur at re-initialization of the management system, and at other times as indicated by the value of ifCounterDiscontinuityTime.
receivedPacketsDiscarded	long	ifInDiscards	The number of inbound packets which were chosen to be discarded even though no errors had been detected to prevent their being deliverable to a higher-layer protocol. One possible reason for discarding such a packet could be to free up buffer space. Discontinuities in the value of this counter can occur at re-initialization of the management system, and at other times as indicated by the value of ifCounterDiscontinuityTime.
receivedUnicastPackets	long	ifInUcastPkts	The number of packets, delivered by this sub-layer to a higher (sub-)layer, which were not addressed to a multicast or broadcast address at this sub-layer. Discontinuities in the value of this counter can occur at re-initialization of the management system, and at other times as indicated by the value of ifCounterDiscontinuityTime.
receivedUnknownProtocolPackets	long	ifInUnknownProtos	For packet-oriented interfaces, the number of packets received via the interface which were discarded because of an unknown or unsupported protocol. For character-oriented or fixed-length interfaces that support protocol multiplexing the number of transmission units received via the interface which were discarded because of an unknown or unsupported protocol. For any interface that does not support protocol multiplexing, this counter will always be 0. Discontinuities in the value of this counter can occur at re-initialization of the management system, and at other times as indicated by the value of ifCounterDiscontinuityTime.
transmittedOctets	long	ifOutOctets	The total number of octets transmitted out of the interface, including framing characters. Discontinuities in the value of this counter can occur at re-initialization of the management system, and at other times as indicated by the value of ifCounterDiscontinuityTime.

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5620 SAM counter name	Type	MIB counter name	Description
transmittedUnicastPackets	long	ifOutUcastPkts	The total number of packets that higher-level protocols requested be transmitted, and which were not addressed to a multicast or broadcast address at this sub-layer, including those that were discarded or not sent. Discontinuities in the value of this counter can occur at re-initialization of the management system, and at other times as indicated by the value of ifCounterDiscontinuityTime.
<b>IpSecMDAStats</b> MIB table name: TIMETRA-IPSEC-MIB.tmnxIPsecMdaDpStatsTable Monitored class: equipment.DaughterCardSlot			
decryptBytes	UINT128	tmnxIPsecMdaDpStatsDecryptBytes	The value of tmnxIPsecMdaDpStatsDecryptBytes indicates the number of bytes encrypted by the IPsec data path.
decryptPackets	UINT128	tmnxIPsecMdaDpStatsDecryptPkts	The value of tmnxIPsecMdaDpStatsDecryptPkts indicates the number of packets encrypted by the IPsec data path.
encryptBytes	UINT128	tmnxIPsecMdaDpStatsEncryptBytes	The value of tmnxIPsecMdaDpStatsEncryptBytes indicates the number of bytes encrypted by the IPsec data path.
encryptPackets	UINT128	tmnxIPsecMdaDpStatsEncryptPkts	The value of tmnxIPsecMdaDpStatsEncryptPkts indicates the number of packets encrypted by the IPsec data path.
inboundIPDropPackets	UINT128	tmnxIPsecMdaDpStatsInBDropPkts	The value of tmnxIPsecMdaDpStatsInBDropPkts indicates the number of packets dropped before and during inbound (decryption) processing by the IPsec data path.
inboundIPDstSrcMismatches	long	tmnxIPsecMdaDpStatsInBIPDstSrcMismatches	The value of tmnxIPsecMdaDpStatsInBIPDstSrcMismatches indicates the number of packets dropped before inbound (decryption) processing by the IPsec data path due to the received packet's outer IP destination or source address does not match the Tunnel's local or peer gateway address.
inboundSaMisses	UINT128	tmnxIPsecMdaDpStatsInBSAMisses	The value of tmnxIPsecMdaDpStatsInBSAMisses indicates the number of packets dropped before inbound (decryption) processing by the IPsec data path due to no SA (security association) present.
outboundIPDropPackets	UINT128	tmnxIPsecMdaDpStatsOutBDropPkts	The value of tmnxIPsecMdaDpStatsOutBDropPkts indicates the number of packets dropped before and during outbound (encryption) processing by the IPsec data path.

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5620 SAM counter name	Type	MIB counter name	Description
outboundPolicyEntryMisses	long	tmnxIPsecMdaDpStatsOutBPolicyEntryMisses	The value of tmnxIPsecMdaDpStatsOutBPolicyEntryMisses indicates the number of packets dropped before outbound (encryption) processing by the IPsec data path due to no matching Policy Entry.
outboundSaMisses	UINT128	tmnxIPsecMdaDpStatsOutBSAMisses	The value of tmnxIPsecMdaDpStatsOutBSAMisses indicates the number of packets dropped before outbound (encryption) processing by the IPsec data path due to no SA (security association) present.
transmitPacketErrors	long	tmnxIPsecMdaDpStatsTxPktErrs	The value of tmnxIPsecMdaDpStatsTxPktErrs indicates the number of packets transmit failures by the IPsec data path.
<b>MedialIndependentStats</b> MIB table name: HC-RMON-MIB.medialIndependentTable Monitored classes: <ul style="list-style-type: none"> <li>equipment.PhysicalPort</li> <li>equipment.ManagementPort</li> </ul>			
dropEvents	long	medialIndependentDropEvents	The total number of events in which packets were dropped by the probe due to lack of resources. Note that this number is not necessarily the number of packets dropped; it is just the number of times this condition has been detected.
droppedFrames	long	medialIndependentDroppedFrames	The total number of frames which were received by the probe and therefore not accounted for in the medialIndependentDropEvents, but for which the probe chose not to count for this entry for whatever reason. Most often, this event occurs when the probe is out of some resources and decides to shed load from this collection. This count does not include packets that were not counted because they had MAC-layer errors. Note that, unlike the dropEvents counter, this number is the exact number of frames dropped.
duplex	int	medialIndependentDuplexMode	The current mode of this link. Note that if the link has full-duplex capabilities but is operating in half-duplex mode, this value will be halfduplex(1).
duplexChanges	long	medialIndependentDuplexChanges	The number of times this link has changed from full-duplex mode to half-duplex mode or from half-duplex mode to full-duplex mode.
inputSpeed	long	medialIndependentInputSpeed	The nominal maximum speed in kilobits per second of this half-duplex link or on the inbound connection of this full-duplex link. If the speed is unknown or there is no fixed maximum (e.g. a compressed link), this value shall be zero.

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5620 SAM counter name	Type	MIB counter name	Description
outputSpeed	long	mediaIndependentOutputSpeed	The nominal maximum speed in kilobits per second of this full-duplex link in the direction of the network. If the speed is unknown, the link is half-duplex, or there is no fixed maximum (e.g. a compressed link), this value shall be zero.
receivedBadPackets	long	mediaIndependentInErrors	The total number of bad packets received on a half-duplex link or on the inbound connection of a full-duplex link.
receivedNonUnicastPackets	UINT128	mediaIndependentInNUCastHighCapacityPkts	The total number of non-unicast packets (including bad packets) received on a half-duplex link or on the inbound connection of a full-duplex link.
receivedOctets	UINT128	mediaIndependentInHighCapacityOctets	The total number of octets of data (including those in bad packets) received (excluding framing bits but including FCS octets) on a half-duplex link or on the inbound connection of a full-duplex link.
receivedPackets	UINT128	mediaIndependentInHighCapacityPkts	The total number of packets (including bad packets, broadcast packets, and multicast packets) received on a half-duplex link or on the inbound connection of a full-duplex link.
transmittedBadPackets	long	mediaIndependentOutErrors	The total number of bad packets received on a full-duplex link in the direction of the network.
transmittedNonUnicastPackets	UINT128	mediaIndependentOutNUCastHighCapacityPkts	The total number of packets (including bad packets) received on a full-duplex link in the direction of the network.
transmittedOctets	UINT128	mediaIndependentOutHighCapacityOctets	The total number of octets of data (including those in bad packets) received on a full-duplex link in the direction of the network (excluding framing bits but including FCS octets).
transmittedPackets	UINT128	mediaIndependentOutHighCapacityPkts	The total number of packets (including bad packets, broadcast packets, and multicast packets) received on a full-duplex link in the direction of the network.
<b>PortNetEgressStats</b> MIB table name: TIMETRA-PORT-MIB.tmnxPortNetEgressStatsTable Monitored class: equipment.PhysicalPort			
inProfileOctetsDropped	UINT128	tmnxPortNetEgressDroInProfOcts	tmnxPortNetEgressDroInProfOcts indicates the number of conforming network egress octets dropped on this port using this queue.
inProfileOctetsForwarded	UINT128	tmnxPortNetEgressFwdInProfOcts	tmnxPortNetEgressFwdInProfOcts indicates the number of conforming network egress octets forwarded on this port using this queue.
inProfilePacketsDropped	UINT128	tmnxPortNetEgressDroInProfPkts	tmnxPortNetEgressDroInProfPkts indicates the number of conforming network egress packets dropped on this port using this queue.

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5620 SAM counter name	Type	MIB counter name	Description
inProfilePacketsForwarded	UINT128	tmnxPortNetEgressFwdInProfPkts	tmnxPortNetEgressFwdInProfPkts indicates the number of conforming network egress packets forwarded on this port using this queue.
outOfProfileOctetsDropped	UINT128	tmnxPortNetEgressDroOutProfOcts	tmnxPortNetEgressDroOutProfOcts indicates the number of exceeding network egress octets dropped on this port using this queue.
outOfProfileOctetsForwarded	UINT128	tmnxPortNetEgressFwdOutProfOcts	tmnxPortNetEgressFwdOutProfOcts indicates the number of exceeding network egress octets forwarded on this port using this queue.
outOfProfilePacketsDropped	UINT128	tmnxPortNetEgressDroOutProfPkts	tmnxPortNetEgressDroOutProfPkts indicates the number of exceeding network egress packets dropped on this port using this queue.
outOfProfilePacketsForwarded	UINT128	tmnxPortNetEgressFwdOutProfPkts	tmnxPortNetEgressFwdOutProfPkts indicates the number of exceeding network egress packets forwarded on this port using this queue.
queueId	long	tmnxPortNetEgressQueueIndex	tmnxPortNetEgressQueueIndex serves as the tertiary index. When used in conjunction with tmnxChassisIndex and tmnxPortPortID, it uniquely identifies a network egress queue for the specified port in the managed system.
<b>PortNetIngressStats</b> MIB table name: TIMETRA-PORT-MIB.tmnxPortNetIngressStatsTable Monitored class: equipment.PhysicalPort			
inProfileOctetsDropped	UINT128	tmnxPortNetIngressDroInProfOcts	tmnxPortNetIngressDroInProfOcts indicates the number of conforming network ingress octets dropped on this port using this queue.
inProfileOctetsForwarded	UINT128	tmnxPortNetIngressFwdInProfOcts	tmnxPortNetIngressFwdInProfOcts indicates the number of conforming network ingress octets forwarded on this port using this queue.
inProfilePacketsDropped	UINT128	tmnxPortNetIngressDroInProfPkts	tmnxPortNetIngressDroInProfPkts indicates the number of conforming network ingress packets dropped on this port using this queue.
inProfilePacketsForwarded	UINT128	tmnxPortNetIngressFwdInProfPkts	tmnxPortNetIngressFwdInProfPkts indicates the number of conforming network ingress packets forwarded on this port using this queue.
outOfProfileOctetsDropped	UINT128	tmnxPortNetIngressDroOutProfOcts	tmnxPortNetIngressDroOutProfOcts indicates the number of exceeding network ingress octets dropped on this port using this queue.
outOfProfileOctetsForwarded	UINT128	tmnxPortNetIngressFwdOutProfOcts	tmnxPortNetIngressFwdOutProfOcts indicates the number of exceeding network ingress octets forwarded on this port using this queue.

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5620 SAM counter name	Type	MIB counter name	Description
outOfProfilePacketsDropped	UINT128	tmnxPortNetIngressDroOutProfPkts	tmnxPortNetIngressDroOutProfPkts indicates the number of exceeding network ingress packets dropped on this port using this queue.
outOfProfilePacketsForwarded	UINT128	tmnxPortNetIngressFwdOutProfPkts	tmnxPortNetIngressFwdOutProfPkts indicates the number of exceeding network ingress packets forwarded on this port using this queue.
<b>PortTerminationStats</b> MIB table name: TIMETRA-PORT-MIB.tmnxBundleMemberImaTable Monitored class: bundle.PortTermination			
bundleMemberImaErrorIcpCells	long	tmnxBundleMemberImaErrorIcpCells	tmnxBundleMemberImaErrorIcpCells indicates the number of ICP cells with HEC or CRC-10 errors.
bundleMemberImaFeRxNumFails	long	tmnxBundleMemberImaFeRxNumFails	tmnxBundleMemberImaFeRxNumFails indicates the number of times that a far-end receive alarm is set on the IMA link.
bundleMemberImaFeRxUnuseSecs	long	tmnxBundleMemberImaFeRxUnuseSecs	tmnxBundleMemberImaFeRxUnuseSecs indicates the number of unavailable seconds at the far-end receive link state machine.
bundleMemberImaFeSevErrSecs	long	tmnxBundleMemberImaFeSevErrSecs	tmnxBundleMemberImaFeSevErrSecs indicates the number of one second intervals in which the far-end contains IMA-RDI defects.
bundleMemberImaFeTxNumFails	long	tmnxBundleMemberImaFeTxNumFails	tmnxBundleMemberImaFeTxNumFails indicates the number of times that a far-end transmit alarm is set on the IMA link.
bundleMemberImaFeTxUnuseSecs	long	tmnxBundleMemberImaFeTxUnuseSecs	tmnxBundleMemberImaFeTxUnuseSecs indicates the number of unavailable seconds at the far-end transmit link state machine.
bundleMemberImaFeUnavailSecs	long	tmnxBundleMemberImaFeUnavailSecs	tmnxBundleMemberImaFeUnavailSecs indicates the number of unavailable seconds at the near-end.
bundleMemberImaLstRxIcpCells	long	tmnxBundleMemberImaLstRxIcpCells	tmnxBundleMemberImaLstRxIcpCells indicates the number of lost ICP cells at the expected offset.
bundleMemberImaNeRxNumFails	long	tmnxBundleMemberImaNeRxNumFails	tmnxBundleMemberImaNeRxNumFails indicates the number of times that a near-end receive alarm is set on the IMA link.
bundleMemberImaNeRxUnuseSecs	long	tmnxBundleMemberImaNeRxUnuseSecs	tmnxBundleMemberImaNeRxUnuseSecs indicates the number of unavailable seconds at the near-end receive link state machine.
bundleMemberImaNeSevErrSecs	long	tmnxBundleMemberImaNeSevErrSecs	tmnxBundleMemberImaNeSevErrSecs indicates the number of one second intervals in which thirty percent or more of the near-end ICP cells are in violation, or link defects have occurred.

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5620 SAM counter name	Type	MIB counter name	Description
bundleMemberImaNeTxNumFails	long	tmnxBundleMemberImaN eTxNumFails	tmnxBundleMemberImaNeTxNumFails indicates the number of times that a near-end transmit alarm is set on the IMA link.
bundleMemberImaNeTxUnuseSecs	long	tmnxBundleMemberImaN eTxUnuseSecs	tmnxBundleMemberImaNeTxUnuseSecs indicates the number of unavailable seconds at the near-end transmit link state machine.
bundleMemberImaNeUnavailSecs	long	tmnxBundleMemberImaN eUnavailSecs	tmnxBundleMemberImaNeUnavailSecs indicates the number of unavailable seconds at the near-end.
bundleMemberImaOifAnomalies	long	tmnxBundleMemberImaOi fAnomalies	tmnxBundleMemberImaOifAnomalies indicates the number of OIF anomalies at the near-end.
bundleMemberImaRxIcpCells	long	tmnxBundleMemberImaR xIcpCells	tmnxBundleMemberImaRxIcpCells indicates the number of ICP cells that have been received on the IMA link.
bundleMemberImaTxIcpCells	long	tmnxBundleMemberImaT xIcpCells	tmnxBundleMemberImaTxIcpCells indicates the number of ICP cells that have been transmitted on the IMA link.
bundleMemberImaViolations	long	tmnxBundleMemberImaVi olations	tmnxBundleMemberImaViolations indicates the number of ICP violations including errored, invalid or missing ICP cells.
<b>SystemCpuStats</b> MIB table name: TIMETRA-SYSTEM-MIB.sgiCpuUsage Monitored class: equipment.SystemStatsHolder			
systemCpuUsage	long	sgiCpuUsage	The value of sgiCpuUsage indicates the current CPU utilization for the system.
<b>SystemMemoryStats</b> MIB table name: TIMETRA-SYSTEM-MIB.sgiMemoryUsed Monitored class: equipment.SystemStatsHolder			
systemMemoryUsage	long	sgiMemoryUsed	The value of sgiMemoryUsed indicates the total pre-allocated pool memory currently in use on the system.

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Table A-13 ethernetequipment statistics

5620 SAM counter name	Type	MIB counter name	Description
<b>AdditionalEthernetStats</b> MIB table name: TIMETRA-PORT-MIB.tmnxPortEtherTable Monitored classes: <ul style="list-style-type: none"> <li>equipment.PhysicalPort</li> <li>equipment.ManagementPort</li> </ul>			

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5620 SAM counter name	Type	MIB counter name	Description
highCapacityPackets1519toMaxFrameSize	UINT128	tmnxPortEtherHCPkts1519toMax	The total number of packets (including bad packets) received that were between 1519 octets in length and the maximum frame size, usually 12287 octets inclusive (excluding framing bits but including FCS octets). The lower 32-bits of this 64-bit counter will equal the value of tmnxPortEtherHCPkts1519toMax. The high 32-bits of this counter will equal the value of tmnxPortEtherHCOverPkts1519toMax.
packets1519toMaxFrameSize	long	tmnxPortEtherPkts1519toMax	The total number of packets received that were longer than 1518 octets but less than the maximum frame size for the particular medium, usually 12287 octets (excluding framing bits, but including FCS octets) and were otherwise well formed.
<b>Dot3Stats</b> MIB table name: EtherLike-MIB.dot3StatsTable Monitored class: equipment.PhysicalPort			
alignmentErrors	long	dot3StatsAlignmentErrors	A count of frames received on a particular interface that are not an integral number of octets in length and do not pass the FCS check. The count represented by an instance of this object is incremented when the alignmentError status is returned by the MAC service to the LLC (or other MAC user). Received frames for which multiple error conditions pertain are, according to the conventions of IEEE 802.3 Layer Management, counted exclusively according to the error status presented to the LLC. This counter does not increment for group encoding schemes greater than 4 bits per group. For interfaces operating at 10 Gb/s, this counter can roll over in less than 5 minutes if it is incrementing at its maximum rate. Since that amount of time could be less than a management station's poll cycle time, in order to avoid a loss of information, a management station is advised to poll the dot3HCStatsAlignmentErrors object for 10 Gb/s or faster interfaces. Discontinuities in the value of this counter can occur at re-initialization of the management system, and at other times as indicated by the value of ifCounterDiscontinuityTime. REFERENCE [IEEE 802.3 Std.], 30.3.1.1.7, aAlignmentErrors.

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5620 SAM counter name	Type	MIB counter name	Description
carrierSenseErrors	long	dot3StatsCarrierSenseErrors	The number of times that the carrier sense condition was lost or never asserted when attempting to transmit a frame on a particular interface. The count represented by an instance of this object is incremented at most once per transmission attempt, even if the carrier sense condition fluctuates during a transmission attempt. This counter does not increment when the interface is operating in full-duplex mode. Discontinuities in the value of this counter can occur at re-initialization of the management system, and at other times as indicated by the value of ifCounterDiscontinuityTime. REFERENCE [IEEE 802.3 Std.], 30.3.1.1.13, aCarrierSenseErrors.
deferredTransmissions	long	dot3StatsDeferredTransmissions	A count of frames for which the first transmission attempt on a particular interface is delayed because the medium is busy. The count represented by an instance of this object does not include frames involved in collisions. This counter does not increment when the interface is operating in full-duplex mode. Discontinuities in the value of this counter can occur at re-initialization of the management system, and at other times as indicated by the value of ifCounterDiscontinuityTime. REFERENCE [IEEE 802.3 Std.], 30.3.1.1.9, aFramesWithDeferredXmissions.
duplex	int	dot3StatsDuplexStatus	The current mode of operation of the MAC entity. 'unknown' indicates that the current duplex mode could not be determined. Management control of the duplex mode is accomplished through the MAU MIB. When an interface does not support autonegotiation, or when autonegotiation is not enabled, the duplex mode is controlled using ifMauDefaultType. When autonegotiation is supported and enabled, duplex mode is controlled using ifMauAutoNegAdvertisedBits. In either case, the currently operating duplex mode is reflected both in this object and in ifMauType. Note that this object provides redundant information with ifMauType. Normally, redundant objects are discouraged. However, in this instance, it allows a management application to determine the duplex status of an interface without having to know every possible value of ifMauType. This was felt to be sufficiently valuable to justify the redundancy. REFERENCE [IEEE 802.3 Std.], 30.3.1.1.32, aDuplexStatus.

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5620 SAM counter name	Type	MIB counter name	Description
excessiveCollisions	long	dot3StatsExcessiveCollisions	A count of frames for which transmission on a particular interface fails due to excessive collisions. This counter does not increment when the interface is operating in full-duplex mode. Discontinuities in the value of this counter can occur at re-initialization of the management system, and at other times as indicated by the value of ifCounterDiscontinuityTime. REFERENCE [IEEE 802.3 Std.], 30.3.1.1.11, aFramesAbortedDueToXSColls.
fcsErrors	long	dot3StatsFCSErrors	A count of frames received on a particular interface that are an integral number of octets in length but do not pass the FCS check. This count does not include frames received with frame-too-long or frame-too-short error. The count represented by an instance of this object is incremented when the frameCheckError status is returned by the MAC service to the LLC (or other MAC user). Received frames for which multiple error conditions pertain are, according to the conventions of IEEE 802.3 Layer Management, counted exclusively according to the error status presented to the LLC. Note: Coding errors detected by the physical layer for speeds above 10 Mb/s will cause the frame to fail the FCS check. For interfaces operating at 10 Gb/s, this counter can roll over in less than 5 minutes if it is incrementing at its maximum rate. Since that amount of time could be less than a management station's poll cycle time, in order to avoid a loss of information, a management station is advised to poll the dot3HCStatsFCSErrors object for 10 Gb/s or faster interfaces. Discontinuities in the value of this counter can occur at re-initialization of the management system, and at other times as indicated by the value of ifCounterDiscontinuityTime. REFERENCE [IEEE 802.3 Std.], 30.3.1.1.6, aFrameCheckSequenceErrors.

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5620 SAM counter name	Type	MIB counter name	Description
frameTooLongs	long	dot3StatsFrameTooLongs	A count of frames received on a particular interface that exceed the maximum permitted frame size. The count represented by an instance of this object is incremented when the frameTooLong status is returned by the MAC service to the LLC (or other MAC user). Received frames for which multiple error conditions pertain are, according to the conventions of IEEE 802.3 Layer Management, counted exclusively according to the error status presented to the LLC. For interfaces operating at 10 Gb/s, this counter can roll over in less than 80 minutes if it is incrementing at its maximum rate. Since that amount of time could be less than a management station's poll cycle time, in order to avoid a loss of information, a management station is advised to poll the dot3HCStatsFrameTooLongs object for 10 Gb/s or faster interfaces. Discontinuities in the value of this counter can occur at re-initialization of the management system, and at other times as indicated by the value of ifCounterDiscontinuityTime. REFERENCE [IEEE 802.3 Std.], 30.3.1.1.25, aFrameTooLongErrors.
internalMacReceiveErrors	long	dot3StatsInternalMacReceiveErrors	A count of frames for which reception on a particular interface fails due to an internal MAC sublayer receive error. A frame is only counted by an instance of this object if it is not counted by the corresponding instance of either the dot3StatsFrameTooLongs object, the dot3StatsAlignmentErrors object, or the dot3StatsFCSErrors object. The precise meaning of the count represented by an instance of this object is implementation-specific. In particular, an instance of this object may represent a count of receive errors on a particular interface that are not otherwise counted. For interfaces operating at 10 Gb/s, this counter can roll over in less than 5 minutes if it is incrementing at its maximum rate. Since that amount of time could be less than a management station's poll cycle time, in order to avoid a loss of information, a management station is advised to poll the dot3HCStatsInternalMacReceiveErrors object for 10 Gb/s or faster interfaces. Discontinuities in the value of this counter can occur at re-initialization of the management system, and at other times as indicated by the value of ifCounterDiscontinuityTime. REFERENCE [IEEE 802.3 Std.], 30.3.1.1.15, aFramesLostDueToIntMACRcvError.

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5620 SAM counter name	Type	MIB counter name	Description
internalMacTransmitErrors	long	dot3StatsInternalMacTransmitErrors	A count of frames for which transmission on a particular interface fails due to an internal MAC sublayer transmit error. A frame is only counted by an instance of this object if it is not counted by the corresponding instance of either the dot3StatsLateCollisions object, the dot3StatsExcessiveCollisions object, or the dot3StatsCarrierSenseErrors object. The precise meaning of the count represented by an instance of this object is implementation-specific. In particular, an instance of this object may represent a count of transmission errors on a particular interface that are not otherwise counted. For interfaces operating at 10 Gb/s, this counter can roll over in less than 5 minutes if it is incrementing at its maximum rate. Since that amount of time could be less than a management station's poll cycle time, in order to avoid a loss of information, a management station is advised to poll the dot3HCStatsInternalMacTransmitErrors object for 10 Gb/s or faster interfaces. Discontinuities in the value of this counter can occur at re-initialization of the management system, and at other times as indicated by the value of ifCounterDiscontinuityTime. REFERENCE [IEEE 802.3 Std.], 30.3.1.1.12, aFramesLostDueToIntMACXmitError.
lateCollisions	long	dot3StatsLateCollisions	The number of times that a collision is detected on a particular interface later than one slotTime into the transmission of a packet. A (late) collision included in a count represented by an instance of this object is also considered as a (generic) collision for purposes of other collision-related statistics. This counter does not increment when the interface is operating in full-duplex mode. Discontinuities in the value of this counter can occur at re-initialization of the management system, and at other times as indicated by the value of ifCounterDiscontinuityTime. REFERENCE [IEEE 802.3 Std.], 30.3.1.1.10, aLateCollisions.

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5620 SAM counter name	Type	MIB counter name	Description
multipleCollisionFrames	long	dot3StatsMultipleCollisionFrames	A count of frames that are involved in more than one collision and are subsequently transmitted successfully. A frame that is counted by an instance of this object is also counted by the corresponding instance of either the ifOutUcastPkts, ifOutMulticastPkts, or ifOutBroadcastPkts, and is not counted by the corresponding instance of the dot3StatsSingleCollisionFrames object. This counter does not increment when the interface is operating in full-duplex mode. Discontinuities in the value of this counter can occur at re-initialization of the management system, and at other times as indicated by the value of ifCounterDiscontinuityTime. REFERENCE [IEEE 802.3 Std.], 30.3.1.1.4, aMultipleCollisionFrames.
singleCollisionFrames	long	dot3StatsSingleCollisionFrames	A count of frames that are involved in a single collision, and are subsequently transmitted successfully. A frame that is counted by an instance of this object is also counted by the corresponding instance of either the ifOutUcastPkts, ifOutMulticastPkts, or ifOutBroadcastPkts, and is not counted by the corresponding instance of the dot3StatsMultipleCollisionFrames object. This counter does not increment when the interface is operating in full-duplex mode. Discontinuities in the value of this counter can occur at re-initialization of the management system, and at other times as indicated by the value of ifCounterDiscontinuityTime. REFERENCE [IEEE 802.3 Std.], 30.3.1.1.3, aSingleCollisionFrames.
sqeTestErrors	long	dot3StatsSQETestErrors	A count of times that the SQE TEST ERROR is received on a particular interface. The SQE TEST ERROR is set in accordance with the rules for verification of the SQE detection mechanism in the PLS Carrier Sense Function as described in IEEE Std. 802.3, 2000 Edition, section 7.2.4.6. This counter does not increment on interfaces operating at speeds greater than 10 Mb/s, or on interfaces operating in full-duplex mode. Discontinuities in the value of this counter can occur at re-initialization of the management system, and at other times as indicated by the value of ifCounterDiscontinuityTime. REFERENCE [IEEE 802.3 Std.], 7.2.4.6, also 30.3.2.1.4, aSQETestErrors.

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5620 SAM counter name	Type	MIB counter name	Description
symbolErrors	long	dot3StatsSymbolErrors	For an interface operating at 100 Mb/s, the number of times there was an invalid data symbol when a valid carrier was present. For an interface operating in half-duplex mode at 1000 Mb/s, the number of times the receiving media is non-idle (a carrier event) for a period of time equal to or greater than slotTime, and during which there was at least one occurrence of an event that causes the PHY to indicate 'Data reception error' or 'carrier extend error' on the GMII. For an interface operating in full-duplex mode at 1000 Mb/s, the number of times the receiving media is non-idle (a carrier event) for a period of time equal to or greater than minFrameSize, and during which there was at least one occurrence of an event that causes the PHY to indicate 'Data reception error' on the GMII. For an interface operating at 10 Gb/s, the number of times the receiving media is non-idle (a carrier event) for a period of time equal to or greater than minFrameSize, and during which there was at least one occurrence of an event that causes the PHY to indicate 'Receive Error' on the XGMII. The count represented by an instance of this object is incremented at most once per carrier event, even if multiple symbol errors occur during the carrier event. This count does not increment if a collision is present. This counter does not increment when the interface is operating at 10 Mb/s. For interfaces operating at 10 Gb/s, this counter can roll over in less than 5 minutes if it is incrementing at its maximum rate. Since that amount of time could be less than a management station's poll cycle time, in order to avoid a loss of information, a management station is advised to poll the dot3HCStatsSymbolErrors object for 10 Gb/s or faster interfaces. Discontinuities in the value of this counter can occur at re-initialization of the management system, and at other times as indicated by the value of ifCounterDiscontinuityTime. REFERENCE [IEEE 802.3 Std.], 30.3.2.1.5, aSymbolErrorDuringCarrier.
<b>EthernetHighCapacityStats</b> MIB table name: HC-RMON-MIB.etherStatsHighCapacityTable Monitored classes: <ul style="list-style-type: none"> <li>• equipment.PhysicalPort</li> <li>• equipment.ManagementPort</li> </ul>			
packets1024to1518Octets	UINT128	etherStatsHighCapacityPackets1024to1518Octets	The total number of packets (including bad packets) received that were between 1024 and 1518 octets in length inclusive (excluding framing bits but including FCS octets).

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5620 SAM counter name	Type	MIB counter name	Description
packets128to255Octets	UINT128	etherStatsHighCapacityPkts128to255Octets	The total number of packets (including bad packets) received that were between 128 and 255 octets in length inclusive (excluding framing bits but including FCS octets).
packets256to511Octets	UINT128	etherStatsHighCapacityPkts256to511Octets	The total number of packets (including bad packets) received that were between 256 and 511 octets in length inclusive (excluding framing bits but including FCS octets).
packets512to1023Octets	UINT128	etherStatsHighCapacityPkts512to1023Octets	The total number of packets (including bad packets) received that were between 512 and 1023 octets in length inclusive (excluding framing bits but including FCS octets).
packets64Octets	UINT128	etherStatsHighCapacityPkts64Octets	The total number of packets (including bad packets) received that were 64 octets in length (excluding framing bits but including FCS octets).
packets65to127Octets	UINT128	etherStatsHighCapacityPkts65to127Octets	The total number of packets (including bad packets) received that were between 65 and 127 octets in length inclusive (excluding framing bits but including FCS octets).

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5620 SAM counter name	Type	MIB counter name	Description
totalOctets	UINT128	etherStatsHighCapacityOctets	<p>The total number of octets of data (including those in bad packets) received on the network (excluding framing bits but including FCS octets). If the network is half-duplex Fast Ethernet, this object can be used as a reasonable estimate of utilization. If greater precision is desired, the etherStatsHighCapacityPkts and etherStatsHighCapacityOctets objects should be sampled before and after a common interval. The differences in the sampled values are Pkts and Octets, respectively, and the number of seconds in the interval is Interval. These values are used to calculate the Utilization as follows: <math>Pkts * (.96 + .64) + (Octets * .08)</math></p> <p>Utilization = ----- Interval * 10,000</p> <p>The result of this equation is the value Utilization which is the percent utilization of the ethernet segment on a scale of 0 to 100 percent. This table is not appropriate for monitoring full-duplex ethernet. If the network is a full-duplex ethernet and the mediaIndependentTable is monitoring that network, the utilization can be calculated as follows: 1) Determine the utilization of the inbound path by using the appropriate equation (for ethernet or fast ethernet) to determine the utilization, substituting mediaIndependentInPkts for etherStatsHighCapacityPkts, and mediaIndependentInOctets for etherStatsHighCapacityOctets. Call the resulting utilization inUtilization. 2) Determine the utilization of the outbound path by using the same equation to determine the utilization, substituting mediaIndependentOutPkts for etherStatsHighCapacityPkts, and mediaIndependentOutOctets for etherStatsHighCapacityOctets. Call the resulting utilization outUtilization. 3) The utilization is the maximum of inUtilization and outUtilization. This metric shows the amount of percentage of bandwidth that is left before congestion will be experienced on the link.</p>
totalPackets	UINT128	etherStatsHighCapacityPkts	The total number of packets (including bad packets, broadcast packets, and multicast packets) received.
<b>EthernetStats</b> MIB table name: RMON-MIB.etherStatsTable Monitored classes: <ul style="list-style-type: none"> <li>• equipment.PhysicalPort</li> <li>• equipment.ManagementPort</li> </ul>			
broadcastPackets	long	etherStatsBroadcastPkts	The total number of good packets received that were directed to the broadcast address. Note that this does not include multicast packets.

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5620 SAM counter name	Type	MIB counter name	Description
collisions	long	etherStatsCollisions	The best estimate of the total number of collisions on this Ethernet segment. The value returned will depend on the location of the RMON probe. Section 8.2.1.3 (10BASE-5) and section 10.3.1.3 (10BASE-2) of IEEE standard 802.3 states that a station must detect a collision, in the receive mode, if three or more stations are transmitting simultaneously. A repeater port must detect a collision when two or more stations are transmitting simultaneously. Thus a probe placed on a repeater port could record more collisions than a probe connected to a station on the same segment would. Probe location plays a much smaller role when considering 10BASE-T. 14.2.1.4 (10BASE-T) of IEEE standard 802.3 defines a collision as the simultaneous presence of signals on the DO and RD circuits (transmitting and receiving at the same time). A 10BASE-T station can only detect collisions when it is transmitting. Thus probes placed on a station and a repeater, should report the same number of collisions. Note also that an RMON probe inside a repeater should ideally report collisions between the repeater and one or more other hosts (transmit collisions as defined by IEEE 802.3k) plus receiver collisions observed on any coax segments to which the repeater is connected.
crcAlignErrors	long	etherStatsCRCAlignErrors	The total number of packets received that had a length (excluding framing bits, but including FCS octets) of between 64 and 1518 octets, inclusive, but had either a bad Frame Check Sequence (FCS) with an integral number of octets (FCS Error) or a bad FCS with a non-integral number of octets (Alignment Error).
dropEvents	long	etherStatsDropEvents	The total number of events in which packets were dropped by the probe due to lack of resources. Note that this number is not necessarily the number of packets dropped; it is just the number of times this condition has been detected.
fragments	long	etherStatsFragments	The total number of packets received that were less than 64 octets in length (excluding framing bits but including FCS octets) and had either a bad Frame Check Sequence (FCS) with an integral number of octets (FCS Error) or a bad FCS with a non-integral number of octets (Alignment Error). Note that it is entirely normal for etherStatsFragments to increment. This is because it counts both runts (which are normal occurrences due to collisions) and noise hits.

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5620 SAM counter name	Type	MIB counter name	Description
jabbers	long	etherStatsJabbers	The total number of packets received that were longer than 1518 octets (excluding framing bits, but including FCS octets), and had either a bad Frame Check Sequence (FCS) with an integral number of octets (FCS Error) or a bad FCS with a non-integral number of octets (Alignment Error). Note that this definition of jabber is different than the definition in IEEE-802.3 section 8.2.1.5 (10BASE5) and section 10.3.1.4 (10BASE2). These documents define jabber as the condition where any packet exceeds 20 ms. The allowed range to detect jabber is between 20 ms and 150 ms.
multicastPackets	long	etherStatsMulticastPkts	The total number of good packets received that were directed to a multicast address. Note that this number does not include packets directed to the broadcast address.
oversizePackets	long	etherStatsOversizePkts	The total number of packets received that were longer than 1518 octets (excluding framing bits, but including FCS octets) and were otherwise well formed.
packets1024to1518Octets	long	etherStatsPkts1024to1518Octets	The total number of packets (including bad packets) received that were between 1024 and 1518 octets in length inclusive (excluding framing bits but including FCS octets).
packets128to255Octets	long	etherStatsPkts128to255Octets	The total number of packets (including bad packets) received that were between 128 and 255 octets in length inclusive (excluding framing bits but including FCS octets).
packets256to511Octets	long	etherStatsPkts256to511Octets	The total number of packets (including bad packets) received that were between 256 and 511 octets in length inclusive (excluding framing bits but including FCS octets).
packets512to1023Octets	long	etherStatsPkts512to1023Octets	The total number of packets (including bad packets) received that were between 512 and 1023 octets in length inclusive (excluding framing bits but including FCS octets).
packets64Octets	long	etherStatsPkts64Octets	The total number of packets (including bad packets) received that were 64 octets in length (excluding framing bits but including FCS octets).
packets65to127Octets	long	etherStatsPkts65to127Octets	The total number of packets (including bad packets) received that were between 65 and 127 octets in length inclusive (excluding framing bits but including FCS octets).

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5620 SAM counter name	Type	MIB counter name	Description
totalOctets	long	etherStatsOctets	The total number of octets of data (including those in bad packets) received on the network (excluding framing bits but including FCS octets). This object can be used as a reasonable estimate of 10-Megabit ethernet utilization. If greater precision is desired, the etherStatsPkts and etherStatsOctets objects should be sampled before and after a common interval. The differences in the sampled values are Pkts and Octets, respectively, and the number of seconds in the interval is Interval. These values are used to calculate the Utilization as follows: $\text{Pkts} * (9.6 + 6.4) + (\text{Octets} * .8) \text{ Utilization} = \text{Interval} * 10,000$ The result of this equation is the value Utilization which is the percent utilization of the ethernet segment on a scale of 0 to 100 percent.
totalPackets	long	etherStatsPkts	The total number of packets (including bad packets, broadcast packets, and multicast packets) received.
undersizePackets	long	etherStatsUndersizePkts	The total number of packets received that were less than 64 octets long (excluding framing bits, but including FCS octets) and were otherwise well formed.
<b>OtulfStats</b> MIB table name: TIMETRA-OTU-MIB.tmnxOtulfRawStatsTable Monitored class: equipment.PhysicalPort			
fecCorrOnes	long	tmnxOtulfRawStatsFECCorrOnes	The value of tmnxOtulfRawStatsFECCorrOnes indicates the number of Forward Error Correction (FEC) corrected ones.
fecCorrZeros	long	tmnxOtulfRawStatsFECCorrZeros	The value of tmnxOtulfRawStatsFECCorrZeros indicates the number of Forward Error Correction (FEC) corrected zeros.
fecSes	long	tmnxOtulfRawStatsFECSES	The value of tmnxOtulfRawStatsFECSES indicates the number of Forward Error Correction (FEC) Severely Errors Seconds (SES).
fecUncorrSr	long	tmnxOtulfRawStatsFECUncorrSR	The value of tmnxOtulfRawStatsFECUncorrSR indicates the number of Forward Error Correction (FEC) Uncorrectable Sub-Rows.
hcFecCorrOnes	UINT128	tmnxOtulfRawStatsHCFEC CorrOnes	The value of tmnxOtulfRawStatsHCFEC CorrOnes indicates the High Capacity number of Forward Error Correction (FEC) corrected ones.
hcFecCorrZeros	UINT128	tmnxOtulfRawStatsHCFEC CorrZeros	The value of tmnxOtulfRawStatsHCFEC CorrZeros indicates the High Capacity number of Forward Error Correction (FEC) corrected zeros.

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5620 SAM counter name	Type	MIB counter name	Description
hcFecUncorrSr	UINT128	tmnxOtuIfRawStatsHCFECUncorrSR	The value of tmnxOtuIfRawStatsHCFECUncorrSR indicates the High Capacity number of Forward Error Correction (FEC) Uncorrectable Sub-Rows.
hcPmBei	UINT128	tmnxOtuIfRawStatsHCPMBEI	The value of tmnxOtuIfRawStatsPMBEI indicates the High Capacity number of Path Monitoring (PM) Backward Error Indication (BEI) errors.
hcPmBip8	UINT128	tmnxOtuIfRawStatsHCPMBIP8	The value of tmnxOtuIfRawStatsHCPMBIP8 indicates the High Capacity number of Path Monitoring (PM) BIP8 errors.
hcSmBei	UINT128	tmnxOtuIfRawStatsHCSMBEI	The value of tmnxOtuIfRawStatsHCSMBEI indicates the High Capacity number of Section Monitoring (SM) Backward Error Indication (BEI) errors.
hcSmBip8	UINT128	tmnxOtuIfRawStatsHCSMBIP8	The value of tmnxOtuIfRawStatsHCSMBIP8 indicates the High Capacity number of Section Monitoring (SM) BIP8 errors.
ofFecCorrOnes	long	tmnxOtuIfRawStatsOFFECCorrOnes	The value of tmnxOtuIfRawStatsFECCorrOnes indicates the number of times the tmnxOtuIfRawStatsFECCorrOnes overflowed.
ofFecCorrZeros	long	tmnxOtuIfRawStatsOFFECCorrZeros	The value of tmnxOtuIfRawStatsOFFECCorrZeros indicates the number of times the tmnxOtuIfRawStatsFECCorrZeros overflowed.
ofFecUncorrSr	long	tmnxOtuIfRawStatsOFFECUncorrSR	The value of tmnxOtuIfRawStatsOFFECUncorrSR indicates the number of times the tmnxOtuIfRawStatsFECUncorrSR overflowed.
ofPmBei	long	tmnxOtuIfRawStatsOFPMBEI	The value of tmnxOtuIfRawStatsOFPMBEI indicates the number of times tmnxOtuIfRawStatsPMBEI overflowed.
ofPmBip8	long	tmnxOtuIfRawStatsOFPMBIP8	The value of tmnxOtuIfRawStatsOFPMBIP8 indicates the number of times the tmnxOtuIfRawStatsPMBIP8 overflowed.
ofSmBei	long	tmnxOtuIfRawStatsOFSMBEI	The value of tmnxOtuIfRawStatsOFSMBEI indicates the number of times the tmnxOtuIfRawStatsSMBEI overflowed.
ofSmBip8	long	tmnxOtuIfRawStatsOFSMBIP8	The value of tmnxOtuIfRawStatsOFSMBIP8 indicates the number of times the tmnxOtuIfRawStatsSMBIP8 overflowed.
pmBei	long	tmnxOtuIfRawStatsPMBEI	The value of tmnxOtuIfRawStatsPMBEI indicates the number of Path Monitoring (PM) Backward Error Indication (BEI) errors.
pmBip8	long	tmnxOtuIfRawStatsPMBIP8	The value of tmnxOtuIfRawStatsPMBIP8 indicates the number of Path Monitoring (PM) BIP8 errors.

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5620 SAM counter name	Type	MIB counter name	Description
pmSes	long	tmnxOtulfRawStatsPMSES	The value of tmnxOtulfRawStatsPMSES indicates the number of Path Monitoring (PM) Severely Errored Seconds (SES).
smBei	long	tmnxOtulfRawStatsSMBEI	The value of tmnxOtulfRawStatsSMBEI indicates the number of Section Monitoring (SM) Backward Error Indication (BEI) errors.
smBip8	long	tmnxOtulfRawStatsSMBIP8	The value of tmnxOtulfRawStatsSMBIP8 indicates the number of Section Monitoring (SM) BIP8 errors.
smSes	long	tmnxOtulfRawStatsSMSES	The value of tmnxOtulfRawStatsSMSES indicates the number of Section Monitoring (SM) Severely Errored Seconds (SES).
<b>PortEgrQosQueueStat</b> MIB table name: TIMETRA-PORT-MIB.tmnxPortEgrQosQStatTable Monitored class: ethernetEquipment.AccessEgrQGroup			
portEgrQosQStatDpdInProfOcts	UINT128	tmnxPortEgrQosQStatDpdInProfOcts	The value of tmnxPortEgrQosQStatDpdInProfOcts indicates the number of in-profile octets discarded by the egress Qchip due to: MBS exceeded, buffer pool limit exceeded, etc.
portEgrQosQStatDpdInProfPkts	UINT128	tmnxPortEgrQosQStatDpdInProfPkts	The value of tmnxPortEgrQosQStatDpdInProfPkts indicates the number of in-profile packets discarded by the egress Qchip due to: MBS exceeded, buffer pool limit exceeded, etc.
portEgrQosQStatDpdOutProfOcts	UINT128	tmnxPortEgrQosQStatDpdOutProfOcts	The value of tmnxPortEgrQosQStatDpdOutProfOcts indicates the number of out-of-profile octets discarded by the egress Qchip due to: MBS exceeded, buffer pool limit exceeded, etc.
portEgrQosQStatDpdOutProfPkts	UINT128	tmnxPortEgrQosQStatDpdOutProfPkts	The value of tmnxPortEgrQosQStatDpdOutProfPkts indicates the number of out-of-profile packets discarded by the egress Qchip due to: MBS exceeded, buffer pool limit exceeded, etc.
portEgrQosQStatFwdInProfOcts	UINT128	tmnxPortEgrQosQStatFwdInProfOcts	The value of tmnxPortEgrQosQStatFwdInProfOcts indicates the number of in-profile octets (rate below CIR) forwarded by the egress Qchip.
portEgrQosQStatFwdInProfPkts	UINT128	tmnxPortEgrQosQStatFwdInProfPkts	The value of tmnxPortEgrQosQStatFwdInProfPkts indicates the number of in-profile packets (rate below CIR) forwarded by the egress Qchip.
portEgrQosQStatFwdOutProfOcts	UINT128	tmnxPortEgrQosQStatFwdOutProfOcts	The value of tmnxPortEgrQosQStatFwdOutProfOcts indicates the number of out-of-profile octets (rate above CIR) forwarded by the egress Qchip.

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5620 SAM counter name	Type	MIB counter name	Description
portEgrQosQStatFwdOutProfPkts	UINT128	tmnxPortEgrQosQStatFwdOutProfPkts	The value of tmnxPortEgrQosQStatFwdOutProfPkts indicates the number of out-of-profile packets (rate above CIR) forwarded by the egress Qchip.
portEgrQosQStatQueueId	long	tmnxPortEgrQosQStatQueueId	The value of tmnxPortEgrQosQStatQueueId specifies the queue-group queue ID which is used as the fourth index to the table entry.
<b>PortIngQosQueueStat</b> MIB table name: TIMETRA-PORT-MIB.tmnxPortIngQosQStatTable Monitored class: ethernetEquipment.AccessIngrQGroup			
portIngQosQStatDpdHiPrioOcts	UINT128	tmnxPortIngQosQStatDpdHiPrioOcts	The value of tmnxPortIngQosQStatDpdHiPrioOcts indicates the number of high priority octets, as determined by the port ingress QoS policy, dropped by the Qchip due to: MBS exceeded, buffer pool limit exceeded, etc.
portIngQosQStatDpdHiPrioPkts	UINT128	tmnxPortIngQosQStatDpdHiPrioPkts	The value of tmnxPortIngQosQStatDpdHiPrioPkts indicates the number of high priority packets, as determined by the port ingress QoS policy, dropped by the Qchip due to: MBS exceeded, buffer pool limit exceeded, etc.
portIngQosQStatDpdLoPrioOcts	UINT128	tmnxPortIngQosQStatDpdLoPrioOcts	The value of tmnxPortIngQosQStatDpdLoPrioOcts indicates the number of low priority octets, as determined by the port ingress QoS policy, dropped by the Qchip due to: MBS exceeded, buffer pool limit exceeded, etc.
portIngQosQStatDpdLoPrioPkts	UINT128	tmnxPortIngQosQStatDpdLoPrioPkts	The value of tmnxPortIngQosQStatDpdLoPrioPkts indicates the number of low priority packets, as determined by the port ingress QoS policy, dropped by the Qchip due to: MBS exceeded, buffer pool limit exceeded, etc.
portIngQosQStatFwdInProfOcts	UINT128	tmnxPortIngQosQStatFwdInProfOcts	The value of tmnxPortIngQosQStatFwdInProfOcts indicates the number of in-profile octets (rate below CIR) forwarded by the ingress Qchip.
portIngQosQStatFwdInProfPkts	UINT128	tmnxPortIngQosQStatFwdInProfPkts	The value of tmnxPortIngQosQStatFwdInProfPkts indicates the number of in-profile packets (rate below CIR) forwarded by the ingress Qchip.
portIngQosQStatFwdOutProfOcts	UINT128	tmnxPortIngQosQStatFwdOutProfOcts	The value of tmnxPortIngQosQStatFwdOutProfOcts indicates the number of out-of-profile octets (rate above CIR) forwarded by the ingress Qchip.

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5620 SAM counter name	Type	MIB counter name	Description
portIngQosQStatFwdOutProfPkts	UINT128	tmnxPortIngQosQStatFwdOutProfPkts	The value of tmnxPortIngQosQStatFwdOutProfPkts indicates the number of out-of-profile packets (rate above CIR) forwarded by the ingress Qchip.
portIngQosQStatOffHiPrioOcts	UINT128	tmnxPortIngQosQStatOffHiPrioOcts	The value of tmnxPortIngQosQStatOffHiPrioOcts indicates the number of high priority octets, as determined by the port ingress QoS policy, offered by the Pchip to the Qchip.
portIngQosQStatOffHiPrioPkts	UINT128	tmnxPortIngQosQStatOffHiPrioPkts	The value of tmnxPortIngQosQStatOffHiPrioPkts indicates the number of high priority packets, as determined by the port ingress QoS policy, offered by the Pchip to the Qchip.
portIngQosQStatOffLoPrioOcts	UINT128	tmnxPortIngQosQStatOffLoPrioOcts	The value of tmnxPortIngQosQStatOffLoPrioOcts indicates the number of low priority octets, as determined by the port ingress QoS policy, offered by the Pchip to the Qchip.
portIngQosQStatOffLoPrioPkts	UINT128	tmnxPortIngQosQStatOffLoPrioPkts	The value of tmnxPortIngQosQStatOffLoPrioPkts indicates the number of low priority packets, as determined by the port ingress QoS policy, offered by the Pchip to the Qchip.
portIngQosQStatQueueId	long	tmnxPortIngQosQStatQueueId	The value of tmnxPortIngQosQStatQueueId specifies the queue-group queue ID which is used as the fourth index to the table entry.
portIngQosQStatUncolOctsOff	UINT128	tmnxPortIngQosQStatUncolOctsOff	The value of tmnxPortIngQosQStatUncolOctsOff indicates the number of uncolored octets offered to the ingress Qchip.
portIngQosQStatUncolPktsOff	UINT128	tmnxPortIngQosQStatUncolPktsOff	The value of tmnxPortIngQosQStatUncolPktsOff indicates the number of uncolored packets offered to the ingress Qchip.
<b>PortNetEgrQueueStat</b> MIB table name: TIMETRA-PORT-MIB.tmnxPortNetEgrQStatTable Monitored class: ethernetEquipment.NetworkEgrQGroup			
portNetEgrQDroInProfOcts	UINT128	tmnxPortNetEgrQDroInProfOcts	The value of tmnxPortNetEgrQDroInProfOcts indicates the number of conforming network egress octets dropped on this port using this queue-group queue.
portNetEgrQDroInProfPkts	UINT128	tmnxPortNetEgrQDroInProfPkts	The value of tmnxPortNetEgrQDroInProfPkts indicates the number of conforming network egress packets dropped on this port using this queue-group queue.

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5620 SAM counter name	Type	MIB counter name	Description
portNetEgrQDroOutProfOcts	UINT128	tmnxPortNetEgrQDroOutProfOcts	The value of tmnxPortNetEgrQDroOutProfOcts indicates the number of exceeding network egress octets dropped on this port using this queue-group queue.
portNetEgrQDroOutProfPkts	UINT128	tmnxPortNetEgrQDroOutProfPkts	The value of tmnxPortNetEgrQDroOutProfPkts indicates the number of exceeding network egress packets dropped on this port using this queue-group queue.
portNetEgrQFwdInProfOcts	UINT128	tmnxPortNetEgrQFwdInProfOcts	The value of tmnxPortNetEgrQFwdInProfOcts indicates the number of conforming network egress octets forwarded on this port using this queue-group queue.
portNetEgrQFwdInProfPkts	UINT128	tmnxPortNetEgrQFwdInProfPkts	The value of tmnxPortNetEgrQFwdInProfPkts indicates the number of conforming network egress packets forwarded on this port using this queue-group queue.
portNetEgrQFwdOutProfOcts	UINT128	tmnxPortNetEgrQFwdOutProfOcts	The value of tmnxPortNetEgrQFwdOutProfOcts indicates the number of exceeding network egress octets forwarded on this port using this queue-group queue.
portNetEgrQFwdOutProfPkts	UINT128	tmnxPortNetEgrQFwdOutProfPkts	The value of tmnxPortNetEgrQFwdOutProfPkts indicates the number of exceeding network egress packets forwarded on this port using this queue-group queue.
portNetEgrQStatQueueId	long	tmnxPortEgrQosQStatQueueId	The value of tmnxPortEgrQosQStatQueueId specifies the queue-group queue ID which is used as the fourth index to the table entry.
<b>QosDroppedOctetStats</b> MIB table name: TIMETRA-PORT-MIB.tmnxPortIngrMdaQosStatTable Monitored class: equipment.PhysicalPort			
qosClassifier0DroppedOctets	UINT128	tmnxPortIngrMdaQos0StatDropOcts	tmnxPortIngrMdaQos0StatDropOcts indicates the number of octets dropped on the oversubscribed MDA for given Qos classifier result because of an overload condition on the MDA.
qosClassifier10DroppedOctets	UINT128	tmnxPortIngrMdaQos10StatDropOcts	tmnxPortIngrMdaQos10StatDropOcts indicates the number of octets dropped on the oversubscribed MDA for given Qos classifier result because of an overload condition on the MDA.
qosClassifier11DroppedOctets	UINT128	tmnxPortIngrMdaQos11StatDropOcts	tmnxPortIngrMdaQos11StatDropOcts indicates the number of octets dropped on the oversubscribed MDA for given Qos classifier result because of an overload condition on the MDA.

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5620 SAM counter name	Type	MIB counter name	Description
qosClassifier12DroppedOctets	UINT128	tmnxPortIngrMdaQos12StatDropOcts	tmnxPortIngrMdaQos12StatDropOcts indicates the number of octets dropped on the oversubscribed MDA for given Qos classifier result because of an overload condition on the MDA.
qosClassifier13DroppedOctets	UINT128	tmnxPortIngrMdaQos13StatDropOcts	tmnxPortIngrMdaQos13StatDropOcts indicates the number of octets dropped on the oversubscribed MDA for given Qos classifier result because of an overload condition on the MDA.
qosClassifier14DroppedOctets	UINT128	tmnxPortIngrMdaQos14StatDropOcts	tmnxPortIngrMdaQos14StatDropOcts indicates the number of octets dropped on the oversubscribed MDA for given Qos classifier result because of an overload condition on the MDA.
qosClassifier15DroppedOctets	UINT128	tmnxPortIngrMdaQos15StatDropOcts	tmnxPortIngrMdaQos15StatDropOcts indicates the number of octets dropped on the oversubscribed MDA for given Qos classifier result because of an overload condition on the MDA.
qosClassifier1DroppedOctets	UINT128	tmnxPortIngrMdaQos01StatDropOcts	tmnxPortIngrMdaQos01StatDropOcts indicates the number of octets dropped on the oversubscribed MDA for given Qos classifier result because of an overload condition on the MDA.
qosClassifier2DroppedOctets	UINT128	tmnxPortIngrMdaQos02StatDropOcts	tmnxPortIngrMdaQos02StatDropOcts indicates the number of octets dropped on the oversubscribed MDA for given Qos classifier result because of an overload condition on the MDA.
qosClassifier3DroppedOctets	UINT128	tmnxPortIngrMdaQos03StatDropOcts	tmnxPortIngrMdaQos03StatDropOcts indicates the number of octets dropped on the oversubscribed MDA for given Qos classifier result because of an overload condition on the MDA.
qosClassifier4DroppedOctets	UINT128	tmnxPortIngrMdaQos04StatDropOcts	tmnxPortIngrMdaQos04StatDropOcts indicates the number of octets dropped on the oversubscribed MDA for given Qos classifier result because of an overload condition on the MDA.
qosClassifier5DroppedOctets	UINT128	tmnxPortIngrMdaQos05StatDropOcts	tmnxPortIngrMdaQos05StatDropOcts indicates the number of octets dropped on the oversubscribed MDA for given Qos classifier result because of an overload condition on the MDA.
qosClassifier6DroppedOctets	UINT128	tmnxPortIngrMdaQos06StatDropOcts	tmnxPortIngrMdaQos06StatDropOcts indicates the number of octets dropped on the oversubscribed MDA for given Qos classifier result because of an overload condition on the MDA.
qosClassifier7DroppedOctets	UINT128	tmnxPortIngrMdaQos07StatDropOcts	tmnxPortIngrMdaQos07StatDropOcts indicates the number of octets dropped on the oversubscribed MDA for given Qos classifier result because of an overload condition on the MDA.

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5620 SAM counter name	Type	MIB counter name	Description
qosClassifier8DroppedOctets	UINT128	tmnxPortIngrMdaQos08StatDropOcts	tmnxPortIngrMdaQos08StatDropOcts indicates the number of octets dropped on the oversubscribed MDA for given Qos classifier result because of an overload condition on the MDA.
qosClassifier9DroppedOctets	UINT128	tmnxPortIngrMdaQos09StatDropOcts	tmnxPortIngrMdaQos09StatDropOcts indicates the number of octets dropped on the oversubscribed MDA for given Qos classifier result because of an overload condition on the MDA.
<b>QosDroppedPacketStats</b> MIB table name: TIMETRA-PORT-MIB.tmnxPortIngrMdaQosStatTable Monitored class: equipment.PhysicalPort			
qosClassifier0DroppedPackets	UINT128	tmnxPortIngrMdaQos00StatDropPkts	tmnxPortIngrMdaQos00StatDropPkts indicates the number of packets dropped on the oversubscribed MDA for given Qos classifier result because of an overload condition on the MDA.
qosClassifier10DroppedPackets	UINT128	tmnxPortIngrMdaQos10StatDropPkts	tmnxPortIngrMdaQos10StatDropPkts indicates the number of packets dropped on the oversubscribed MDA for given Qos classifier result because of an overload condition on the MDA.
qosClassifier11DroppedPackets	UINT128	tmnxPortIngrMdaQos11StatDropPkts	tmnxPortIngrMdaQos11StatDropPkts indicates the number of packets dropped on the oversubscribed MDA for given Qos classifier result because of an overload condition on the MDA.
qosClassifier12DroppedPackets	UINT128	tmnxPortIngrMdaQos12StatDropPkts	tmnxPortIngrMdaQos12StatDropPkts indicates the number of packets dropped on the oversubscribed MDA for given Qos classifier result because of an overload condition on the MDA.
qosClassifier13DroppedPackets	UINT128	tmnxPortIngrMdaQos13StatDropPkts	tmnxPortIngrMdaQos13StatDropPkts indicates the number of packets dropped on the oversubscribed MDA for given Qos classifier result because of an overload condition on the MDA.
qosClassifier14DroppedPackets	UINT128	tmnxPortIngrMdaQos14StatDropPkts	tmnxPortIngrMdaQos14StatDropPkts indicates the number of packets dropped on the oversubscribed MDA for given Qos classifier result because of an overload condition on the MDA.
qosClassifier15DroppedPackets	UINT128	tmnxPortIngrMdaQos15StatDropPkts	tmnxPortIngrMdaQos15StatDropPkts indicates the number of packets dropped on the oversubscribed MDA for given Qos classifier result because of an overload condition on the MDA.
qosClassifier1DroppedPackets	UINT128	tmnxPortIngrMdaQos01StatDropPkts	tmnxPortIngrMdaQos01StatDropPkts indicates the number of packets dropped on the oversubscribed MDA for given Qos classifier result because of an overload condition on the MDA.

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5620 SAM counter name	Type	MIB counter name	Description
qosClassifier2DroppedPackets	UINT128	tmnxPortIngrMdaQos02StatDropPkts	tmnxPortIngrMdaQos02StatDropPkts indicates the number of packets dropped on the oversubscribed MDA for given Qos classifier result because of an overload condition on the MDA.
qosClassifier3DroppedPackets	UINT128	tmnxPortIngrMdaQos03StatDropPkts	tmnxPortIngrMdaQos03StatDropPkts indicates the number of packets dropped on the oversubscribed MDA for given Qos classifier result because of an overload condition on the MDA.
qosClassifier4DroppedPackets	UINT128	tmnxPortIngrMdaQos04StatDropPkts	tmnxPortIngrMdaQos04StatDropPkts indicates the number of packets dropped on the oversubscribed MDA for given Qos classifier result because of an overload condition on the MDA.
qosClassifier5DroppedPackets	UINT128	tmnxPortIngrMdaQos05StatDropPkts	tmnxPortIngrMdaQos05StatDropPkts indicates the number of packets dropped on the oversubscribed MDA for given Qos classifier result because of an overload condition on the MDA.
qosClassifier6DroppedPackets	UINT128	tmnxPortIngrMdaQos06StatDropPkts	tmnxPortIngrMdaQos06StatDropPkts indicates the number of packets dropped on the oversubscribed MDA for given Qos classifier result because of an overload condition on the MDA.
qosClassifier7DroppedPackets	UINT128	tmnxPortIngrMdaQos07StatDropPkts	tmnxPortIngrMdaQos07StatDropPkts indicates the number of packets dropped on the oversubscribed MDA for given Qos classifier result because of an overload condition on the MDA.
qosClassifier8DroppedPackets	UINT128	tmnxPortIngrMdaQos08StatDropPkts	tmnxPortIngrMdaQos08StatDropPkts indicates the number of packets dropped on the oversubscribed MDA for given Qos classifier result because of an overload condition on the MDA.
qosClassifier9DroppedPackets	UINT128	tmnxPortIngrMdaQos09StatDropPkts	tmnxPortIngrMdaQos09StatDropPkts indicates the number of packets dropped on the oversubscribed MDA for given Qos classifier result because of an overload condition on the MDA.
<b>WaveLengthTrackerStats</b> MIB table name: TIMETRA-PORT-MIB.tmnxWaveTrackerTable Monitored class: ethernetEquipment.WaveLengthTracker			
targetPower	float	tmnxWaveTrackerTargetPower	The value of tmnxWaveTrackerTargetPower specifies the desired average output power of the interface's transmitted optical signal when tmnxWaveTrackerPowerCtrlEnable is set to 'true (1)'. The UNITS millibels (mBm) are units of 0.01 decibel relative to one milliwatt (dBm) or dBm multiplied by 100. The mBm is used when integers are required instead of floating point. For example: -5.21 dBm is equivalent to -521 mBm. DEFVAL { -2000 }.

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5620 SAM counter name	Type	MIB counter name	Description
waveTrackerLowerPowerMargin	float	tmnxWaveTrackerLowerPowerMargin	tmnxWaveTrackerLowerPowerMargin indicates how much the average output power of the interface's transmitted optical signal can be decreased. The UNITS mBm are units of 0.01 dB or dB multiplied by 100. The mB is used when integers are required instead of floating point. For example: 5.21 dB is equivalent to 521 mB.
waveTrackerMeasuredPower	float	tmnxWaveTrackerMeasuredPower	tmnxWaveTrackerMeasuredPower indicates the current average output power of the interface's transmitted optical signal. The UNITS mBm are units of 0.01 dBm or dBm multiplied by 100. The mBm is used when integers are required instead of floating point. For example: -5.21 dBm is equivalent to -521 mBm.
waveTrackerUpperPowerMargin	float	tmnxWaveTrackerUpperPowerMargin	tmnxWaveTrackerUpperPowerMargin indicates how much the average output power of the interface's transmitted optical signal can be increased. The UNITS millibels (mB) are units of 0.01 dB or dB multiplied by 100. The mB is used when integers are required instead of floating point. For example: 5.21 dB is equivalent to 521 mB.

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Table A-14 fr statistics

5620 SAM counter name	Type	MIB counter name	Description
<b>InterfaceStats</b> MIB table name: TIMETRA-PORT-MIB.tmnxFRDLcmiTable Monitored class: fr.Interface			
lmiDiscardedMessages	long	tmnxFRDLcmiDiscardedMsgs	tmnxFRDLcmiDiscardedMsgs indicates the number of times the LMI agent discarded a received message because it wasn't expecting it, the type of message was incorrect, or the contents of the message were invalid.
lmiInvalidRxSeqNumMessages	long	tmnxFRDLcmiInvRxSeqNumMsgs	tmnxFRDLcmiInvRxSeqNumMsgs indicates the number of times the LMI agent received a message with an invalid receive sequence number: i.e. a sequence number that does not match the last transmitted sequence number of the agent.
lmiRxStatusEnquiryMessages	long	tmnxFRDLcmiRxStatusEnqMsgs	tmnxFRDLcmiRxStatusEnqMsgs indicates the number of LMI Status Enquiry messages received on this Frame Relay interface.
lmiRxStatusMessages	long	tmnxFRDLcmiRxStatusMsgs	tmnxFRDLcmiRxStatusMsgs indicates the number of LMI Status messages received on this Frame Relay interface.

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5620 SAM counter name	Type	MIB counter name	Description
lmiStatusEnquiryMsgTimeouts	long	tmnxFRDLcmiStatusEnqMsgTimeouts	tmnxFRDLcmiStatusEnqMsgTimeouts indicates the number of times the LMI agent did not receive a Status Enquiry message within the allotted time.
lmiStatusMsgTimeouts	long	tmnxFRDLcmiStatusMsgTimeouts	tmnxFRDLcmiStatusMsgTimeouts indicates the number of times the LMI agent did not receive a Status message within the allotted time.
lmiTxStatusEnquiryMessages	long	tmnxFRDLcmiTxStatusEnqMsgs	tmnxFRDLcmiTxStatusEnqMsgs indicates the number of LMI Status Enquiry messages transmitted on this Frame Relay interface.
lmiTxStatusMessages	long	tmnxFRDLcmiTxStatusMsgs	tmnxFRDLcmiTxStatusMsgs indicates the number of LMI Status messages transmitted on this Frame Relay interface.

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Table A-15 gsmpp statistics

5620 SAM counter name	Type	MIB counter name	Description
<b>GsmppSessionStats</b> MIB table name: TIMETRA-GSMP-MIB.tmnxAncpSessionStatsTable Monitored class: gsmpp.GsmppGroupNeighborSession			
ancpAckReceived	long	tmnxAncpSesStatRxAck	The value of tmnxAncpSesStatRxAck indicates the number of GSMP ACK messages received in this ANCP session.
ancpAckTransmitted	long	tmnxAncpSesStatTxAck	The value of tmnxAncpSesStatTxAck indicates the number of GSMP ACK messages that were transmitted to the ANCP neighbor in this ANCP session.
ancpLoopBackReceived	long	tmnxAncpSesStatRxLoopback	The value of tmnxAncpSesStatRxLoopback indicates the number of GSMP Loopback messages received in this ANCP session.
ancpLoopBackTransmitted	long	tmnxAncpSesStatTxLoopback	The value of tmnxAncpSesStatTxLoopback indicates the number of GSMP Loopback messages that were transmitted to the ANCP neighbor in this ANCP session.
ancpPortDownReceived	long	tmnxAncpSesStatRxPortDown	The value of tmnxAncpSesStatRxPortDown indicates the number of GSMP 'PortDown' messages received in this ANCP session.
ancpPortDownTransmitted	long	tmnxAncpSesStatTxPortDown	The value of tmnxAncpSesStatTxPortDown indicates the number of GSMP 'PortDown' messages that were transmitted to the ANCP neighbor in this session.
ancpPortUpReceived	long	tmnxAncpSesStatRxPortUp	The value of tmnxAncpSesStatRxPortUp indicates the number of GSMP 'PortUp' messages received in this ANCP session.

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5620 SAM counter name	Type	MIB counter name	Description
anCPPortUpTransmitted	long	tmnxAnCPsESStatTxPortUp	The value of tmnxAnCPsESStatTxPortUp indicates the number of GSMP 'PortUp' messages that were transmitted to the ANCP neighbor in this session.
anCPRstAckReceived	long	tmnxAnCPsESStatRxRstAck	The value of tmnxAnCPsESStatRxRstAck indicates the number of GSMP RST ACK messages received in this ANCP session.
anCPRstAckTransmitted	long	tmnxAnCPsESStatTxRstAck	The value of tmnxAnCPsESStatTxRstAck indicates the number of GSMP RST ACK messages that were transmitted to the ANCP neighbor in this session.
anCPSynAckReceived	long	tmnxAnCPsESStatRxSynAck	The value of tmnxAnCPsESStatRxSynAck indicates the number of GSMP SYN ACK messages received in this ANCP session.
anCPSynAckTransmitted	long	tmnxAnCPsESStatTxSynAck	The value of tmnxAnCPsESStatTxSynAck indicates the number of GSMP SYN ACK messages that were transmitted to the ANCP neighbor in this ANCP session.
anCPSynReceived	long	tmnxAnCPsESStatRxSyn	The value of tmnxAnCPsESStatRxSyn indicates the number of GSMP SYN messages received in this ANCP session.
anCPSynTransmitted	long	tmnxAnCPsESStatTxSyn	The value of tmnxAnCPsESStatTxSyn indicates the number of GSMP SYN messages that were transmitted to the ANCP neighbor in this ANCP session.
anCPTransmittedDropped	long	tmnxAnCPsESStatTxDrop	The value of tmnxAnCPsESStatTxDrop indicates the number of GSMP protocol messages that were created by the system in order for them to be sent to the ANCP neighbor, but were never transmitted.

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Table A-16 igmp statistics

5620 SAM counter name	Type	MIB counter name	Description
<b>InterfaceStats</b> MIB table name: TIMETRA-IGMP-MIB.vRtrIgmPlfStatsTable Monitored class: igmp.Interface			
importPolicyDrops	long	vRtrIgmPlfImportPolicyDrops	The value of vRtrIgmPlfImportPolicyDrops indicates the total number of times IGMP protocol instance matched the host IP address or group/source addresses specified in the import policy vRtrIgmPlfImportPolicy.
mcacPolicyDrops	long	vRtrIgmPlfStatsMcacPolicyDrops	The value of the object vRtrIgmPlfStatsMcacPolicyDrops indicates the number times an IGMP Group is dropped because of applying a multicast CAC policy on this interface.

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5620 SAM counter name	Type	MIB counter name	Description
rxBadChecksumPkts	long	vRtrIgmplfRxBadChecksumPkts	The value of vRtrIgmplfRxBadChecksumPkts indicates the total number of IGMP packets with bad checksum received on this interface.
rxBadEncodings	long	vRtrIgmplfRxBadEncodings	The value of vRtrIgmplfRxBadEncodings indicates the total number of IGMP packets received on this interface which were not encoded correctly.
rxBadLenPkts	long	vRtrIgmplfRxBadLenPkts	The value of vRtrIgmplfRxBadLenPkts indicates the total number of IGMP packets with bad length received on this interface.
rxBadReceiveIfPkts	long	vRtrIgmplfRxBadReceiveIfPkts	The value of vRtrIgmplfRxBadReceiveIfPkts indicates the total number of IGMP packets incorrectly received on this interface.
rxGenQueries	long	vRtrIgmplfRxGenQueries	The value of vRtrIgmplfRxGenQueries indicates the total number of IGMP General Queries received on this interface.
rxGrpQueries	long	vRtrIgmplfRxGrpQueries	The value of vRtrIgmplfRxGrpQueries indicates the number of IGMP Group Specific Queries received on this interface.
rxGrpSrcQueries	long	vRtrIgmplfRxGrpSrcQueries	The value of vRtrIgmplfRxGrpSrcQueries indicates the number of IGMP Group and Source Specific Queries received on this interface.
rxLeaves	long	vRtrIgmplfRxLeaves	The value of vRtrIgmplfRxLeaves indicates the total number of IGMP V2 Leaves received on this interface.
rxNonLocal	long	vRtrIgmplfRxNonLocal	The value of vRtrIgmplfRxNonLocal indicates the total number of IGMP packets received from a non-local sender.
rxNoRtrAlertPkts	long	vRtrIgmplfRxNoRtrAlertPkts	The value of vRtrIgmplfRxNoRtrAlertPkts indicates the total number of IGMPv3 packets received on this interface which did not have the router alert flag set.
rxPktDrops	long	vRtrIgmplfRxPktDrops	The value of vRtrIgmplfRxPktDrops indicates the total number of IGMP packets that were received on this interface but were dropped.
rxUnknownTypePkts	long	vRtrIgmplfRxUnknownTypePkts	The value of vRtrIgmplfRxUnknownTypePkts indicates the total number of IGMP packets with unknown type received on this interface.
rxV1Reports	long	vRtrIgmplfRxV1Reports	The value of vRtrIgmplfRxV1Reports indicates the total number of IGMP V1 Reports received on this interface.
rxV2Reports	long	vRtrIgmplfRxV2Reports	The value of vRtrIgmplfRxV2Reports indicates the total number of IGMP V2 Reports received on this interface.

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5620 SAM counter name	Type	MIB counter name	Description
rxV3Reports	long	vRtrIgmplfRxV3Reports	The value of vRtrIgmplfRxV3Reports indicates the total number of IGMP V3 Reports received on this interface.
rxWrongVersions	long	vRtrIgmplfRxWrongVersions	The value of vRtrIgmplfRxWrongVersions indicates the total number of IGMP packets with wrong versions received on this interface.
statsSGTypes	long	vRtrIgmplfStatsSGTypes	The value of vRtrIgmplfStatsSGTypes indicates the number of entries on this interface for which the source type is 'sg'.
statsStarGTypes	long	vRtrIgmplfStatsStarGTypes	vRtrIgmplfStatsStarGTypes indicates the number of entries on this interface for which the source type is 'starG'.
txErrors	long	vRtrIgmplfTxErrors	The value of vRtrIgmplfTxErrors indicates the total number of times there was an error transmitting IGMP packets on this interface..
txGenQueries	long	vRtrIgmplfTxGenQueries	The value of vRtrIgmplfTxGenQueries indicates the number of IGMP General Queries transmitted on this interface.
txGrpQueries	long	vRtrIgmplfTxGrpQueries	The value of vRtrIgmplfTxGrpQueries indicates the number of IGMP Group Specific Queries transmitted on this interface.
txGrpSrcQueries	long	vRtrIgmplfTxGrpSrcQueries	The value of vRtrIgmplfTxGrpSrcQueries indicates the number of IGMP Group and Source Specific Queries transmitted on this interface.
txLeaves	long	vRtrIgmplfTxLeaves	The value of vRtrIgmplfTxLeaves indicates the total number of IGMP Leaves transmitted on this interface.
txV1Reports	long	vRtrIgmplfTxV1Reports	The value of vRtrIgmplfTxV1Reports indicates the total number of IGMP V1 Reports transmitted on this interface.
txV2Reports	long	vRtrIgmplfTxV2Reports	The value of vRtrIgmplfTxV2Reports indicates the total number of IGMP V2 Reports transmitted on this interface.
txV3Reports	long	vRtrIgmplfTxV3Reports	The value of vRtrIgmplfTxV3Reports indicates the total number of IGMP V3 Reports transmitted on this interface.
<b>InterfaceStatsExtension</b> MIB table name: TIMETRA-IGMP-MIB.vRtrIgmplfStatsTable Monitored class: igmp.Interface			
rxLocalScopePkts	long	vRtrIgmplfRxLocalScopePkts	The value of the object vRtrIgmplfRxLocalScopePkts indicates the number of IGMP packets received on the link-local scope IPv4 multicast address.
rxRsvdScopePkts	long	vRtrIgmplfRxRsvdScopePkts	The value of the object vRtrIgmplfRxRsvdScopePkts indicates the number of IGMP packets received on the reserved scope IPv4 multicast address.

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Table A-17 ipsec statistics

5620 SAM counter name	Type	MIB counter name	Description
<b>IPSecSASStats</b> MIB table name: TIMETRA-IPSEC-MIB.tmnxIPsecSASStatsTable Monitored class: ipsec.IPSecSecurityAssociation			
bytesProcessed	UINT128	tmnxIPsecSASStatsBytesProcessed	The value of tmnxIPsecSASStatsBytesProcessed indicates the number of bytes successfully processed for this SA.
cryptoErrors	long	tmnxIPsecSASStatsCryptoErrors	The value of tmnxIPsecSASStatsCryptoErrors indicates the number of crypto errors encountered on this SA. The crypto errors include errors on packets where protocol does not match or if the check on authentication header length failed.
pktsProcessed	UINT128	tmnxIPsecSASStatsPktsProcessed	The value of tmnxIPsecSASStatsPktsProcessed indicates the number of packets successfully processed for this SA.
policyErrors	long	tmnxIPsecSASStatsPolicyErrors	The value of tmnxIPsecSASStatsPolicyErrors indicates the number of policy errors encountered on this SA. The policy errors include bundled SA, selector check and policy direction error.
replayErrors	long	tmnxIPsecSASStatsReplayErrors	The value of tmnxIPsecSASStatsReplayErrors indicates the number of replay errors encountered on this SA.
saErrors	long	tmnxIPsecSASStatsSAErrors	The value of tmnxIPsecSASStatsSAErrors indicates the number of SA errors encountered on this SA. The SA errors include sequence number failure, invalid SA, policy version mismatch, illegal authentication algorithm, expanded packet too big, illegal configured algorithm and ttl decrement error.
<b>IPSecTunnelStats</b> MIB table name: TIMETRA-IPSEC-MIB.tmnxIPsecTunnelStatsTable Monitored class: ipsec.IPSecTunnel			
isakmpEstabTime	long	tmnxIPsecTunnelIsakmpEstabTime	The value of tmnxIPsecTunnelIsakmpEstabTime indicates the sysUpTime at the time the IPsec phase 1 negotiation completed.
isakmpNegLifeTime	long	tmnxIPsecTunnelIsakmpNegLifeTime	The value of tmnxIPsecTunnelIsakmpNegLifeTime indicates the lifetime negotiated for phase1 lke key.
isakmpState	long	tmnxIPsecTunnelIsakmpState	The value of tmnxIPsecTunnelIsakmpState indicates the state of phase 1 IPsec negotiation.

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5620 SAM counter name	Type	MIB counter name	Description
numCtrlPktsRx	long	tmnxIPsecTunnelNumCtrlPktsRx	The value of tmnxIPsecTunnelNumCtrlPktsRx indicates the number of control packets this IPsec Tunnel has received.
numCtrlPktsTx	long	tmnxIPsecTunnelNumCtrlPktsTx	The value of tmnxIPsecTunnelNumCtrlPktsTx indicates the number of control packets this IPsec Tunnel has sent.
numCtrlRxErrors	long	tmnxIPsecTunnelNumCtrlRxErrors	The value of tmnxIPsecTunnelNumCtrlRxErrors indicates the number of control packet receive errors.
numCtrlTxErrors	long	tmnxIPsecTunnelNumCtrlTxErrors	The value of tmnxIPsecTunnelNumCtrlTxErrors indicates the number of control packet transmit errors.
numDpdAckRx	long	tmnxIPsecTunnelNumDpdAckRx	The value of tmnxIPsecTunnelNumDpdAckRx indicates the number of Dead-Peer-Detection acknowledgement packets received.
numDpdAckTx	long	tmnxIPsecTunnelNumDpdAckTx	The value of tmnxIPsecTunnelNumDpdAckTx indicates the number of Dead-Peer-Detection acknowledgement packets transmitted.
numDpdRx	long	tmnxIPsecTunnelNumDpdRx	The value of tmnxIPsecTunnelNumDpdRx indicates the number of Dead-Peer-Detection packets received.
numDpdTx	long	tmnxIPsecTunnelNumDpdTx	The value of tmnxIPsecTunnelNumDpdTx indicates the number of Dead-Peer-Detection packets transmitted.
numExpRx	long	tmnxIPsecTunnelNumExpRx	The value of tmnxIPsecTunnelNumExpRx indicates the number of DPD R-U-THERE packets that have not been acknowledged.
numInvalidDpdRx	long	tmnxIPsecTunnelNumInvalidDpdRx	The value of tmnxIPsecTunnelNumInvalidDpdRx indicates the number of malformed DPD R-U-THERE acknowledgement packets received.

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Table A-18 isa statistics

5620 SAM counter name	Type	MIB counter name	Description
<b>AaGroupEgrQStats</b> MIB table name: TIMETRA-BSX-NG-MIB.tmnxBsxGrpStatusEgrQTable Monitored class: isa.AaEgrQueue			

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5620 SAM counter name	Type	MIB counter name	Description
droInProfOcts	long	tmnxBsxGrpStatusEgrQDr oInPOcts	The value of tmnxBsxGrpStatusEgrQDrInPOcts indicates the number of in profile bytes discarded from ingress IOMs towards the ISA-AA MDA within this group for the particular queue.
droInProfPkts	long	tmnxBsxGrpStatusEgrQDr oInPPkts	The value of tmnxBsxGrpStatusEgrQDrInPPkts indicates the number of in profile packets discarded from ingress IOMs towards the ISA-AA MDA within this group for the particular queue.
droOutProfOcts	long	tmnxBsxGrpStatusEgrQDr oOutPOcts	The value of tmnxBsxGrpStatusEgrQDrOutPOcts indicates the number of out of profile bytes discarded from ingress IOMs towards the ISA-AA MDA within this group for the particular queue.
droOutProfPkts	long	tmnxBsxGrpStatusEgrQDr oOutPPkts	The value of tmnxBsxGrpStatusEgrQDrOutPPkts indicates the number of out of profile packets discarded from ingress IOMs towards the ISA-AA MDA within this group for the particular queue.
fwdInProfOcts	long	tmnxBsxGrpStatusEgrQFw dInPOcts	The value of tmnxBsxGrpStatusEgrQFwdInPOcts indicates the number of in profile bytes diverted from ingress IOMs towards the ISA-AA MDA within this group for the particular queue.
fwdInProfPkts	long	tmnxBsxGrpStatusEgrQFw dInPPkts	The value of tmnxBsxGrpStatusEgrQFwdInPPkts indicates the number of in profile packets diverted from ingress IOMs towards the ISA-AA MDA within this group for the particular queue.
fwdOutProfOcts	long	tmnxBsxGrpStatusEgrQFw dOutPOcts	The value of tmnxBsxGrpStatusEgrQFwdOutPOcts indicates the number of out of profile bytes diverted from ingress IOMs towards the ISA-AA MDA within this group for the particular queue.
fwdOutProfPkts	long	tmnxBsxGrpStatusEgrQFw dOutPPkts	The value of tmnxBsxGrpStatusEgrQFwdOutPPkts indicates the number of out of profile packets diverted from ingress IOMs towards the ISA-AA MDA within this group for the particular queue.
hCDroInProfOcts	UINT128	tmnxBsxGrpStatusEgrQHC DroInPOcts	The value of tmnxBsxGrpStatusEgrQHCDroInPOcts indicates the number of in profile bytes discarded from ingress IOMs towards the ISA-AA MDA within this group for the particular queue.

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5620 SAM counter name	Type	MIB counter name	Description
hCDroInProfPkts	UINT128	tmnxBsxGrpStatusEgrQHC DroInPPkts	The value of tmnxBsxGrpStatusEgrQHCDroInPPkts indicates the number of in profile packets discarded from ingress IOMs towards the ISA-AA MDA within this group for the particular queue.
hCDroOutProfOcts	UINT128	tmnxBsxGrpStatusEgrQHC DroOutPOcts	The value of tmnxBsxGrpStatusEgrQHCDroOutPOcts indicates the number of out of profile bytes discarded from ingress IOMs towards the ISA-AA MDA within this group for the particular queue.
hCDroOutProfPkts	UINT128	tmnxBsxGrpStatusEgrQHC DroOutPPkts	The value of tmnxBsxGrpStatusEgrQHCDroOutPPkts indicates the number of out of profile packets discarded from ingress IOMs towards the ISA-AA MDA within this group for the particular queue.
hCFwdInProfOcts	UINT128	tmnxBsxGrpStatusEgrQHC FwdInPOcts	The value of tmnxBsxGrpStatusEgrQHCFwdInPOcts indicates the number of in profile bytes diverted from ingress IOMs towards the ISA-AA MDA within this group for the particular queue.
hCFwdInProfPkts	UINT128	tmnxBsxGrpStatusEgrQHC FwdInPPkts	The value of tmnxBsxGrpStatusEgrQHCFwdInPPkts indicates the number of in profile packets diverted from ingress IOMs towards the ISA-AA MDA within this group for the particular queue.
hCFwdOutProfOcts	UINT128	tmnxBsxGrpStatusEgrQHC FwdOutPOcts	The value of tmnxBsxGrpStatusEgrQHCFwdOutPOcts indicates the number of out of profile bytes diverted from ingress IOMs towards the ISA-AA MDA within this group for the particular queue.
hCFwdOutProfPkts	UINT128	tmnxBsxGrpStatusEgrQHC FwdOutPPkts	The value of tmnxBsxGrpStatusEgrQHCFwdOutPPkts indicates the number of out of profile packets diverted from ingress IOMs towards the ISA-AA MDA within this group for the particular queue.
<b>AaGroupIngQStats</b> MIB table name: TIMETRA-BSX-NG-MIB.tmnxBsxGrpStatusIngQTable Monitored class: isa.AaIngQueue			
droInProfOcts	long	tmnxBsxGrpStatusIngQDr olnPOcts	The value of tmnxBsxGrpStatusIngQDroInPOcts indicates the number of in profile bytes discarded towards egress IOMs from the ISA-AA MDA within this group for the particular queue.
droInProfPkts	long	tmnxBsxGrpStatusIngQDr olnPPkts	The value of tmnxBsxGrpStatusIngQDroInPPkts indicates the number of in profile packets discarded towards egress IOMs from the ISA-AA MDA within this group for the particular queue.

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5620 SAM counter name	Type	MIB counter name	Description
droOutProfOcts	long	tmnxBsxGrpStatusIngQDr oOutPOcts	The value of tmnxBsxGrpStatusIngQDrOutPOcts indicates the number of out of profile bytes discarded towards egress IOMs from the ISA-AA MDA within this group for the particular queue.
droOutProfPkts	long	tmnxBsxGrpStatusIngQDr oOutPPkts	The value of tmnxBsxGrpStatusIngQDrOutPPkts indicates the number of out of profile packets discarded towards egress IOMs from the ISA-AA MDA within this group for the particular queue.
fwdInProfOcts	long	tmnxBsxGrpStatusIngQFw dInPOcts	The value of tmnxBsxGrpStatusIngQFwdInPOcts indicates the number of in profile bytes diverted towards egress IOMs from the ISA-AA MDA within this group for the particular queue.
fwdInProfPkts	long	tmnxBsxGrpStatusIngQFw dInPPkts	The value of tmnxBsxGrpStatusIngQFwdInPPkts indicates the number of in profile packets diverted towards egress IOMs from the ISA-AA MDA within this group for the particular queue.
fwdOutProfOcts	long	tmnxBsxGrpStatusIngQFw dOutPOcts	The value of tmnxBsxGrpStatusIngQFwdOutPOcts indicates the number of out of profile bytes diverted towards egress IOMs from the ISA-AA MDA within this group for the particular queue.
fwdOutProfPkts	long	tmnxBsxGrpStatusIngQFw dOutPPkts	The value of tmnxBsxGrpStatusIngQFwdOutPPkts indicates the number of out of profile packets diverted towards egress IOMs from the ISA-AA MDA within this group for the particular queue.
hCDroInProfOcts	UINT128	tmnxBsxGrpStatusIngQHC DroInPOcts	The value of tmnxBsxGrpStatusIngQHCDroInPOcts indicates the number of in profile bytes discarded towards egress IOMs from the ISA-AA MDA within this group for the particular queue.
hCDroInProfPkts	UINT128	tmnxBsxGrpStatusIngQHC DroInPPkts	The value of tmnxBsxGrpStatusIngQHCDroInPPkts indicates the number of in profile packets discarded towards egress IOMs from the ISA-AA MDA within this group for the particular queue.
hCDroOutProfOcts	UINT128	tmnxBsxGrpStatusIngQHC DroOutPOcts	The value of tmnxBsxGrpStatusIngQHCDroOutPOcts indicates the number of out of profile bytes discarded towards egress IOMs from the ISA-AA MDA within this group for the particular queue.

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5620 SAM counter name	Type	MIB counter name	Description
hCDroOutProfPkts	UINT128	tmnxBsxGrpStatusIngQHC DroOutPPkts	The value of tmnxBsxGrpStatusIngQHC DroOutPPkts indicates the number of out of profile packets discarded towards egress IOMs from the ISA-AA MDA within this group for the particular queue.
hCFwdInProfOcts	UINT128	tmnxBsxGrpStatusIngQHC FwdInPOcts	The value of tmnxBsxGrpStatusIngQHC FwdInPOcts indicates the number of in profile bytes diverted towards egress IOMs from the ISA-AA MDA within this group for the particular queue.
hCFwdInProfPkts	UINT128	tmnxBsxGrpStatusIngQHC FwdInPPkts	The value of tmnxBsxGrpStatusIngQHC FwdInPPkts indicates the number of in profile packets diverted towards egress IOMs from the ISA-AA MDA within this group for the particular queue.
hCFwdOutProfOcts	UINT128	tmnxBsxGrpStatusIngQHC FwdOutPOcts	The value of tmnxBsxGrpStatusIngQHC FwdOutPOcts indicates the number of out of profile bytes diverted towards egress IOMs from the ISA-AA MDA within this group for the particular queue.
hCFwdOutProfPkts	UINT128	tmnxBsxGrpStatusIngQHC FwdOutPPkts	The value of tmnxBsxGrpStatusIngQHC FwdOutPPkts indicates the number of out of profile packets diverted towards egress IOMs from the ISA-AA MDA within this group for the particular queue.
<b>AaSapSumStats</b> MIB table name: TIMETRA-BSX-NG-MIB.tmnxBsxAaSubSumTable Monitored class: service.AccessInterface			
activeFlowsFromSub	long	tmnxBsxAaSubSumActFlw sFmSb	The value of tmnxBsxAaSubSumActFlwsFmSb indicates the number of allowed flows in the subscriber to network direction that are active.
activeFlowsToSub	long	tmnxBsxAaSubSumActFlw sToSb	The value of tmnxBsxAaSubSumActFlwsToSb indicates the number of allowed flows in the network to subscriber direction that are active.
durationFlowsLong	UINT128	tmnxBsxAaSubSumHCLng DurFlws	The value of tmnxBsxAaSubSumHCLngDurFlws indicates the total number of flows with a duration greater than 180 seconds, that have completed. This object is a 64-bit version of tmnxBsxAaSubSumLngDurFlws.
durationFlowsMedium	UINT128	tmnxBsxAaSubSumHCMed DurFlws	The value of tmnxBsxAaSubSumHCMedDurFlws indicates the total number of flows with a duration less than or equal to 180 seconds, but greater than 30 seconds, that have completed. This object is a 64-bit version of tmnxBsxAaSubSumMedDurFlws.

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5620 SAM counter name	Type	MIB counter name	Description
durationFlowsShort	UINT128	tmnxBsxAaSubSumHCShrtDurFlws	The value of tmnxBsxAaSubSumHCShrtDurFlws indicates the total number of flows with a duration less than or equal to 30 seconds, that have completed. This object is a 64-bit version of tmnxBsxAaSubSumShrtDurFlws.
flowsAdmitFromSub	UINT128	tmnxBsxAaSubSumHCFlwsAdmFmSb	The value of tmnxBsxAaSubSumHCFlwsAdmFmSb indicates the total number of flows permitted for the subscriber to network direction. This object is a 64-bit version of tmnxBsxAaSubSumFlwsAdmFmSb.
flowsAdmitToSub	UINT128	tmnxBsxAaSubSumHCFlwsAdmToSb	The value of tmnxBsxAaSubSumHCFlwsAdmToSb indicates the total number of flows permitted for the network to subscriber direction. This object is a 64-bit version of tmnxBsxAaSubSumFlwsAdmToSb.
flowsDenyFromSub	UINT128	tmnxBsxAaSubSumHCFlwsDnyFmSb	The value of tmnxBsxAaSubSumHCFlwsDnyFmSb indicates the total number of flows that dropped subsequent packets in the subscriber to network direction. This object is a 64-bit version of tmnxBsxAaSubSumFlwsDnyFmSb.
flowsDenyToSub	UINT128	tmnxBsxAaSubSumHCFlwsDnyToSb	The value of tmnxBsxAaSubSumHCFlwsDnyToSb indicates the total number of flows that dropped subsequent packets in the network to subscriber direction. This object is the 64-bit version of tmnxBsxAaSubSumFlwsDnyToSb.
mdaMdaNum	int	tmnxBsxAaSubSumMdaMdaNum	The value of tmnxBsxAaSubSumMdaMdaNum indicates the MDA number of the ISA-AA MDA servicing the subscriber.
mdaSlotNum	int	tmnxBsxAaSubSumMdaSlotNum	The value of tmnxBsxAaSubSumMdaSlotNum indicates the slot number of the ISA-AA MDA servicing the subscriber.
octsAdmitFromSub	UINT128	tmnxBsxAaSubSumHCOctsAdmFmSb	The value of tmnxBsxAaSubSumHCOctsAdmFmSb indicates the total number of bytes permitted for the subscriber to network direction. This object is a 64-bit version of tmnxBsxAaSubSumOctsAdmFmSb.
octsAdmitToSub	UINT128	tmnxBsxAaSubSumHCOctsAdmToSb	The value of tmnxBsxAaSubSumHCOctsAdmToSb indicates the total number of bytes permitted for the network to subscriber direction. This object is a 64-bit version of tmnxBsxAaSubSumOctsAdmToSb.

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5620 SAM counter name	Type	MIB counter name	Description
octsDenyFromSub	UINT128	tmnxBsxAaSubSumHCOctsDnyFmSb	The value of tmnxBsxAaSubSumHCOctsDnyFmSb indicates the total number of bytes dropped for the subscriber to network direction. This object is a 64-bit version of tmnxBsxAaSubSumOctsDnyFmSb.
octsDenyToSub	UINT128	tmnxBsxAaSubSumHCOctsDnyToSb	The value of tmnxBsxAaSubSumHCOctsDnyToSb indicates the total number of bytes dropped for the network to subscriber direction. This object is a 64-bit version of tmnxBsxAaSubSumOctsDnyToSb.
pktsAdmitFromSub	UINT128	tmnxBsxAaSubSumHCPktsAdmFmSb	The value of tmnxBsxAaSubSumHCPktsAdmFmSb indicates the total number of packets permitted for the subscriber to network direction. This object is a 64-bit version of tmnxBsxAaSubSumPktsAdmFmSb.
pktsAdmitToSub	UINT128	tmnxBsxAaSubSumHCPktsAdmToSb	The value of tmnxBsxAaSubSumHCPktsAdmToSb indicates the total number of packets permitted for the network to subscriber direction. This object is a 64-bit version of tmnxBsxAaSubSumPktsAdmToSb.
pktsDenyFromSub	UINT128	tmnxBsxAaSubSumHCPktsDnyFmSb	The value of tmnxBsxAaSubSumHCPktsDnyFmSb indicates the total number of packets dropped for the subscriber to network direction. This object is a 64-bit version of tmnxBsxAaSubSumPktsDnyFmSb.
pktsDenyToSub	UINT128	tmnxBsxAaSubSumHCPktsDnyToSb	The value of tmnxBsxAaSubSumHCPktsDnyToSb indicates the total number of packets dropped for the network to subscriber direction. This object is a 64-bit version of tmnxBsxAaSubSumPktsDnyToSb.
statsInterval	int	tmnxBsxAaSubStatsInterval	The tmnxBsxAaSubStatsInterval specifies the interval for the retrieval of application assurance subscriber statistics.
termFlowDuration	UINT128	tmnxBsxAaSubSumHCTermFlwDur	The value of tmnxBsxAaSubSumHCTermFlwDur indicates the sum of all flow durations from first packet seen to last packet seen for flows that have terminated. This object is a 64-bit version of tmnxBsxAaSubSumTermFlwDur.
termFlows	UINT128	tmnxBsxAaSubSumHCTermFlws	The value of tmnxBsxAaSubSumHCTermFlws indicates the total number of allowed flows that have terminated. This object is a 64-bit version of tmnxBsxAaSubSumTermFlws.
<b>AaSpokeSdpBindingSumStats</b> MIB table name: TIMETRA-BSX-NG-MIB.tmnxBsxAaSubSumTable Monitored class: svt.SpokeSdpBinding			

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5620 SAM counter name	Type	MIB counter name	Description
aaSpokeSdpBinding	String	tmnxBsxAaSubscriber	The Application Assurance Subscriber identifier. The format of this object is determined by the value of the tmnxBsxAaSubscriberType.
activeFlowsFromSub	long	tmnxBsxAaSubSumActFlwsFmSb	The value of tmnxBsxAaSubSumActFlwsFmSb indicates the number of allowed flows in the subscriber to network direction that are active.
activeFlowsToSub	long	tmnxBsxAaSubSumActFlwsToSb	The value of tmnxBsxAaSubSumActFlwsToSb indicates the number of allowed flows in the network to subscriber direction that are active.
durationFlowsLong	UINT128	tmnxBsxAaSubSumHCLngDurFlws	The value of tmnxBsxAaSubSumHCLngDurFlws indicates the total number of flows with a duration greater than 180 seconds, that have completed. This object is a 64-bit version of tmnxBsxAaSubSumLngDurFlws.
durationFlowsMedium	UINT128	tmnxBsxAaSubSumHCMedDurFlws	The value of tmnxBsxAaSubSumHCMedDurFlws indicates the total number of flows with a duration less than or equal to 180 seconds, but greater than 30 seconds, that have completed. This object is a 64-bit version of tmnxBsxAaSubSumMedDurFlws.
durationFlowsShort	UINT128	tmnxBsxAaSubSumHCShrtDurFlws	The value of tmnxBsxAaSubSumHCShrtDurFlws indicates the total number of flows with a duration less than or equal to 30 seconds, that have completed. This object is a 64-bit version of tmnxBsxAaSubSumShrtDurFlws.
flowsAdmitFromSub	UINT128	tmnxBsxAaSubSumHCFflwsAdmFmSb	The value of tmnxBsxAaSubSumHCFflwsAdmFmSb indicates the total number of flows permitted for the subscriber to network direction. This object is a 64-bit version of tmnxBsxAaSubSumFlwsAdmFmSb.
flowsAdmitToSub	UINT128	tmnxBsxAaSubSumHCFflwsAdmToSb	The value of tmnxBsxAaSubSumHCFflwsAdmToSb indicates the total number of flows permitted for the network to subscriber direction. This object is a 64-bit version of tmnxBsxAaSubSumFlwsAdmToSb.
flowsDenyFromSub	UINT128	tmnxBsxAaSubSumHCFflwsDnyFmSb	The value of tmnxBsxAaSubSumHCFflwsDnyFmSb indicates the total number of flows that dropped subsequent packets in the subscriber to network direction. This object is a 64-bit version of tmnxBsxAaSubSumFlwsDnyFmSb.

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5620 SAM counter name	Type	MIB counter name	Description
flowsDenyToSub	UINT128	tmnxBsxAaSubSumHCFlwsDnyToSb	The value of tmnxBsxAaSubSumHCFlwsDnyToSb indicates the total number of flows that dropped subsequent packets in the network to subscriber direction. This object is the 64-bit version of tmnxBsxAaSubSumFlwsDnyToSb.
mdaMdaNum	int	tmnxBsxAaSubSumMdaMdaNum	The value of tmnxBsxAaSubSumMdaMdaNum indicates the MDA number of the ISA-AA MDA servicing the subscriber.
mdaSlotNum	int	tmnxBsxAaSubSumMdaSlotNum	The value of tmnxBsxAaSubSumMdaSlotNum indicates the slot number of the ISA-AA MDA servicing the subscriber.
octsAdmitFromSub	UINT128	tmnxBsxAaSubSumHCOctsAdmFmSb	The value of tmnxBsxAaSubSumHCOctsAdmFmSb indicates the total number of bytes permitted for the subscriber to network direction. This object is a 64-bit version of tmnxBsxAaSubSumOctsAdmFmSb.
octsAdmitToSub	UINT128	tmnxBsxAaSubSumHCOctsAdmToSb	The value of tmnxBsxAaSubSumHCOctsAdmToSb indicates the total number of bytes permitted for the network to subscriber direction. This object is a 64-bit version of tmnxBsxAaSubSumOctsAdmToSb.
octsDenyFromSub	UINT128	tmnxBsxAaSubSumHCOctsDnyFmSb	The value of tmnxBsxAaSubSumHCOctsDnyFmSb indicates the total number of bytes dropped for the subscriber to network direction. This object is a 64-bit version of tmnxBsxAaSubSumOctsDnyFmSb.
octsDenyToSub	UINT128	tmnxBsxAaSubSumHCOctsDnyToSb	The value of tmnxBsxAaSubSumHCOctsDnyToSb indicates the total number of bytes dropped for the network to subscriber direction. This object is a 64-bit version of tmnxBsxAaSubSumOctsDnyToSb.
pktsAdmitFromSub	UINT128	tmnxBsxAaSubSumHCPktsAdmFmSb	The value of tmnxBsxAaSubSumHCPktsAdmFmSb indicates the total number of packets permitted for the subscriber to network direction. This object is a 64-bit version of tmnxBsxAaSubSumPktsAdmFmSb.
pktsAdmitToSub	UINT128	tmnxBsxAaSubSumHCPktsAdmToSb	The value of tmnxBsxAaSubSumHCPktsAdmToSb indicates the total number of packets permitted for the network to subscriber direction. This object is a 64-bit version of tmnxBsxAaSubSumPktsAdmToSb.
pktsDenyFromSub	UINT128	tmnxBsxAaSubSumHCPktsDnyFmSb	The value of tmnxBsxAaSubSumHCPktsDnyFmSb indicates the total number of packets dropped for the subscriber to network direction. This object is a 64-bit version of tmnxBsxAaSubSumPktsDnyFmSb.

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5620 SAM counter name	Type	MIB counter name	Description
pktsDenyToSub	UINT128	tmnxBsxAaSubSumHCPktsDnyToSb	The value of tmnxBsxAaSubSumHCPktsDnyToSb indicates the total number of packets dropped for the network to subscriber direction. This object is a 64-bit version of tmnxBsxAaSubSumPktsDnyToSb.
statsInterval	int	tmnxBsxAaSubStatsInterval	The tmnxBsxAaSubStatsInterval specifies the interval for the retrieval of application assurance subscriber statistics.
termFlowDuration	UINT128	tmnxBsxAaSubSumHCTermFlwDur	The value of tmnxBsxAaSubSumHCTermFlwDur indicates the sum of all flow durations from first packet seen to last packet seen for flows that have terminated. This object is a 64-bit version of tmnxBsxAaSubSumTermFlwDur.
termFlows	UINT128	tmnxBsxAaSubSumHCTermFlws	The value of tmnxBsxAaSubSumHCTermFlws indicates the total number of allowed flows that have terminated. This object is a 64-bit version of tmnxBsxAaSubSumTermFlws.
<b>AaSubSumStats</b> MIB table name: TIMETRA-BSX-NG-MIB.tmnxBsxAaSubSumTable Monitored class: ressubscr.ResidentialSubscriberInstance			
activeFlowsFromSub	long	tmnxBsxAaSubSumActFlwsFmSb	The value of tmnxBsxAaSubSumActFlwsFmSb indicates the number of allowed flows in the subscriber to network direction that are active.
activeFlowsToSub	long	tmnxBsxAaSubSumActFlwsToSb	The value of tmnxBsxAaSubSumActFlwsToSb indicates the number of allowed flows in the network to subscriber direction that are active.
durationFlowsLong	UINT128	tmnxBsxAaSubSumHCLngDurFlws	The value of tmnxBsxAaSubSumHCLngDurFlws indicates the total number of flows with a duration greater than 180 seconds, that have completed. This object is a 64-bit version of tmnxBsxAaSubSumLngDurFlws.
durationFlowsMedium	UINT128	tmnxBsxAaSubSumHCMedDurFlws	The value of tmnxBsxAaSubSumHCMedDurFlws indicates the total number of flows with a duration less than or equal to 180 seconds, but greater than 30 seconds, that have completed. This object is a 64-bit version of tmnxBsxAaSubSumMedDurFlws.
durationFlowsShort	UINT128	tmnxBsxAaSubSumHCShrtDurFlws	The value of tmnxBsxAaSubSumHCShrtDurFlws indicates the total number of flows with a duration less than or equal to 30 seconds, that have completed. This object is a 64-bit version of tmnxBsxAaSubSumShrtDurFlws.

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5620 SAM counter name	Type	MIB counter name	Description
flowsAdmitFromSub	UINT128	tmnxBsxAaSubSumHCFlwsAdmFmSb	The value of tmnxBsxAaSubSumHCFlwsAdmFmSb indicates the total number of flows permitted for the subscriber to network direction. This object is a 64-bit version of tmnxBsxAaSubSumFlwsAdmFmSb.
flowsAdmitToSub	UINT128	tmnxBsxAaSubSumHCFlwsAdmToSb	The value of tmnxBsxAaSubSumHCFlwsAdmToSb indicates the total number of flows permitted for the network to subscriber direction. This object is a 64-bit version of tmnxBsxAaSubSumFlwsAdmToSb.
flowsDenyFromSub	UINT128	tmnxBsxAaSubSumHCFlwsDnyFmSb	The value of tmnxBsxAaSubSumHCFlwsDnyFmSb indicates the total number of flows that dropped subsequent packets in the subscriber to network direction. This object is a 64-bit version of tmnxBsxAaSubSumFlwsDnyFmSb.
flowsDenyToSub	UINT128	tmnxBsxAaSubSumHCFlwsDnyToSb	The value of tmnxBsxAaSubSumHCFlwsDnyToSb indicates the total number of flows that dropped subsequent packets in the network to subscriber direction. This object is the 64-bit version of tmnxBsxAaSubSumFlwsDnyToSb.
mdaMdaNum	int	tmnxBsxAaSubSumMdaMdaNum	The value of tmnxBsxAaSubSumMdaMdaNum indicates the MDA number of the ISA-AA MDA servicing the subscriber.
mdaSlotNum	int	tmnxBsxAaSubSumMdaSlotNum	The value of tmnxBsxAaSubSumMdaSlotNum indicates the slot number of the ISA-AA MDA servicing the subscriber.
octsAdmitFromSub	UINT128	tmnxBsxAaSubSumHCOctsAdmFmSb	The value of tmnxBsxAaSubSumHCOctsAdmFmSb indicates the total number of bytes permitted for the subscriber to network direction. This object is a 64-bit version of tmnxBsxAaSubSumOctsAdmFmSb.
octsAdmitToSub	UINT128	tmnxBsxAaSubSumHCOctsAdmToSb	The value of tmnxBsxAaSubSumHCOctsAdmToSb indicates the total number of bytes permitted for the network to subscriber direction. This object is a 64-bit version of tmnxBsxAaSubSumOctsAdmToSb.
octsDenyFromSub	UINT128	tmnxBsxAaSubSumHCOctsDnyFmSb	The value of tmnxBsxAaSubSumHCOctsDnyFmSb indicates the total number of bytes dropped for the subscriber to network direction. This object is a 64-bit version of tmnxBsxAaSubSumOctsDnyFmSb.
octsDenyToSub	UINT128	tmnxBsxAaSubSumHCOctsDnyToSb	The value of tmnxBsxAaSubSumHCOctsDnyToSb indicates the total number of bytes dropped for the network to subscriber direction. This object is a 64-bit version of tmnxBsxAaSubSumOctsDnyToSb.

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5620 SAM counter name	Type	MIB counter name	Description
pktsAdmitFromSub	UINT128	tmnxBsxAaSubSumHCPktsAdmFmSb	The value of tmnxBsxAaSubSumHCPktsAdmFmSb indicates the total number of packets permitted for the subscriber to network direction. This object is a 64-bit version of tmnxBsxAaSubSumPktsAdmFmSb.
pktsAdmitToSub	UINT128	tmnxBsxAaSubSumHCPktsAdmToSb	The value of tmnxBsxAaSubSumHCPktsAdmToSb indicates the total number of packets permitted for the network to subscriber direction. This object is a 64-bit version of tmnxBsxAaSubSumPktsAdmToSb.
pktsDenyFromSub	UINT128	tmnxBsxAaSubSumHCPktsDnyFmSb	The value of tmnxBsxAaSubSumHCPktsDnyFmSb indicates the total number of packets dropped for the subscriber to network direction. This object is a 64-bit version of tmnxBsxAaSubSumPktsDnyFmSb.
pktsDenyToSub	UINT128	tmnxBsxAaSubSumHCPktsDnyToSb	The value of tmnxBsxAaSubSumHCPktsDnyToSb indicates the total number of packets dropped for the network to subscriber direction. This object is a 64-bit version of tmnxBsxAaSubSumPktsDnyToSb.
statsInterval	int	tmnxBsxAaSubStatsInterval	The tmnxBsxAaSubStatsInterval specifies the interval for the retrieval of application assurance subscriber statistics.
termFlowDuration	UINT128	tmnxBsxAaSubSumHCTermFlwDur	The value of tmnxBsxAaSubSumHCTermFlwDur indicates the sum of all flow durations from first packet seen to last packet seen for flows that have terminated. This object is a 64-bit version of tmnxBsxAaSubSumTermFlwDur.
termFlows	UINT128	tmnxBsxAaSubSumHCTermFlws	The value of tmnxBsxAaSubSumHCTermFlws indicates the total number of allowed flows that have terminated. This object is a 64-bit version of tmnxBsxAaSubSumTermFlws.
<b>BsxMdaStats</b> MIB table name: TIMETRA-BSX-NG-MIB.tmnxBsxGrpStatusTable Monitored classes: <ul style="list-style-type: none"> <li>isa.AaGroup</li> <li>isa.AaGroupMember</li> </ul>			
flows	long	tmnxBsxGrpStatusFlows	The value of tmnxBsxGrpStatusFlows indicates the total number of flows created on the ISA-AA MDA(s).
flowsCurrent	long	tmnxBsxGrpStatusFlowsCurrent	The value of tmnxBsxGrpStatusFlowsCurrent indicates the number of flows currently being tracked by the ISA-AA MDA(s).

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5620 SAM counter name	Type	MIB counter name	Description
flowSetupRate	long	tmnxBsxGrpStatusFlowSetupRate	The value of tmnxBsxGrpStatusFlowSetupRate indicates the number of flow setups per second. The calculation is weighted to give half of the weight to flows setup within the last five minutes and 25 weighting to flows setup in the previous five minutes, etc.
hCFlows	UINT128	tmnxBsxGrpStatusHCFlows	The value of tmnxBsxGrpStatusHCFlows indicates the number of flows seen by the ISA-AA MDA(s). Note that if the same 5-tuple is seen for a different flow within the flow timeout, it will still be considered one flow.
hCOctsDiscCongIn	UINT128	tmnxBsxGrpStatusHCOctsDiscCongIn	The value of tmnxBsxGrpStatusHCOctsDiscCongIn indicates the number of bytes discarded by the IOMs prior to the ISA-AA MDA(s) due to egress IOM congestion.
hCOctsDiscCongMda	UINT128	tmnxBsxGrpStatusHCOctsDisCongMda	The value of tmnxBsxGrpStatusHCOctsDisCongMda indicates the number of bytes discarded by the ISA-AA MDA(s) due to congestion.
hCOctsDiscCongOut	UINT128	tmnxBsxGrpStatusHCOctsDisCongOut	The value of tmnxBsxGrpStatusHCOctsDisCongOut indicates the number of bytes discarded by the IOMs after the ISA-AA MDA(s) due to ingress IOM congestion.
hCOctsDiscErrors	UINT128	tmnxBsxGrpStatusHCOctsDiscErrors	The value of tmnxBsxGrpStatusHCOctsDiscErrors indicates the number of bytes discarded due to unrecoverable errors.
hCOctsDiscPolicy	UINT128	tmnxBsxGrpStatusHCOctsDiscPolicy	The value of tmnxBsxGrpStatusHCOctsDiscPolicy indicates the number of bytes discarded by the ISA-AA MDA(s) due to policy policers or discard actions.
hCOctsFromMda	UINT128	tmnxBsxGrpStatusHCOctsFromMda	The value of tmnxBsxGrpStatusHCOctsFromMda indicates the number of bytes sent from the ISA-AA MDA(s) to the local IOM.
hCOctsIn	UINT128	tmnxBsxGrpStatusHCOctsIn	The value of tmnxBsxGrpStatusHCOctsIn indicates the number of bytes diverted from ingress IOMs towards the ISA-AA MDA(s).
hCOctsInMda	UINT128	tmnxBsxGrpStatusHCOctsInMda	The value of tmnxBsxGrpStatusHCOctsInMda indicates the number of bytes buffered by the ISA-AA MDA(s).
hCOctsInspected	UINT128	tmnxBsxGrpStatusHCOctsInspected	The value of tmnxBsxGrpStatusHCOctsInspected indicates the number of bytes sent for protocol determination by the ISA-AA MDA(s).

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5620 SAM counter name	Type	MIB counter name	Description
hCOctsOut	UINT128	tmnxBsxGrpStatusHCOctsOut	The value of tmnxBsxGrpStatusHCOctsOut indicates the number of bytes sent to egress IOMs from the ISA-AA MDA(s).
hCOctsPolicyByPass	UINT128	tmnxBsxGrpStatusHCOctsPolicyByp	The value of tmnxBsxGrpStatusHCOctsPolicyByp indicates the number of bytes passed untouched that did not have statistics or policy applied.
hCOctsToMda	UINT128	tmnxBsxGrpStatusHCOctsToMda	The value of tmnxBsxGrpStatusHCOctsToMda indicates the number of bytes sent from an IOM towards the ISA-AA MDA(s).
hCPktsDiscCongIn	UINT128	tmnxBsxGrpStatusHCPktsDiscCongIn	The value of tmnxBsxGrpStatusHCPktsDiscCongIn indicates the number of packets discarded by the IOMs prior to the ISA-AA MDA(s) due to egress IOM congestion.
hCPktsDiscCongMda	UINT128	tmnxBsxGrpStatusHCPktsDisCongMda	The value of tmnxBsxGrpStatusHCPktsDisCongMda indicates the number of packets discarded by the ISA-AA MDA(s) due to congestion.
hCPktsDiscCongOut	UINT128	tmnxBsxGrpStatusHCPktsDisCongOut	The value of tmnxBsxGrpStatusHCPktsDisCongOut indicates the number of packets discarded by the IOMs after the ISA-AA MDA(s) due to ingress IOM congestion.
hCPktsDiscErrors	UINT128	tmnxBsxGrpStatusHCPktsDiscErrors	The value of tmnxBsxGrpStatusHCPktsDiscErrors indicates the number of packets discarded due to unrecoverable errors.
hCPktsDiscPolicy	UINT128	tmnxBsxGrpStatusHCPktsDiscPolicy	The value of tmnxBsxGrpStatusHCPktsDiscPolicy indicates the number of packets discarded by the ISA-AA MDA(s) due to policy policers or discard actions.
hCPktsFromMda	UINT128	tmnxBsxGrpStatusHCPktsFromMda	The value of tmnxBsxGrpStatusHCPktsFromMda indicates the number of packets sent from the ISA-AA MDA(s) to the local IOM.
hCPktsIn	UINT128	tmnxBsxGrpStatusHCPktsIn	The value of tmnxBsxGrpStatusHCPktsIn indicates the number of packets diverted from ingress IOMs towards the ISA-AA MDA(s).
hCPktsInMda	UINT128	tmnxBsxGrpStatusHCPktsInMda	The value of tmnxBsxGrpStatusHCPktsInMda indicates the number of packets buffered by the ISA-AA MDA(s).
hCPktsInPchipErrors	UINT128	tmnxBsxGrpStatusHCPktsInPChipErs	The value of tmnxBsxGrpStatusHCPktsInPChipErs indicates the number of packets discarded by the egress P-chip due to errors in the packets.

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5620 SAM counter name	Type	MIB counter name	Description
hCPktsInspected	UINT128	tmnxBsxGrpStatusHCPktsInspected	The value of tmnxBsxGrpStatusHCPktsInspected indicates the number of packets sent for protocol determination by the ISA-AA MDA(s).
hCPktsOut	UINT128	tmnxBsxGrpStatusHCPktsOut	The value of tmnxBsxGrpStatusHCPktsOut indicates the number of packets sent to egress IOMs from the ISA-AA MDA(s).
hCPktsOutPchipErrors	UINT128	tmnxBsxGrpStatusHCPktsOutPChipEr	The value of tmnxBsxGrpStatusHCPktsOutPChipEr indicates the number of packets discarded by the ingress P-chip due to errors in the packets.
hCPktsPolicyByPass	UINT128	tmnxBsxGrpStatusHCPktsPolicyByps	The value of tmnxBsxGrpStatusHCPktsPolicyByps indicates the number of packets passed untouched that did not have statistics or policy applied.
hCPktsToMda	UINT128	tmnxBsxGrpStatusHCPktsToMda	The value of tmnxBsxGrpStatusHCPktsToMda indicates the number of packets sent from an IOM towards the ISA-AA MDA(s).
octsDiscCongIn	long	tmnxBsxGrpStatusOctsDiscCongIn	The value of tmnxBsxGrpStatusOctsDiscCongIn indicates the number of bytes discarded by the IOMs prior to the ISA-AA MDA(s) due to egress IOM congestion.
octsDiscCongMda	long	tmnxBsxGrpStatusOctsDiscCongMda	The value of tmnxBsxGrpStatusOctsDiscCongMda indicates the number of bytes discarded by the ISA-AA MDA(s) due to congestion.
octsDiscCongOut	long	tmnxBsxGrpStatusOctsDiscCongOut	The value of tmnxBsxGrpStatusOctsDiscCongOut indicates the number of bytes discarded by the IOMs after the ISA-AA MDA(s) due to ingress IOM congestion.
octsDiscErrors	long	tmnxBsxGrpStatusOctsDiscErrors	The value of tmnxBsxGrpStatusOctsDiscErrors indicates the number of bytes discarded due to unrecoverable errors.
octsDiscPolicy	long	tmnxBsxGrpStatusOctsDiscPolicy	The value of tmnxBsxGrpStatusOctsDiscPolicy indicates the number of bytes discarded by the ISA-AA MDA(s) due to policy.
octsFromMda	long	tmnxBsxGrpStatusOctsFromMda	The value of tmnxBsxGrpStatusOctsFromMda indicates the number of bytes sent from the ISA-AA MDA(s) to the local IOM.
octsIn	long	tmnxBsxGrpStatusOctsIn	The value of tmnxBsxGrpStatusOctsIn indicates the number of bytes diverted from ingress IOMs towards the ISA-AA MDA(s).
octsInMda	long	tmnxBsxGrpStatusOctsInMda	The value of tmnxBsxGrpStatusOctsInMda indicates the number of bytes buffered by the ISA-AA MDA(s).

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5620 SAM counter name	Type	MIB counter name	Description
octsInspected	long	tmnxBsxGrpStatusOctsInspected	The value of tmnxBsxGrpStatusOctsInspected indicates the number of bytes sent for protocol determination by the ISA-AA MDA(s).
octsOut	long	tmnxBsxGrpStatusOctsOut	The value of tmnxBsxGrpStatusOctsOut indicates the number of bytes sent to egress IOMs from the ISA-AA MDA(s).
octsPolicyByPass	long	tmnxBsxGrpStatusOctsPolicyByPass	The value of tmnxBsxGrpStatusOctsPolicyByPass indicates the number of bytes passed untouched that did not have statistics or policy applied.
octsToMda	long	tmnxBsxGrpStatusOctsToMda	The value of tmnxBsxGrpStatusOctsToMda indicates the number of bytes sent from an IOM towards the ISA-AA MDA(s).
pktsDiscCongIn	long	tmnxBsxGrpStatusPktsDiscCongIn	The value of tmnxBsxGrpStatusPktsDiscCongIn indicates the number of packets discarded by the IOMs prior to the ISA-AA MDA(s) due to egress IOM congestion.
pktsDiscCongMda	long	tmnxBsxGrpStatusPktsDiscCongMda	The value of tmnxBsxGrpStatusPktsDiscCongMda indicates the number of packets discarded by the ISA-AA MDA(s) due to congestion.
pktsDiscCongOut	long	tmnxBsxGrpStatusPktsDiscCongOut	The value of tmnxBsxGrpStatusPktsDiscCongOut indicates the number of packets discarded by the IOMs after the ISA-AA MDA(s) due to ingress IOM congestion.
pktsDiscErrors	long	tmnxBsxGrpStatusPktsDiscErrors	The value of tmnxBsxGrpStatusPktsDiscErrors indicates the number of packets discarded due to unrecoverable errors.
pktsDiscPolicy	long	tmnxBsxGrpStatusPktsDiscPolicy	The value of tmnxBsxGrpStatusPktsDiscPolicy indicates the number of packets discarded by the ISA-AA MDA(s) due to policy.
pktsFromMda	long	tmnxBsxGrpStatusPktsFromMda	The value of tmnxBsxGrpStatusPktsFromMda indicates the number of packets sent from the ISA-AA MDA(s) to the local IOM.
pktsIn	long	tmnxBsxGrpStatusPktsIn	The value of tmnxBsxGrpStatusPktsIn indicates the number of packets diverted from ingress IOMs towards the ISA-AA MDA(s).
pktsInMda	long	tmnxBsxGrpStatusPktsInMda	The value of tmnxBsxGrpStatusPktsInMda indicates the number of packets buffered by the ISA-AA MDA(s).
pktsInPChipErrors	long	tmnxBsxGrpStatusPktsInPChipErrors	The value of tmnxBsxGrpStatusPktsInPChipErrors indicates the number of packets discarded by the egress P-chip due to errors in the packets.

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5620 SAM counter name	Type	MIB counter name	Description
pktsInspected	long	tmnxBsxGrpStatusPktsInspected	The value of tmnxBsxGrpStatusPktsInspected indicates the number of packets sent for protocol determination by the ISA-AA MDA(s).
pktsOut	long	tmnxBsxGrpStatusPktsOut	The value of tmnxBsxGrpStatusPktsOut indicates the number of packets sent to egress IOMs from the ISA-AA MDA(s).
pktsOutPChipErrors	long	tmnxBsxGrpStatusPktsOutPChipEr	The value of tmnxBsxGrpStatusPktsOutPChipEr indicates the number of packets discarded by the ingress P-chip due to errors in the packets.
pktsPolicyByPass	long	tmnxBsxGrpStatusPktsPolicyByPass	The value of tmnxBsxGrpStatusPktsPolicyByPass indicates the number of packets passed untouched that did not have statistics or policy applied.
pktsToMda	long	tmnxBsxGrpStatusPktsToMda	The value of tmnxBsxGrpStatusPktsToMda indicates the number of packets sent from an IOM towards the ISA-AA MDA(s).
subsCurrent	long	tmnxBsxGrpStatusSubsCurrent	The value of tmnxBsxGrpStatusSubsCurrent indicates the number of subscribers currently with flow records in the ISA-AA MDA(s).
subsDiverted	long	tmnxBsxGrpStatusSubsDiverted	The value of tmnxBsxGrpStatusSubsDiverted indicates the number of subscribers defined in TIMETRA-SUBSCRIBER-MGMT-MIB::tmnxSubscriberInfoAppProfile in the tmnxSubscriberInfoTable with tmnxBsxAppProfDivert set to 'true'.
trafficRate	long	tmnxBsxGrpStatusTrafficRate	The value of tmnxBsxGrpStatusTrafficRate indicates the traffic rate in kilo-bits per second (kbps) incoming to the ISA-AA MDA(s).
<b>LnsGroupMemberStats</b> MIB table name: TIMETRA-L2TP-MIB.tmnxL2tplsaMdaStatTable Monitored class: isa.LnsGroupMember			
operState	int	tmnxL2tplsaMdaStatOperState	The value of tmnxL2tplsaMdaStatOperState indicates the operational state of this L2TP ISA MDA.
sessions	long	tmnxL2tplsaMdaStatSessions	The value of tmnxL2tplsaMdaStatSessions indicates the actual number of PPP sessions on this L2TP ISA MDA.
<b>MgCardFlowStats</b> MIB table name: TIMETRA-MOBILE-SERVING-MIB.tmnxMobServProcsTable Monitored classes: <ul style="list-style-type: none"> <li>• equipment.BaseCard</li> <li>• lte.ServingGateway</li> </ul>			
epcid	long	tmnxMobGwId	The value of tmnxMobGwId uniquely identifies a mobile gateway configured in the system.

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5620 SAM counter name	Type	MIB counter name	Description
servProcAttach	long	tmnxMobServProcAttach	The value of tmnxMobServProcAttach indicates the number of attach procedures sent by the User Equipments (UEs) and executed successfully on this card.
servProcAttachFailures	long	tmnxMobServProcAttachFailures	The value of tmnxMobServProcAttachFailures indicates the number of attach procedure failures.
servProcAttachPiggyBack	long	tmnxMobServProcAttachPiggyBack	The value of tmnxMobServProcAttachPiggyBack indicates the number of attach procedures sent by the User Equipments (UEs) and executed successfully on this card with piggybacking.
servProcAttachPiggyFail	long	tmnxMobServProcAttachPiggyFail	The value of tmnxMobServProcAttachPiggyFail indicates the number of attach procedure failures with piggybacking.
servProcDetach	long	tmnxMobServProcDetach	The value of tmnxMobServProcDetach indicates the number of detach procedures executed successfully on this card.
servProcDetachFailures	long	tmnxMobServProcDetachFailures	The value of tmnxMobServProcDetachFailures indicates the number of detach procedure failures.
servProcEhrpdLteHo	long	tmnxMobServProcEhrpdLteHo	The value of tmnxMobServProcEhrpdLteHo indicates the number of evolved High Rate Packet Data (eHRPD) to Long Term Evolution (LTE) handovers served successfully by this card.
servProcEhrpdLteHoFails	long	tmnxMobServProcEhrpdLteHoFails	The value of tmnxMobServProcEhrpdLteHoFails indicates the number of evolved High Rate Packet Data (eHRPD) to Long Term Evolution (LTE) handover failures served by this card.
servProcHssQosModificatn	long	tmnxMobServProcHssQosModificatn	The value of tmnxMobServProcHssQosModificatn indicates the number of successful HSS initiated QoS modification procedures served by this card.
servProcHssQosModifyFails	long	tmnxMobServProcHssQosModifyFails	The value of tmnxMobServProcHssQosModifyFails indicates the number of QoS modification procedure failures.
servProcInterMmleTleTau	long	tmnxMobServProcInterMmleTleTau	The value of tmnxMobServProcInterMmleTleTau indicates the number of incoming intra Serving Gateway (SGW) inter Mobility Management Entity (MME) Idle mode Tracking Area Updates (TAU) served successfully by this card.

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5620 SAM counter name	Type	MIB counter name	Description
servProcInterMmeIdlTauFls	long	tmnxMobServProcInterMmeIdlTauFls	The value of tmnxMobServProcInterMmeIdlTauFls indicates the number of incoming intra Serving Gateway (SGW) inter Mobility Management Entity (MME) Idle mode Tracking Area Updates (TAU) served unsuccessfully by this card.
servProcInterMmeRelocs	long	tmnxMobServProcInterMmeRelocs	The value of tmnxMobServProcInterMmeRelocs indicates the number of incoming intra Serving Gateway (SGW) inter Mobility Management Entity (MME) detected by this card.
servProcInterMmeS1RITnFls	long	tmnxMobServProcInterMmeS1RITnFls	The value of tmnxMobServProcInterMmeS1RITnFls indicates the number of intra Serving Gateway (SGW) inter Mobility Management Entity (MME) S1-based relocation failures with indirect tunnels served by this card.
servProcInterMmeS1RITnSuc	long	tmnxMobServProcInterMmeS1RITnSuc	The value of tmnxMobServProcInterMmeS1RITnSuc indicates the number of intra Serving Gateway (SGW) inter Mobility Management Entity (MME) S1-based relocation with indirect tunnels served successfully by this card.
servProcInterMmeS1X2RIFls	long	tmnxMobServProcInterMmeS1X2RIFls	The value of tmnxMobServProcInterMmeS1X2RIFls indicates the number of intra Serving Gateway (SGW) inter Mobility Management Entity (MME) X2-based and S1-based relocation failures served by this card.
servProcInterMmeS1X2RISuc	long	tmnxMobServProcInterMmeS1X2RISuc	The value of tmnxMobServProcInterMmeS1X2RISuc indicates the number of intra Serving Gateway (SGW) inter Mobility Management Entity (MME) X2-based and S1-based relocation served successfully by this card.
servProcInterSgwHoOut	long	tmnxMobServProcInterSgwHoOut	The value of tmnxMobServProcInterSgwHoOut indicates the number of outgoing inter Serving Gateway (SGW) handovers served successfully by this card.
servProcIntraIdlTauFails	long	tmnxMobServProcIntraIdlTauFails	The value of tmnxMobServProcIntraIdlTauFails indicates the number of intra Serving Gateway (SGW) idle mode Tracking Area Updates (TAU) failures served by this card.
servProcIntraS1IndTnlFail	long	tmnxMobServProcIntraS1IndTnlFail	The value of tmnxMobServProcIntraS1IndTnlFail indicates the number of incoming intra Serving Gateway (SGW) S1-based handover failures with indirect tunnels served by this card.

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5620 SAM counter name	Type	MIB counter name	Description
servProcIntraSgwHndvr	long	tmnxMobServProcIntraSgwHndvr	The value of tmnxMobServProcIntraSgwHndvr indicates the number of incoming intra Serving Gateway (SGW) X2-based and S1-based handovers with and without indirect tunnels served successfully by this card.
servProcIntraSgwHndvrFail	long	tmnxMobServProcIntraSgwHndvrFail	The value of tmnxMobServProcIntraSgwHndvrFail indicates the number of incoming intra Serving Gateway (SGW) X2-based and S1-based handover failures with and without indirect tunnels served by this card.
servProcIntraSgwS1IndTnl	long	tmnxMobServProcIntraSgwS1IndTnl	The value of tmnxMobServProcIntraSgwS1IndTnl indicates the number of incoming intra Serving Gateway (SGW) S1-based handovers with indirect tunnels served successfully by this card.
servProcMmeDedBrDeAcFails	long	tmnxMobServProcMmeDedBrDeAcFails	The value of tmnxMobServProcMmeDedBrDeAcFails indicates the number of Mobility Management Entity (MME) initiated dedicated bearer de-activation procedure failures.
servProcMmeDedBrDeActiv	long	tmnxMobServProcMmeDedBrDeActiv	The value of tmnxMobServProcMmeDedBrDeActiv indicates the number of successful Mobility Management Entity (MME) initiated dedicated bearer de-activation procedures served by this card.
servProcNwBrModify	long	tmnxMobServProcNwBrModify	The value of tmnxMobServProcNwBrModify indicates the number of network initiated bearer modification procedures served by this card.
servProcNwBrModifyFail	long	tmnxMobServProcNwBrModifyFail	The value of tmnxMobServProcNwBrModifyFail indicates the number of network initiated bearer modification procedure failures in this card.
servProcNwDedBrActivtn	long	tmnxMobServProcNwDedBrActivtn	The value of tmnxMobServProcNwDedBrActivtn indicates the number of successful network initiated dedicated bearer activation procedures served by this card.
servProcNwDedBrActvFails	long	tmnxMobServProcNwDedBrActvFails	The value of tmnxMobServProcNwDedBrActvFails indicates the number of Policy and Charging Rules Function (PCRF) initiated dedicated bearer activation procedure failures.

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5620 SAM counter name	Type	MIB counter name	Description
servProcNwDedBrDeActFails	long	tmnxMobServProcNwDedBrDeActFails	The value of tmnxMobServProcNwDedBrDeActFails indicates the number of Policy and Charging Rules Function (PCRF) initiated dedicated bearer de-activation procedure failures.
servProcNwDedBrDeActiv	long	tmnxMobServProcNwDedBrDeActiv	The value of tmnxMobServProcNwDedBrDeActiv indicates the number of successful network initiated dedicated bearer de-activation procedures served by this card.
servProcNwPdnSesDeActFail	long	tmnxMobServProcNwPdnSesDeActFail	The value of tmnxMobServProcNwPdnSesDeActFail indicates the number of network initiated Packet Data Network (PDN) session de-activation procedure failures served by this card.
servProcNwPdnSessDeActiv	long	tmnxMobServProcNwPdnSessDeActiv	The value of tmnxMobServProcNwPdnSessDeActiv indicates the number of network initiated Packet Data Network (PDN) session de-activation procedures served by this card.
servProcPagingAttempts	long	tmnxMobServProcPagingAttempts	The value of tmnxMobServProcPagingAttempts indicates the number of paging attempts served by this card.
servProcPagingFails	long	tmnxMobServProcPagingFails	The value of tmnxMobServProcPagingFails indicates the number of paging failures served by this card.
servProcS1Release	long	tmnxMobServProcS1Release	The value of tmnxMobServProcS1Release indicates the number of successful Evolved NodeB (eNodeB) and Mobility Management Entity (MME) initiated S1 release procedures served by this card.
servProcS1ReleaseFailures	long	tmnxMobServProcS1ReleaseFailures	The value of tmnxMobServProcS1ReleaseFailures indicates the number of Evolved NodeB (eNodeB) and Mobility Management Entity (MME) initiated S1 release procedure failures.
servProcUeDedBrActivation	long	tmnxMobServProcUeDedBrActivation	The value of tmnxMobServProcUeDedBrActivation indicates the number of successful User Equipment (UE) initiated dedicated bearer activation procedures served by this card.
servProcUeDedBrActvFails	long	tmnxMobServProcUeDedBrActvFails	The value of tmnxMobServProcUeDedBrActvFails indicates the number of User Equipment (UE) initiated dedicated bearer activation procedure failures.

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5620 SAM counter name	Type	MIB counter name	Description
servProcUeDedBrDeActv	long	tmnxMobServProcUeDedBrDeActv	The value of tmnxMobServProcUeDedBrDeActv indicates the number of User-Equipment (UE) initiated dedicated bearer deactivation procedures served by this card.
servProcUeDedBrDeActvFail	long	tmnxMobServProcUeDedBrDeActvFail	The value of tmnxMobServProcUeDedBrDeActvFail indicates the number of User-Equipment (UE) initiated dedicated bearer deactivation procedure failures in this card.
servProcUeDedBrModify	long	tmnxMobServProcUeDedBrModify	The value of tmnxMobServProcUeDedBrModify indicates the number of User-Equipment (UE) initiated dedicated bearer modification procedures served by this card.
servProcUeDedBrModifyFail	long	tmnxMobServProcUeDedBrModifyFail	The value of tmnxMobServProcUeDedBrModifyFail indicates the number of User-Equipment (UE) initiated dedicated bearer modification procedure failures in this card.
servProcUeServiceReq	long	tmnxMobServProcUeServiceReq	The value of tmnxMobServProcUeServiceReq indicates the number of successful User Equipment (UE) initiated service request procedures served by this card.
servProcUeServiceReqFails	long	tmnxMobServProcUeServiceReqFails	The value of tmnxMobServProcUeServiceReqFails indicates the number of User Equipment (UE) initiated service request procedure failures.
slotId	long	tmnxMobServCardSlotNum	The value of tmnxMobServCardSlotNum indicates the slot number of this card.
<b>MgCardStats</b> MIB table name: TIMETRA-MOBILE-SERVING-MIB.tmnxMobServStatTable Monitored classes: <ul style="list-style-type: none"> <li>• equipment.BaseCard</li> <li>• lte.ServingGateway</li> </ul>			
epcId	long	tmnxMobGwId	The value of tmnxMobGwId uniquely identifies a mobile gateway configured in the system.
noOfEmergencyPDNSess	long	tmnxMobServStatEmergencyPdnSess	The value of tmnxMobServStatEmergencyPdnSess indicates the number of Emergency PDN sessions on this card.
noOfSuspendedUE	long	tmnxMobServStatNumSuspendedUE	The value of tmnxMobServStatNumSuspendedUE indicates the number of User Equipments (UE) in the suspended state.

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5620 SAM counter name	Type	MIB counter name	Description
servStatActiveBearers	long	tmnxMobServStatActiveBearers	The value of tmnxMobServStatActiveBearers indicates the number of active bearers being served by this card.
servStatApn	long	tmnxMobServStatApn	The value of tmnxMobServStatApn indicates the number of Access Point Names (APNs) being served by this card.
servStatBearers	long	tmnxMobServStatBearers	The value of tmnxMobServStatBearers indicates the number of bearers being served by this card.
servStatBuffersAllocated	long	tmnxMobServStatBuffersAllocated	The value of tmnxMobServStatBuffersAllocated indicates the number of allocated paging buffers on this card.
servStatBuffersAllocErr	long	tmnxMobServStatBuffersAllocErr	The value of tmnxMobServStatBuffersAllocErr indicates the number of paging buffers not available errors on this card.
servStatBuffersAvailable	long	tmnxMobServStatBuffersAvailable	The value of tmnxMobServStatBuffersAvailable indicates the number of available paging buffers on this card.
servStatDedicatedBearers	long	tmnxMobServStatDedicatedBearers	The value of tmnxMobServStatDedicatedBearers indicates the number of dedicated bearers being served by this card.
servStatDefaultBearers	long	tmnxMobServStatDefaultBearers	The value of tmnxMobServStatDefaultBearers indicates the number of default bearers being served by this card.
servStatIdleBearers	long	tmnxMobServStatIdleBearers	The value of tmnxMobServStatIpv4v6Bearers indicates the number of idle bearers being served by this card.
servStatIdleUes	long	tmnxMobServStatIdleUes	The value of tmnxMobServStatIdleUes indicates the number of idle User Equipments (UE) being served by this card.
servStatIpv4Bearers	long	tmnxMobServStatIpv4Bearers	The value of tmnxMobServStatIpv4Bearers indicates the number of IPv4 bearers being served by this card.
servStatIpv4v6Bearers	long	tmnxMobServStatIpv4v6Bearers	The value of tmnxMobServStatIpv4v6Bearers indicates the number of IPv4v6 bearers being served by this card.
servStatIpv6Bearers	long	tmnxMobServStatIpv6Bearers	The value of tmnxMobServStatIpv6Bearers indicates the number of IPv6 bearers being served by this card.
servStatPagingInProgress	long	tmnxMobServStatPagingInProgress	The value of tmnxMobServStatPagingInProgress indicates the number of paging processes in progress on this card.

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5620 SAM counter name	Type	MIB counter name	Description
servStatRoamers	long	tmnxMobServStatRoamers	The value of tmnxMobServStatRoamers indicates the number of roamers being served by this card.
slotId	long	tmnxMobServCardSlotNum	The value of tmnxMobServCardSlotNum indicates the slot number of this card.
<b>PdnGwCardFlowStats</b> MIB table name: TIMETRA-MOBILE-PDN-MIB.tmnxMobPdnProcTable Monitored classes: <ul style="list-style-type: none"> <li>• equipment.BaseCard</li> <li>• lte.PDNGateway</li> </ul>			
attach	long	tmnxMobPdnProcAttach	The value of tmnxMobPdnProcAttach indicates the number of successful default attach-procedures executed on this card.
attachFail	long	tmnxMobPdnProcAttachFail	The value of tmnxMobPdnProcAttachFail indicates the number of failed default attach-procedures executed on this card.
attachPiggyBack	long	tmnxMobPdnProcAttachPiggyBack	The value of tmnxMobPdnProcAttachPiggyBack indicates the number of successful default attach-procedures executed on this card with piggybacking.
detach	long	tmnxMobPdnProcDetach	The value of tmnxMobPdnProcDetach indicates the number of detach-procedures executed successfully on this card.
epcId	long	tmnxMobGwId	The value of tmnxMobGwId uniquely identifies a mobile gateway configured in the system.
nwDedBrActv	long	tmnxMobPdnProcNwDedBrActv	The value of tmnxMobPdnProcNwDedBrActv indicates the number of network initiated dedicated bearer activation procedures served by this card.
nwDedBrActvFail	long	tmnxMobPdnProcNwDedBrActvFail	The value of tmnxMobPdnProcNwDedBrActvFail indicates the number of network initiated dedicated bearer activation procedure failures.
nwDedBrDeActv	long	tmnxMobPdnProcNwDedBrDeActv	The value of tmnxMobPdnProcNwDedBrDeActv indicates the number of network initiated dedicated bearer activation procedures served by this card.
nwDedBrDeActvFail	long	tmnxMobPdnProcNwDedBrDeActvFail	The value of tmnxMobPdnProcNwDedBrDeActvFail indicates the number of network initiated dedicated bearer activation procedure failures.
nwDedBrModify	long	tmnxMobPdnProcNwDedBrModify	The value of tmnxMobPdnProcNwDedBrModify indicates the number of network initiated dedicated bearer activation procedures served by this card.

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5620 SAM counter name	Type	MIB counter name	Description
pgwPdnSessDel	long	tmnxMobPdnProcPgwPdnSessDel	The value of tmnxMobPdnProcPgwPdnSessDel indicates the number of successful PDN session-deletion initiated by PDN Gateway (PGW).
sessDelFail	long	tmnxMobPdnProcPgwPdnSessDelFail	The value of tmnxMobPdnProcPgwPdnSessDelFail indicates the number of failed PDN session-deletion initiated by PDN Gateway (PGW).
sgwReloc	long	tmnxMobPdnProcSgwReloc	The value of tmnxMobPdnProcSgwReloc indicates the number of successful Serving Gateway (SGW) relocations.
sgwRelocFail	long	tmnxMobPdnProcSgwRelocFail	The value of tmnxMobPdnProcSgwRelocFail indicates the number of failed Serving Gateway (SGW) relocations.
slotId	long	tmnxMobPdnCardSlotNum	The value of tmnxMobPdnCardSlotNum indicates the slot number of this card.
<b>PdnGwCardStats</b> MIB table name: TIMETRA-MOBILE-PDN-MIB.tmnxMobPdnStatTable Monitored classes: <ul style="list-style-type: none"> <li>• equipment.BaseCard</li> <li>• lte.PDNGateway</li> </ul>			
bearers	long	tmnxMobPdnStatBearers	The value of tmnxMobPdnStatBearers indicates the number of bearers being served by this card.
dedicatedBearers	long	tmnxMobPdnStatDedicatedBearers	The value of tmnxMobPdnStatDedicatedBearers indicates the number of dedicated bearers being served by this card.
defaultBearers	long	tmnxMobPdnStatDefaultBearers	The value of tmnxMobPdnStatDefaultBearers indicates the number of default bearers being served by this card.
epcId	long	tmnxMobGwId	The value of tmnxMobGwId uniquely identifies a mobile gateway configured in the system.
ipLocalPools	long	tmnxMobPdnStatIpLocalPools	The value of tmnxMobPdnStatIpLocalPools indicates the number of IP local pools being served by this card.
ipv4Bearers	long	tmnxMobPdnStatIpv4Bearers	The value of tmnxMobPdnStatIpv4Bearers indicates the number of IPv4 bearers being served by this card.
ipv4PdnSessions	long	tmnxMobPdnStatIpv4PdnSessions	The value of tmnxMobPdnStatIpv4PdnSessions indicates the number of IPv4 PDN Sessions being served by this card.
ipv4Sdf	long	tmnxMobPdnStatIpv4Sdf	The value of tmnxMobPdnStatIpv4Sdf indicates the number of IPv4 Service Data Flows (SDFs) on this card.

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5620 SAM counter name	Type	MIB counter name	Description
ipv4v6Bearers	long	tmnxMobPdnStatIpv4v6Bearers	The value of tmnxMobPdnStatIpv4v6Bearers indicates the number of IPv4v6 bearers being served by this card.
ipv4v6PdnSessions	long	tmnxMobPdnStatIpv4v6PdnSessions	The value of tmnxMobPdnStatIpv4v6PdnSessions indicates the number of IPv4v6 PDN Sessions being served by this card.
ipv6Bearers	long	tmnxMobPdnStatIpv6Bearers	The value of tmnxMobPdnStatIpv6Bearers indicates the number of IPv6 bearers being served by this card.
ipv6PdnSessions	long	tmnxMobPdnStatIpv6PdnSessions	The value of tmnxMobPdnStatIpv6PdnSessions indicates the number of IPv6 PDN Sessions being served by this card.
ipv6Sdf	long	tmnxMobPdnStatIpv6Sdf	The value of tmnxMobPdnStatIpv6Sdf indicates the number of IPv6 Service Data Flows (SDFs) on this card.
noOfeHRPDPDNsSess	long	tmnxMobPdnStateHRPDPDNsSess	The value of tmnxMobPdnStateHRPDPDNsSess indicates the number of enhanced High Rate Packet Data (eHRPD) Packet Data Network (PDN) sessions.
noOfEmerpdnSessions	long	tmnxMobPdnStatEmergencyPdnSess	The value of tmnxMobPdnStatEmergencyPdnSess indicates the number of Emergency PDN sessions on this card.
noOfIPv4Sess	long	tmnxMobPdnStatHSSStaticIpv4Sess	The value of tmnxMobPdnStatHSSStaticIpv4Sess indicates the number of static IPv4 Packet Data Network (PDN) sessions.
noOfIPv4v6Sess	long	tmnxMobPdnStatHSSStaticIpv4v6Sess	The value of tmnxMobPdnStatHSSStaticIpv4v6Sess indicates the number of static IPv4v6 Packet Data Network (PDN) sessions.
noOfIPv6Sess	long	tmnxMobPdnStatHSSStaticIpv6Sess	The value of tmnxMobPdnStatHSSStaticIpv6Sess indicates the number of static IPv6 Packet Data Network (PDN) sessions.
noOfLTEPDNSess	long	tmnxMobPdnStatLTEPDNSess	The value of tmnxMobPdnStatLTEPDNSess indicates the number of Long Term Evolution (LTE) Packet Data Network (PDN) sessions.
noOfpdnSessions	long	tmnxMobPdnStat2G3GPDNSess	The value of tmnxMobPdnStat2G3GPDNSess indicates the number of 2G/3G Packet Data Network (PDN) sessions.
noOfSGSNsOnGN	long	tmnxMobPdnStatGnSgns	The value of tmnxMobPdnStatGnSgns indicates the number of SGSNs on the Gn interface being served by this card.
noOfSuspendedPDNSess	long	tmnxMobPdnStatNumSuspendedPDN	The value of tmnxMobPdnStatNumSuspendedPDN indicates the number of Packet Data Network (PDN) sessions in suspended state.

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5620 SAM counter name	Type	MIB counter name	Description
realApn	long	tmnxMobPdnStatRealApn	The value of tmnxMobPdnStatRealApn indicates the number of real Access Point Names (APNs) being served by this card.
roamers	long	tmnxMobPdnStatRoamers	The value of tmnxMobPdnStatRoamers indicates the number of roamers being served by this card.
slotId	long	tmnxMobPdnCardSlotNum	The value of tmnxMobPdnCardSlotNum indicates the slot number of this card.
vPRNs	long	tmnxMobPdnStatVPRNs	The value of tmnxMobPdnStatVPRNs indicates the number of VPRNs being served by this card.
<b>VideoGroupMemberStats</b> MIB table name: TIMETRA-VIDEO-MIB.tmnxVdoGrpMDATable Monitored class: isa.VideoGroupMember			
vdoGrpMdaActiveRtcpSessions	long	tmnxVdoGrpMdaActiveRtcpSessions	The value of tmnxVdoGrpMdaActiveRtcpSessions indicates the number of active Real Time Transport Control Protocol (RTCP) sessions on this MDA.
vdoGrpMdaAdStreamAborts	long	tmnxVdoGrpMdaAdStreamAborts	The value of tmnxVdoGrpMdaAdStreamAborts indicates the number of ad stream aborts on this MDA. An ad stream abort could happen when an egress reset happens.
vdoGrpMdaAdStreamResets	long	tmnxVdoGrpMdaAdStreamResets	The value of tmnxVdoGrpMdaAdStreamResets indicates the number of ad stream resets on this MDA. An ad stream reset occurs when the ingress ad stream stops.
vdoGrpMdaAvailableMemory	long	tmnxVdoGrpMdaAvailableMemory	The value of tmnxVdoGrpMdaAvailableMemory indicates the amount of cache available on the MDA for storing the video stream.
vdoGrpMdaBwInUse	long	tmnxVdoGrpMdaBwInUse	The value of tmnxVdoGrpMdaBwInUse indicates the total aggregate bandwidth of the currently running egress streams.
vdoGrpMdaChannelAllocFails	long	tmnxVdoGrpMdaChannelAllocFails	The value of tmnxVdoGrpMdaChannelAllocFails indicates the number of failed channel allocations on this MDA.
vdoGrpMdaChannels	long	tmnxVdoGrpMdaChannels	The value of tmnxVdoGrpMdaChannels indicates the number of channels being served on this MDA.
vdoGrpMdaEgressStreamResets	long	tmnxVdoGrpMdaEgressStreamResets	The value of tmnxVdoGrpMdaEgressStreamResets indicates the number of egress stream resets on this MDA. An egress stream reset occurs when there are no packets to transmit on the MDA.

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5620 SAM counter name	Type	MIB counter name	Description
vdoGrpMdaHighPktPoolLimitHit	long	tmnxVdoGrpMdaHighPktPoolLimitHit	The value of tmnxVdoGrpMdaHighPktPoolLimitHit indicates the number of times the high packet pool limit has been hit. A high value of this object indicates potential failure in ingress packet storage.
vdoGrpMdaIngressStreamResets	long	tmnxVdoGrpMdaIngressStreamResets	The value of tmnxVdoGrpMdaIngressStreamResets indicates the number of ingress stream resets on this MDA. An ingress stream reset occurs when the ingress stream stopped coming in for more than one second.
vdoGrpMdaMaxBwExceeded	long	tmnxVdoGrpMdaMaxBwExceeded	The value of tmnxVdoGrpMdaMaxBwExceeded indicates the number of times maximum allowed bandwidth has been exceeded for each egress stream.
vdoGrpMdaRequestedRtpPkts	long	tmnxVdoGrpMdaRequestedRtpPkts	The value of tmnxVdoGrpMdaRequestedRtpPkts indicates the number of Real-time Transport Protocol (RTP) packets requested in the Real-time Transport Control Protocol (RTCP) feedback (FB) messages received on this MDA.
vdoGrpMdaRtcpConfigErrors	long	tmnxVdoGrpMdaRtcpConfigErrors	The value of tmnxVdoGrpMdaRtcpConfigErrors indicates the number of Real-time Transport Control Protocol (RTCP) config errors on this MDA. These errors occur when there is inconsistency between the RTCP values and the configured values.
vdoGrpMdaRtcpIntErrors	long	tmnxVdoGrpMdaRtcpIntErrors	The value of tmnxVdoGrpMdaRtcpIntErrors indicates the number of Real-time Transport Control Protocol (RTCP) interface related errors on this MDA.
vdoGrpMdaRtcpIpcErrors	long	tmnxVdoGrpMdaRtcpIpcErrors	The value of tmnxVdoGrpMdaRtcpIpcErrors indicates the number of Real-time Transport Control Protocol (RTCP) inter-process communication message processing errors on this MDA.
vdoGrpMdaRtcpParseErrors	long	tmnxVdoGrpMdaRtcpParseErrors	The value of tmnxVdoGrpMdaRtcpParseErrors indicates the number of Real-time Transport Control Protocol (RTCP) packet parsing errors on this MDA.
vdoGrpMdaRtcpSgErrors	long	tmnxVdoGrpMdaRtcpSgErrors	The value of tmnxVdoGrpMdaRtcpSgErrors indicates the number of Real-time Transport Control Protocol (RTCP) channel errors on this MDA. These errors occur when a channel is not found for a given interface to process RTCP packets.

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5620 SAM counter name	Type	MIB counter name	Description
vdoGrpMdaRtcpSubErrors	long	tmnxVdoGrpMdaRtcpSubErrors	The value of tmnxVdoGrpMdaRtcpSubErrors indicates the number of Real-time Transport Control Protocol (RTCP) subscriber parameter errors on this MDA. These errors occur when the subscriber calculations exceed the maximum allowed bandwidth.
vdoGrpMdaRxDataOctets	UINT128	tmnxVdoGrpMdaRxDataOctets	The value of tmnxVdoGrpMdaRxDataOctets indicates the number of data octets received on this MDA.
vdoGrpMdaRxDataOctetsHigh32	long	tmnxVdoGrpMdaRxDataOctetsHigh32	The value of tmnxVdoGrpMdaRxDataOctetsHigh32 indicates the higher 32 bits of the value of tmnxVdoGrpMdaRxDataOctets.
vdoGrpMdaRxDataOctetsLow32	long	tmnxVdoGrpMdaRxDataOctetsLow32	The value of tmnxVdoGrpMdaRxDataOctetsLow32 indicates the lower 32 bits of the value of tmnxVdoGrpMdaRxDataOctets.
vdoGrpMdaRxDataPacketErrors	UINT128	tmnxVdoGrpMdaRxDataPacketErrors	The value of tmnxVdoGrpMdaRxDataPacketErrors indicates the number of malformed or non-RTP (Real Time Transport Protocol) packets received on this MDA.
vdoGrpMdaRxDataPackets	UINT128	tmnxVdoGrpMdaRxDataPackets	The value of tmnxVdoGrpMdaRxDataPackets indicates the number of data packets received on this MDA.
vdoGrpMdaRxDataPacketsHigh32	long	tmnxVdoGrpMdaRxDataPacketsHigh32	The value of tmnxVdoGrpMdaRxDataPacketsHigh32 indicates the higher 32 bits of the value of tmnxVdoGrpMdaRxDataPackets.
vdoGrpMdaRxDataPacketsLow32	long	tmnxVdoGrpMdaRxDataPacketsLow32	The value of tmnxVdoGrpMdaRxDataPacketsLow32 indicates the lower 32 bits of the value of tmnxVdoGrpMdaRxDataPackets.
vdoGrpMdaRxDataPktErrsHigh32	long	tmnxVdoGrpMdaRxDataPktErrsHigh32	The value of tmnxVdoGrpMdaRxDataPktErrsHigh32 indicates the higher 32 bits of the value of tmnxVdoGrpMdaRxDataPacketErrors.
vdoGrpMdaRxDataPktErrsLow32	long	tmnxVdoGrpMdaRxDataPktErrsLow32	The value of tmnxVdoGrpMdaRxDataPktErrsLow32 indicates the lower 32 bits of the value of tmnxVdoGrpMdaRxDataPacketErrors.
vdoGrpMdaSsrcCollisions	long	tmnxVdoGrpMdaSsrcCollisions	The value of tmnxVdoGrpMdaSsrcCollisions indicates the number of synchronization source (SSRC) id collisions on this MDA.
vdoGrpMdaTxDataOctets	UINT128	tmnxVdoGrpMdaTxDataOctets	The value of tmnxVdoGrpMdaTxDataOctets indicates the number of data octets transmitted on this MDA.

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5620 SAM counter name	Type	MIB counter name	Description
vdoGrpMdaTxDataOctetsHigh32	long	tmnxVdoGrpMdaTxDataOctetsHigh32	The value of tmnxVdoGrpMdaTxDataOctetsHigh32 indicates the higher 32 bits of the value of tmnxVdoGrpMdaTxDataOctets.
vdoGrpMdaTxDataOctetsLow32	long	tmnxVdoGrpMdaTxDataOctetsLow32	The value of tmnxVdoGrpMdaTxDataOctetsLow32 indicates the lower 32 bits of the value of tmnxVdoGrpMdaTxDataOctets.
vdoGrpMdaTxDataPacketErrors	UINT128	tmnxVdoGrpMdaTxDataPacketErrors	The value of tmnxVdoGrpMdaTxDataPacketErrors indicates the number of failed data packets due to lack of resources to be transmitted on this MDA.
vdoGrpMdaTxDataPackets	UINT128	tmnxVdoGrpMdaTxDataPackets	The value of tmnxVdoGrpMdaTxDataPackets indicates the number of data packets transmitted on this MDA.
vdoGrpMdaTxDataPacketsHigh32	long	tmnxVdoGrpMdaTxDataPacketsHigh32	The value of tmnxVdoGrpMdaTxDataPacketsHigh32 indicates the higher 32 bits of the value of tmnxVdoGrpMdaTxDataPackets.
vdoGrpMdaTxDataPacketsLow32	long	tmnxVdoGrpMdaTxDataPacketsLow32	The value of tmnxVdoGrpMdaTxDataPacketsLow32 indicates the lower 32 bits of the value of tmnxVdoGrpMdaTxDataPackets.
vdoGrpMdaTxDataPktErrsHigh32	long	tmnxVdoGrpMdaTxDataPktErrsHigh32	The value of tmnxVdoGrpMdaTxDataPktErrsHigh32 indicates the higher 32 bits of the value of tmnxVdoGrpMdaTxDataPacketErrors.
vdoGrpMdaTxDataPktErrsLow32	long	tmnxVdoGrpMdaTxDataPktErrsLow32	The value of tmnxVdoGrpMdaTxDataPktErrsLow32 indicates the lower 32 bits of the value of tmnxVdoGrpMdaTxDataPacketErrors.
vdoGrpMdaTxLostPackets	long	tmnxVdoGrpMdaTxLostPackets	The value of tmnxVdoGrpMdaTxLostPackets indicates the number of packets not found in the video MDA buffer for retransmission. When a retransmission request arrives, packets are checked in the buffer and if they are not found, the value of this object is incremented.
vdoGrpMdaUsedMemory	long	tmnxVdoGrpMdaUsedMemory	The value of tmnxVdoGrpMdaUsedMemory indicates the amount of cache being used by the video group for storing the video stream.

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Table A-19 isis statistics

5620 SAM counter name	Type	MIB counter name	Description
<b>InterfaceLevelOneReceivingStats</b> MIB table name: ISIS-MIB.isisPacketCountTable Monitored class: isis.InterfaceLevelOneConfig			

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5620 SAM counter name	Type	MIB counter name	Description
cnsnpCount	long	isisPacketCountCSNP	The number of IS-IS CSNPs seen in this direction at this level. REFERENCE ISIS.aoi iSISControlPDUsSent (43).
helloCount	long	isisPacketCountHello	The number of IS-IS Hello PDUs seen in this direction at this level. REFERENCE ISIS.aoi iSISControlPDUsSent (43).
lspCount	long	isisPacketCountLSP	The number of IS-IS LSPs seen in this direction at this level. REFERENCE ISIS.aoi iSISControlPDUsSent (43).
psnpCount	long	isisPacketCountPSNP	The number of IS-IS PSNPs seen in this direction at this level. REFERENCE ISIS.aoi iSISControlPDUsSent (43).
<b>InterfaceLevelOneSendingStats</b> MIB table name: ISIS-MIB.isisPacketCountTable Monitored class: isis.InterfaceLevelOneConfig			
cnsnpCount	long	isisPacketCountCSNP	The number of IS-IS CSNPs seen in this direction at this level. REFERENCE ISIS.aoi iSISControlPDUsSent (43).
helloCount	long	isisPacketCountHello	The number of IS-IS Hello PDUs seen in this direction at this level. REFERENCE ISIS.aoi iSISControlPDUsSent (43).
lspCount	long	isisPacketCountLSP	The number of IS-IS LSPs seen in this direction at this level. REFERENCE ISIS.aoi iSISControlPDUsSent (43).
psnpCount	long	isisPacketCountPSNP	The number of IS-IS PSNPs seen in this direction at this level. REFERENCE ISIS.aoi iSISControlPDUsSent (43).
<b>InterfaceLevelTwoReceivingStats</b> MIB table name: ISIS-MIB.isisPacketCountTable Monitored class: isis.InterfaceLevelTwoConfig			
cnsnpCount	long	isisPacketCountCSNP	The number of IS-IS CSNPs seen in this direction at this level. REFERENCE ISIS.aoi iSISControlPDUsSent (43).
helloCount	long	isisPacketCountHello	The number of IS-IS Hello PDUs seen in this direction at this level. REFERENCE ISIS.aoi iSISControlPDUsSent (43).
lspCount	long	isisPacketCountLSP	The number of IS-IS LSPs seen in this direction at this level. REFERENCE ISIS.aoi iSISControlPDUsSent (43).
psnpCount	long	isisPacketCountPSNP	The number of IS-IS PSNPs seen in this direction at this level. REFERENCE ISIS.aoi iSISControlPDUsSent (43).
<b>InterfaceLevelTwoSendingStats</b> MIB table name: ISIS-MIB.isisPacketCountTable Monitored class: isis.InterfaceLevelTwoConfig			
cnsnpCount	long	isisPacketCountCSNP	The number of IS-IS CSNPs seen in this direction at this level. REFERENCE ISIS.aoi iSISControlPDUsSent (43).

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5620 SAM counter name	Type	MIB counter name	Description
helloCount	long	isisPacketCountHello	The number of IS-IS Hello PDUs seen in this direction at this level. REFERENCE ISIS.aoi iSISControlPDUsSent (43).
lspCount	long	isisPacketCountLSP	The number of IS-IS LSPs seen in this direction at this level. REFERENCE ISIS.aoi iSISControlPDUsSent (43).
psnpCount	long	isisPacketCountPSNP	The number of IS-IS PSNPs seen in this direction at this level. REFERENCE ISIS.aoi iSISControlPDUsSent (43).
<b>LinkStatePduSiteStats</b> MIB table name: TIMETRA-ISIS-MIB.vRtrIisStatsTable Monitored class: isis.Site			
csnpDropped	long	vRtrIisCSNPDrop	The count of link state PDUs dropped by this instance of the protocol is maintained by vRtrIisCSNPDrop.
csnpReceived	long	vRtrIisCSNPRecd	The count of link state PDUs received by this instance of the protocol is maintained by vRtrIisCSNPRecd.
csnpRetransmitted	long	vRtrIisCSNPRetrans	The count of link state PDUs that had to be retransmitted by this instance of the protocol is maintained by vRtrIisCSNPRetrans.
csnpSent	long	vRtrIisCSNPSent	The count of link state PDUs sent out by this instance of the protocol is maintained by vRtrIisCSNPSent.
helloDropped	long	vRtrIisIIHDrop	The count of link state PDUs dropped by this instance of the protocol is maintained by vRtrIisIIHDrop.
helloReceived	long	vRtrIisIIHRecd	The count of link state PDUs received by this instance of the protocol is maintained by vRtrIisIIHRecd.
helloRetransmitted	long	vRtrIisIIHRetrans	The count of link state PDUs that had to be retransmitted by this instance of the protocol is maintained by vRtrIisIIHRetrans.
helloSent	long	vRtrIisIIHSent	The count of link state PDUs sent out by this instance of the protocol is maintained by vRtrIisIIHSent.
lspDropped	long	vRtrIisLSPDrop	The count of link state PDUs dropped by this instance of the protocol is maintained by vRtrIisLSPDrop.
lspReceived	long	vRtrIisLSPRecd	The count of link state PDUs received by this instance of the protocol is maintained by vRtrIisLSPRecd.
lspRetransmitted	long	vRtrIisLSPRetrans	The count of link state PDUs that had to be retransmitted by this instance of the protocol is maintained by vRtrIisLSPRetrans.
lspSent	long	vRtrIisLSPSent	The count of link state PDUs sent out by this instance of the protocol is maintained by vRtrIisLSPSent.

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5620 SAM counter name	Type	MIB counter name	Description
psnpDropped	long	vRtrIIsisPSNPDrop	The count of link state PDUs dropped by this instance of the protocol is maintained by vRtrIIsisPSNPDrop.
psnpReceived	long	vRtrIIsisPSNPRecd	The count of link state PDUs received by this instance of the protocol is maintained by vRtrIIsisPSNPRecd.
psnpRetransmitted	long	vRtrIIsisPSNPRetrans	The count of link state PDUs that had to be retransmitted by this instance of the protocol is maintained by vRtrIIsisPSNPRetrans.
psnpSent	long	vRtrIIsisPSNPSent	The count of link state PDUs sent out by this instance of the protocol is maintained by vRtrIIsisPSNPSent.
unknownDropped	long	vRtrIIsisUnknownDrop	The count of link state PDUs dropped by this instance of the protocol is maintained by vRtrIIsisUnknownDrop.
unknownReceived	long	vRtrIIsisUnknownRecd	The count of link state PDUs received by this instance of the protocol is maintained by vRtrIIsisUnknownRecd.
unknownRetransmitted	long	vRtrIIsisUnknownRetrans	The count of link state PDUs that had to be retransmitted by this instance of the protocol is maintained by vRtrIIsisUnknownRetrans.
unknownSent	long	vRtrIIsisUnknownSent	The count of link state PDUs sent out by this instance of the protocol is maintained by vRtrIIsisUnknownSent.
<b>SiteStats</b> MIB table name: TIMETRA-ISIS-MIB.vRtrIIsisStatsTable Monitored class: isis.Site			
cspfDroppedRequests	long	vRtrIIsisCSPFDroppedRequests	vRtrIIsisCSPFDroppedRequests maintains the number of dropped CSPF requests by the protocol.
cspfPathsFound	long	vRtrIIsisCSPFPathsFound	vRtrIIsisCSPFPathsFound maintains the number of responses to CSPF requests for which paths satisfying the constraints were found.
cspfPathsNotFound	long	vRtrIIsisCSPFPathsNotFound	vRtrIIsisCSPFPathsFound maintains the number of responses to CSPF requests for which no paths satisfying the constraints were found.
cspfRequests	long	vRtrIIsisCSPFRequests	vRtrIIsisCSPFRequests maintains the number of CSPF requests made to the protocol.
initiatedPurges	long	vRtrIIsisInitiatedPurges	The value of vRtrIIsisInitiatedPurges counts the number of times purges have been initiated.
lspRegenerations	long	vRtrIIsisLSPRegenerations	The value of vRtrIIsisLSPRegenerations maintains the count of LSP regenerations.
spfRuns	long	vRtrIIsisSpfRuns	The value of vRtrIIsisSpfRuns indicates the number of times shortest path first calculations have been made.

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Table A-20 I2fib statistics

5620 SAM counter name	Type	MIB counter name	Description
<b>MFibGrpSrcStats</b> MIB table name: TIMETRA-SERV-MIB.tlsMFibStatsTable Monitored class: I2fib.MFibGrpSrc			
forwardedOctets	UINT128	tlsMFibStatsForwardedOctets	The value of tlsMFibStatsForwardedOctets indicates the number of octets that were forwarded to the SAPs and SDPs listed in the tlsMFibInfoTable.
forwardedPkts	UINT128	tlsMFibStatsForwardedPkts	The value of tlsMFibStatsForwardedPkts indicates the number of multicast packets that were forwarded to the SAPs and SDPs listed in the tlsMFibInfoTable.

Table A-21 I2fwd statistics

5620 SAM counter name	Type	MIB counter name	Description
<b>AccessInterfaceStpStats</b> MIB table name: TIMETRA-SAP-MIB.sapTlsInfoTable Monitored class: I2fwd.AccessInterfaceStp			
forwardTransitions	long	sapTlsStpForwardTransitions	The value of the object sapTlsStpForwardTransitions indicates the number of times this port has transitioned from the Learning state to the Forwarding state.
inBadBpdus	long	sapTlsStpInBadBpdus	This object specifies the number of bad BPDUs received on this SAP.
inConfigBpdus	long	sapTlsStpInConfigBpdus	The value of the object sapTlsStpInConfigBpdus indicates the number of Configuration BPDUs received on this SAP.
inMultipleSpanningTreeBpdus	long	sapTlsStpInMstBpdus	The value of the object sapTlsStpInMstBpdus indicates the number of Multiple Spanning Tree (MST) BPDUs received on this SAP.
inRapidSpanningTreeBpdus	long	sapTlsStpInRstBpdus	The value of the object sapTlsStpInRstBpdus indicates the number of Rapid Spanning Tree (RST) BPDUs received on this SAP.
inTcnBpdus	long	sapTlsStpInTcnBpdus	The value of the object sapTlsStpInTcnBpdus indicates the number of Topology Change Notification BPDUs received on this SAP.
outConfigBpdus	long	sapTlsStpOutConfigBpdus	The value of the object sapTlsStpOutConfigBpdus indicates the number of Configuration BPDUs sent out this SAP.

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# A. 7750 MG Release 3.0 statistics counters

5620 SAM counter name	Type	MIB counter name	Description
outMultipleSpanningTreeBpdus	long	sapTlsStpOutMstBpdus	The value of the object sapTlsStpOutMstBpdus indicates the number of Multiple Spanning Tree (MST) BPDUs sent out on this SAP.
outRapidSpanningTreeBpdus	long	sapTlsStpOutRstBpdus	The value of the object sapTlsStpOutRstBpdus indicates the number of Rapid Spanning Tree (RST) BPDUs sent out on this SAP.
outTcnBpdus	long	sapTlsStpOutTcnBpdus	This object specifies the number of Topology Change Notification BPDUs sent out this SAP.
<b>CircuitMrpInfoStats</b> MIB table name: TIMETRA-SDP-MIB.sdpBindTlsMrpTable Monitored class: l2fwd.CircuitMrpInfo			
mrpDroppedPdus	long	sdpBindTlsMrpDroppedPdus	The value of sdpBindTlsMrpDroppedPdus indicates the number of dropped MRP packets on this SDP Bind.
mrpRxEmptyEvent	long	sdpBindTlsMrpRxEmptyEvent	The value of sdpBindTlsMrpRxEmptyEvent indicates the number of 'Empty' MRP events received on this SDP Bind.
mrpRxInEvent	long	sdpBindTlsMrpRxInEvent	The value of sdpBindTlsMrpRxInEvent indicates the number of 'In' MRP events received on this SDP Bind.
mrpRxJoinEmptyEvent	long	sdpBindTlsMrpRxJoinEmptyEvent	The value of sdpBindTlsMrpRxJoinEmptyEvent indicates the number of 'Join Empty' MRP events received on this SDP Bind.
mrpRxJoinInEvent	long	sdpBindTlsMrpRxJoinInEvent	The value of sdpBindTlsMrpRxJoinInEvent indicates the number of 'Join-In' MRP events received on this SDP Bind.
mrpRxLeaveEvent	long	sdpBindTlsMrpRxLeaveEvent	The value of sdpBindTlsMrpRxLeaveEvent indicates the number of 'Leave' MRP events received on this SDP Bind.
mrpRxNewEvent	long	sdpBindTlsMrpRxNewEvent	The value of sdpBindTlsMrpRxNewEvent indicates the number of 'New' MRP events received on this SDP Bind.
mrpRxPdus	long	sdpBindTlsMrpRxPdus	The value of sdpBindTlsMrpRxPdus indicates the number of MRP packets received on this SDP Bind.
mrpTxEmptyEvent	long	sdpBindTlsMrpTxEmptyEvent	The value of sdpBindTlsMrpTxEmptyEvent indicates the number of 'Empty' MRP events transmitted on this SDP Bind.
mrpTxInEvent	long	sdpBindTlsMrpTxInEvent	The value of sdpBindTlsMrpTxInEvent indicates the number of 'In' MRP events transmitted on this SDP Bind.
mrpTxJoinEmptyEvent	long	sdpBindTlsMrpTxJoinEmptyEvent	The value of sdpBindTlsMrpTxJoinEmptyEvent indicates the number of 'Join Empty' MRP events transmitted on this SDP Bind.
mrpTxJoinInEvent	long	sdpBindTlsMrpTxJoinInEvent	The value of sdpBindTlsMrpTxJoinInEvent indicates the number of 'Join-In' MRP events transmitted on this SDP Bind.

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5620 SAM counter name	Type	MIB counter name	Description
mrpTxLeaveEvent	long	sdpBindTlsMrpTxLeaveEvent	The value of sdpBindTlsMrpTxLeaveEvent indicates the number of 'Leave' MRP events transmitted on this SDP Bind.
mrpTxNewEvent	long	sdpBindTlsMrpTxNewEvent	The value of sdpBindTlsMrpTxNewEvent indicates the number of 'New' MRP events transmitted on this SDP Bind.
mrpTxPdus	long	sdpBindTlsMrpTxPdus	The value of sdpBindTlsMrpTxPdus indicates the number of MRP packets transmitted on this SDP Bind.
<b>CircuitStpStats</b> MIB table name: TIMETRA-SDP-MIB.sdpBindTlsTable Monitored class: l2fwd.CircuitStp			
forwardTransitions	long	sdpBindTlsStpForwardTransitions	The value of the object sdpBindTlsStpForwardTransitions indicates the number of times this port has transitioned from the Learning state to the Forwarding state.
inBadBpdus	long	sdpBindTlsStpInBadBpdus	The value of the object sdpBindTlsStpInBadBpdus indicates the number of bad BPDUs received on this SDP Bind.
inConfigBpdus	long	sdpBindTlsStpInConfigBpdus	The value of the object sdpBindTlsStpInConfigBpdus indicates the number of Configuration BPDUs received on this SDP Bind.
inRapidSpanningTreeBpdus	long	sdpBindTlsStpInRstBpdus	The value of the object sdpBindTlsStpInRstBpdus indicates the number of Rapid Spanning Tree (Rst) BPDUs received on this SDP.
inTcnBpdus	long	sdpBindTlsStpInTcnBpdus	The value of the object sdpBindTlsStpInTcnBpdus indicates the number of Topology Change Notification BPDUs received on this SDP Bind.
outConfigBpdus	long	sdpBindTlsStpOutConfigBpdus	The value of the object sdpBindTlsStpOutConfigBpdus indicates the number of Configuration BPDUs sent out this SDP Bind.
outRapidSpanningTreeBpdus	long	sdpBindTlsStpOutRstBpdus	The value of the object sdpBindTlsStpOutRstBpdus indicates the number of Rapid Spanning Tree (Rstp) BPDUs sent out on this SDP.
outTcnBpdus	long	sdpBindTlsStpOutTcnBpdus	The value of the object sdpBindTlsStpOutTcnBpdus indicates the number of Topology Change Notification BPDUs sent out this SDP Bind.
<b>L2AccessInterfaceMrpInfoStats</b> MIB table name: TIMETRA-SAP-MIB.sapTlsMrpTable Monitored class: l2fwd.L2AccessInterfaceMrpInfo			
mrpDroppedPdus	long	sapTlsMrpDroppedPdus	The value of sapTlsMrpDroppedPdus indicates the number of dropped MRP packets on this SAP.

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5620 SAM counter name	Type	MIB counter name	Description
mrpRxEmptyEvent	long	sapTlsMrpRxEmptyEvent	The value of sapTlsMrpRxEmptyEvent indicates the number of 'Empty' MRP events received on this SAP.
mrpRxInEvent	long	sapTlsMrpRxInEvent	The value of sapTlsMrpRxInEvent indicates the number of 'In' MRP events received on this SAP.
mrpRxJoinEmptyEvent	long	sapTlsMrpRxJoinEmptyEvent	The value of sapTlsMrpRxJoinEmptyEvent indicates the number of 'Join Empty' MRP events received on this SAP.
mrpRxJoinInEvent	long	sapTlsMrpRxJoinInEvent	The value of sapTlsMrpRxJoinInEvent indicates the number of 'Join-In' MRP events received on this SAP.
mrpRxLeaveEvent	long	sapTlsMrpRxLeaveEvent	The value of sapTlsMrpRxLeaveEvent indicates the number of 'Leave' MRP events received on this SAP.
mrpRxNewEvent	long	sapTlsMrpRxNewEvent	The value of sapTlsMrpRxNewEvent indicates the number of 'New' MRP events received on this SAP.
mrpRxPdus	long	sapTlsMrpRxPdus	The value of sapTlsMrpRxPdus indicates the number of MRP packets received on this SAP.
mrpTxEmptyEvent	long	sapTlsMrpTxEmptyEvent	The value of sapTlsMrpTxEmptyEvent indicates the number of 'Empty' MRP events transmitted on this SAP.
mrpTxInEvent	long	sapTlsMrpTxInEvent	The value of sapTlsMrpTxInEvent indicates the number of 'In' MRP events transmitted on this SAP.
mrpTxJoinEmptyEvent	long	sapTlsMrpTxJoinEmptyEvent	The value of sapTlsMrpTxJoinEmptyEvent indicates the number of 'Join Empty' MRP events transmitted on this SAP.
mrpTxJoinInEvent	long	sapTlsMrpTxJoinInEvent	The value of sapTlsMrpTxJoinInEvent indicates the number of 'Join-In' MRP events transmitted on this SAP.
mrpTxLeaveEvent	long	sapTlsMrpTxLeaveEvent	The value of sapTlsMrpTxLeaveEvent indicates the number of 'Leave' MRP events transmitted on this SAP.
mrpTxNewEvent	long	sapTlsMrpTxNewEvent	The value of sapTlsMrpTxNewEvent indicates the number of 'New' MRP events transmitted on this SAP.
mrpTxPdus	long	sapTlsMrpTxPdus	The value of sapTlsMrpTxPdus indicates the number of MRP packets transmitted on this SAP.
<b>PipStpInfoStats</b> MIB table name: TIMETRA-SERV-MIB.tlsPipInfoTable Monitored class: l2fwd.PipStpInfo			
pipInTcBitBpdus	long	tlsPipInTcBitBpdus	The value of the object tlsPipInTcBitBpdus indicates the number of BPDUs received on this PIP uplink with the Topology Change bit set.
pipOutTcBitBpdus	long	tlsPipOutTcBitBpdus	This object specifies the number of BPDUs sent out this PIP uplink with the Topology Change bit set.

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5620 SAM counter name	Type	MIB counter name	Description
pipStpForwardTransitions	long	tlsPipStpForwardTransitions	The value of the object <code>tlsPipStpForwardTransitions</code> indicates the number of times this port has transitioned from the Learning state to the Forwarding state.
pipStpInBadBpdus	long	tlsPipStpInBadBpdus	This object specifies the number of bad BPDUs received on this PIP uplink.
pipStpInConfigBpdus	long	tlsPipStpInConfigBpdus	The value of the object <code>tlsPipStpInConfigBpdus</code> indicates the number of Configuration BPDUs received on this PIP uplink.
pipStpInMstBpdus	long	tlsPipStpInMstBpdus	The value of the object <code>tlsPipStpInMstBpdus</code> indicates the number of Multiple Spanning Tree (MST) BPDUs received on this PIP uplink.
pipStpInRstBpdus	long	tlsPipStpInRstBpdus	The value of the object <code>tlsPipStpInRstBpdus</code> indicates the number of Rapid Spanning Tree (RST) BPDUs received on this PIP uplink.
pipStpInTcnBpdus	long	tlsPipStpInTcnBpdus	The value of the object <code>tlsPipStpInTcnBpdus</code> indicates the number of Topology Change Notification BPDUs received on this PIP uplink.
pipStpOutConfigBpdus	long	tlsPipStpOutConfigBpdus	The value of the object <code>tlsPipStpOutConfigBpdus</code> indicates the number of Configuration BPDUs sent out this PIP uplink.
pipStpOutMstBpdus	long	tlsPipStpOutMstBpdus	The value of the object <code>tlsPipStpOutMstBpdus</code> indicates the number of Multiple Spanning Tree (MST) BPDUs sent out on this PIP uplink.
pipStpOutRstBpdus	long	tlsPipStpOutRstBpdus	The value of the object <code>tlsPipStpOutRstBpdus</code> indicates the number of Rapid Spanning Tree (RST) BPDUs sent out on this PIP uplink.
pipStpOutTcnBpdus	long	tlsPipStpOutTcnBpdus	This object specifies the number of Topology Change Notification BPDUs sent out this PIP uplink.
<b>SiteFibStats</b> MIB table name: TIMETRA-SERV-MIB.svcTlsInfoTable Monitored class: l2fwd.SiteFib			
entries	long	svcTlsFdbNumEntries	The value of the object <code>svcTlsFdbNumEntries</code> indicates the current number of entries in the FDB of this service.

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5620 SAM counter name	Type	MIB counter name	Description
provisionedSize	long	svcTlsFdbTableSize	The value of the object svcTlsFdbTableSize specifies the maximum number of learned and static entries allowed in the FDB of this service. The maximum value of svcTlsFdbTableSize is '511999', when the the value of TIMETRA-CHASSIS-MIB::tmnxChassisOper Mode is 'd'. The maximum value of svcTlsFdbTableSize is '196607', when the the value of TIMETRA-CHASSIS-MIB::tmnxChassisOper Mode is 'c'. In other cases, the maximum value of svcTlsFdbTableSize is '131071'. DEFVAL { 250 }.
staticEntries	long	svcTlsFdbNumStaticEntries	The value of the object svcTlsFdbNumStaticEntries indicates the current number of static entries in the FDB of this service.
<b>SiteStpStats</b> MIB table name: TIMETRA-SERV-MIB.svcTlsInfoTable Monitored class: l2fwd.SiteStp			
timeSinceTopologyChange	long	svcTlsStpTimeSinceTopologyChange	The value of the object svcTlsStpTimeSinceTopologyChange indicates the time (in hundredths of a second) since the last time a topology change was detected by the Spanning Tree Protocol instance associated with this service.
topologyChanges	long	svcTlsStpTopologyChanges	The value of the object svcTlsStpTopologyChanges indicates the total number of topology changes detected by the Spanning Tree Protocol instance associated with this service since the management entity was last reset or initialized.

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Table A-22 l2tp statistics

5620 SAM counter name	Type	MIB counter name	Description
<b>GroupProfileStats</b> MIB table name: TIMETRA-L2TP-MIB.tmnxL2tpTgStatTable Monitored class: l2tp.GroupProfile			
activeSessions	long	tmnxL2tpTgStatActiveSessions	The value of tmnxL2tpTgStatActiveSessions indicates the number of sessions currently established in this tunnel group.
activeTunnels	long	tmnxL2tpTgStatActiveTunnels	The value of tmnxL2tpTgStatActiveTunnels indicates the number of tunnels currently established in this tunnel group.

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5620 SAM counter name	Type	MIB counter name	Description
attemptedSessions	long	tmnxL2tpTgStatTotalSessions	The value of tmnxL2tpTgStatTotalSessions indicates the number of session creation attempts in this tunnel group since the last re-initialization of the local network management subsystem, or the last time the system statistics were cleared.
attemptedTunnels	long	tmnxL2tpTgStatTotalTunnels	The value of tmnxL2tpTgStatTotalTunnels indicates the total number of tunnel set up attempts in this tunnel group since the last re-initialization of the local network management subsystem, or the last time the system statistics were cleared.
cleared	long	tmnxL2tpTgStatCleared	The value of the object tmnxL2tpTgStatCleared indicates the value of sysUpTime when the tunnel group statistics were cleared. The value zero indicates that the statistics have not been cleared since the last re-initialization of the local network management subsystem.
controlRxOctets	UINT128	tmnxL2tpTgStatControlRxOctets	The value of tmnxL2tpTgStatControlRxOctets indicates the number of control channel octets received by the current tunnels in this tunnel group.
controlRxOctetsHw	long	tmnxL2tpTgStatControlRxOctetsHw	The value of tmnxL2tpTgStatControlRxOctetsHw indicates the higher 32-bits word of the value of tmnxL2tpTgStatControlRxOctets.
controlRxOctetsLw	long	tmnxL2tpTgStatControlRxOctetsLw	The value of tmnxL2tpTgStatControlRxOctetsLw indicates the lower 32-bits word of the value of tmnxL2tpTgStatControlRxOctets.
controlRxPkts	long	tmnxL2tpTgStatControlRxPkts	The value of tmnxL2tpTgStatControlRxPkts indicates the accumulated number of control packets received by the current tunnels in this tunnel group.
controlTxOctets	UINT128	tmnxL2tpTgStatControlTxOctets	The value of tmnxL2tpTgStatControlTxOctets indicates the accumulated number of control channel octets that were transmitted to the current tunnel endpoints in this tunnel group.
controlTxOctetsHw	long	tmnxL2tpTgStatControlTxOctetsHw	The value of tmnxL2tpTgStatControlTxOctetsHw indicates the higher 32-bits word of the value of tmnxL2tpTgStatControlTxOctets.
controlTxOctetsLw	long	tmnxL2tpTgStatControlTxOctetsLw	The value of tmnxL2tpTgStatControlTxOctetsLw indicates the lower 32-bits word of the value of tmnxL2tpTgStatControlTxOctets.

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5620 SAM counter name	Type	MIB counter name	Description
controlTxPkts	long	tmnxL2tpTgStatControlTxPkts	The value of tmnxL2tpTgStatControlTxPkts indicates the accumulated number of control packets that were transmitted to the current tunnel endpoints in this tunnel group.
errorRxPkts	long	tmnxL2tpTgStatErrorRxPkts	The value of tmnxL2tpTgStatErrorRxPkts indicates the accumulated number of errored packets that were received on the current tunnels in this tunnel group.
errorTxPkts	long	tmnxL2tpTgStatErrorTxPkts	The value of tmnxL2tpTgStatErrorTxPkts indicates the accumulated number of packet transmission errors on the current tunnels in this tunnel group.
failedSessions	long	tmnxL2tpTgStatFailedSessions	The value of tmnxL2tpTgStatFailedSessions indicates the number of sessions in this tunnel group that failed to reach the established state since the last re-initialization of the local network management subsystem, or the last time the system statistics were cleared.
failedTuAuth	long	tmnxL2tpTgStatFailedTuAuth	The value of tmnxL2tpTgStatFailedTuAuth indicates the number of tunnels in this tunnel group that failed authentication since the last re-initialization of the local network management subsystem, or the last time the system statistics were cleared.
failedTunnels	long	tmnxL2tpTgStatFailedTunnels	The value of tmnxL2tpTgStatFailedTunnels indicates the number of tunnels in this tunnel group that failed to reach the established state since the last re-initialization of the local network management subsystem, or the last time the system statistics were cleared.
sessionAssignMethod	int	tmnxL2tpTgStatSeAssignMethod	The value of the object tmnxL2tpTgStatSeAssignMethod indicates the latest actual method used for the authentication of the tunnels in this Layer Two Tunneling Protocol Tunnel Group. Note that the next tunnel that will be set up in this L2TP tunnel group may or may not use the same method, since the configuration of the RADIUS server may have changed in the meantime.
sessionLimit	long	tmnxL2tpTgStatSessionLimit	The value of tmnxL2tpTgStatSessionLimit indicates the actual session limit of this tunnel group.
state	int	tmnxL2tpTgStatState	The value of tmnxL2tpTgStatState indicates the operational state of this Layer Two Tunneling Protocol Tunnel Group.
totalSessions	long	tmnxL2tpTgStatSessions	The value of tmnxL2tpTgStatSessions indicates the actual number of sessions in this tunnel group.

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5620 SAM counter name	Type	MIB counter name	Description
totalTunnels	long	tmnxL2tpTgStatTunnels	The value of tmnxL2tpTgStatTunnels indicates the actual number of tunnels in this tunnel group.
<b>PeerProtStats</b> MIB table name: TIMETRA-L2TP-MIB.tmnxL2tpPeerProtStatsTable Monitored class: l2tp.Peer			
protInstance	long	tmnxL2tpPeerProtStatsInstance	The value of the object tmnxL2tpPeerProtStatsInstance indicates the instance identifier of the statistics contained in this conceptual row. For example: if the value of the object tmnxL2tpPeerProtStatsType is equal to 'outgoingMsgType', the value of tmnxL2tpPeerProtStatsInstance is a message identifier, e.g. instance '2' refers to '(SCCRP) Start-Control-Connection-Reply', and the value of tmnxL2tpPeerProtStatsVal indicates the number of SCCRP messages transmitted for this tunnel. Unknown protocol messages are counted with instance zero.
protName	String	tmnxL2tpPeerProtStatsName	The value of the object tmnxL2tpPeerProtStatsName indicates the human-readable identifier of the statistics contained in this conceptual row. In the same example, the value of tmnxL2tpPeerProtStatsName is '(SCCRP) Start-Control-Connection-Reply'.
protType	int	tmnxL2tpPeerProtStatsType	The value of the object tmnxL2tpPeerProtStatsType indicates the type of L2TP protocol statistics contained in this conceptual row.
protVal	long	tmnxL2tpPeerProtStatsVal	The value of the object tmnxL2tpPeerProtStatsVal indicates the value of the statistics contained in this conceptual row.
<b>PeerStats</b> MIB table name: TIMETRA-L2TP-MIB.tmnxL2tpPeerStatTable Monitored class: l2tp.Peer			
activeSessions	long	tmnxL2tpPeerStatActiveSessions	The value of tmnxL2tpPeerStatActiveSessions indicates the number of sessions associated with this peer that are currently established.
activeTunnels	long	tmnxL2tpPeerStatActiveTunnels	The value of tmnxL2tpPeerStatActiveTunnels indicates the number of tunnels associated with this peer that are currently established.
controlRxOct	UINT128	tmnxL2tpPeerStatControlRxOct	The value of tmnxL2tpPeerStatControlRxOct indicates the number of control channel octets received in this tunnel since the last re-initialization of the local network management subsystem, or the last time the tunnel statistics were cleared.

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5620 SAM counter name	Type	MIB counter name	Description
controlRxOctHw	long	tmnxL2tpPeerStatControlRxOctHw	The value of tmnxL2tpPeerStatControlRxOctHw indicates the higher 32-bits word of the value of tmnxL2tpPeerStatControlRxOct.
controlRxOctLw	long	tmnxL2tpPeerStatControlRxOctLw	The value of tmnxL2tpPeerStatControlRxOctLw indicates the lower 32-bits word of the value of tmnxL2tpPeerStatControlRxOct.
controlRxPkts	long	tmnxL2tpPeerStatControlRxPkts	The value of tmnxL2tpPeerStatControlRxPkts indicates the number of control packets received by this tunnel since the last re-initialization of the local network management subsystem, or the last time the tunnel statistics were cleared.
controlTxOct	UINT128	tmnxL2tpPeerStatControlTxOct	The value of tmnxL2tpPeerStatControlTxOct indicates the number of control channel octets that were transmitted to the current tunnel endpoints in this tunnel since the last re-initialization of the local network management subsystem, or the last time the tunnel statistics were cleared.
controlTxOctHw	long	tmnxL2tpPeerStatControlTxOctHw	The value of tmnxL2tpPeerStatControlTxOctHw indicates the higher 32-bits word of the value of tmnxL2tpPeerStatControlTxOct.
controlTxOctLw	long	tmnxL2tpPeerStatControlTxOctLw	The value of tmnxL2tpPeerStatControlTxOctLw indicates the lower 32-bits word of the value of tmnxL2tpPeerStatControlTxOct.
controlTxPkts	long	tmnxL2tpPeerStatControlTxPkts	The value of tmnxL2tpPeerStatControlTxOct indicates the number of control packets that were transmitted to the current tunnel endpoints in this tunnel since the last re-initialization of the local network management subsystem, or the last time the tunnel statistics were cleared.
draining	int	tmnxL2tpPeerStatDraining	The value of tmnxL2tpPeerStatDraining indicates if this peer is being drained.
errorRxPkts	long	tmnxL2tpPeerStatErrorRxPkts	The value of tmnxL2tpPeerStatErrorRxPkts indicates the number of errored packets that were received on this tunnel since the last re-initialization of the local network management subsystem, or the last time the tunnel statistics were cleared.
errorTxPkts	long	tmnxL2tpPeerStatErrorTxPkts	The value of tmnxL2tpPeerStatErrorTxPkts indicates the number of packet transmission errors on this tunnel since the last re-initialization of the local network management subsystem, or the last time the tunnel statistics were cleared.

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5620 SAM counter name	Type	MIB counter name	Description
lastCleared	long	tmnxL2tpPeerStatLastCleared	The value of the object tmnxL2tpPeerStatLastCleared indicates the value of sysUpTime when the contents of this conceptual row were cleared for the last time. The value zero means that the contents of this conceptual row have not yet been cleared.
msgAccepted	long	tmnxL2tpPeerStatMsgAccepted	The value of tmnxL2tpPeerStatMsgAccepted indicates the number of Finite State Machine (FSM) messages that were accepted from this peer since the last re-initialization of the local network management subsystem, or the last time the tunnel statistics were cleared.
msgDuplicateRx	long	tmnxL2tpPeerStatMsgDuplicateRx	The value of tmnxL2tpPeerStatMsgDuplicateRx indicates the number of Finite State Machine (FSM) duplicate messages that were received from this peer since the last re-initialization of the local network management subsystem, or the last time the tunnel statistics were cleared.
msgOutOfWndwRx	long	tmnxL2tpPeerStatMsgOutOfWndwRx	The value of tmnxL2tpPeerStatMsgOutOfWndwRx indicates the number of Finite State Machine (FSM) messages that were received out of the receive window from this peer since the last re-initialization of the local network management subsystem, or the last time the tunnel statistics were cleared.
sessions	long	tmnxL2tpPeerStatSessions	The value of tmnxL2tpPeerStatSessions indicates the actual number of sessions associated with this peer.
tunnels	long	tmnxL2tpPeerStatTunnels	The value of tmnxL2tpPeerStatTunnels indicates the actual number of tunnels associated with this peer.
unreachableTime	long	tmnxL2tpPeerStatUnreachableTime	The value of the object tmnxL2tpPeerStatUnreachableTime indicates the value of sysUpTime when the this peer was deemed unreachable for the last time. The value zero means that this peer has not been deemed unreachable yet.
<b>SiteStats</b> MIB table name: TIMETRA-L2TP-MIB.tmnxL2tpStatTable Monitored class: l2tp.Site			
activeSessions	long	tmnxL2tpStatActiveSessions	The value of tmnxL2tpStatActiveSessions indicates the number of sessions currently established.
activeTunnels	long	tmnxL2tpStatActiveTunnels	The value of tmnxL2tpStatActiveTunnels indicates the number of tunnels currently established.

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5620 SAM counter name	Type	MIB counter name	Description
attemptedSessions	long	tmnxL2tpStatTotalSessions	The value of tmnxL2tpStatTotalSessions indicates the number of session creation attempts since the last re-initialization of the local network management subsystem, or the last time the system statistics were cleared.
attemptedTunnels	long	tmnxL2tpStatTotalTunnels	The value of tmnxL2tpStatTotalTunnels indicates the total number of tunnel set up attempts since the last re-initialization of the local network management subsystem, or the last time the system statistics were cleared.
cleared	long	tmnxL2tpStatCleared	The value of the object tmnxL2tpStatCleared indicates the value of sysUpTime when the system statistics were cleared. The value zero indicates that the system statistics have not been cleared since the last re-initialization of the local network management subsystem.
failedSessions	long	tmnxL2tpStatFailedSessions	The value of tmnxL2tpStatFailedSessions indicates the number of sessions that failed to reach the established state since the last re-initialization of the local network management subsystem, or the last time the system statistics were cleared.
failedTuAuth	long	tmnxL2tpStatFailedTuAuth	The value of tmnxL2tpStatFailedTuAuth indicates the number of tunnels that failed authentication since the last re-initialization of the local network management subsystem, or the last time the system statistics were cleared.
failedTunnels	long	tmnxL2tpStatFailedTunnels	The value of tmnxL2tpStatFailedTunnels indicates the number of tunnels that failed to reach the established state since the last re-initialization of the local network management subsystem, or the last time the system statistics were cleared.
totalSessions	long	tmnxL2tpStatCurrentSessions	The value of tmnxL2tpStatCurrentSessions indicates the actual number of sessions.
totalTunnels	long	tmnxL2tpStatCurrentTunnels	The value of tmnxL2tpStatCurrentTunnels indicates the actual number of tunnels.
<b>TunnelStatusProtStats</b> MIB table name: TIMETRA-L2TP-MIB.tmnxL2tpTuProtStatsTable Monitored class: l2tp.TunnelStatus			

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5620 SAM counter name	Type	MIB counter name	Description
protInstance	long	tmnxL2tpTuProtStatsInstance	The value of the object tmnxL2tpTuProtStatsType indicates the instance identifier of the statistics contained in this conceptual row. For example: if the value of the object tmnxL2tpTuProtStatsType is equal to 'outgoingMsgType', the value of tmnxL2tpTuProtStatsInstance is a message identifier, e.g. instance '2' refers to '(SCCRP) Start-Control-Connection-Reply', and the value of tmnxL2tpTuProtStatsVal indicates the number of SCCRP messages transmitted for this tunnel. Unknown protocol messages are counted with instance zero.
protName	String	tmnxL2tpTuProtStatsName	The value of the object tmnxL2tpTuProtStatsType indicates the human-readable identifier of the statistics contained in this conceptual row. In the same example, the value of tmnxL2tpTuProtStatsName is '(SCCRP) Start-Control-Connection-Reply'.
protType	int	tmnxL2tpTuProtStatsType	The value of the object tmnxL2tpTuProtStatsType indicates the type of L2TP protocol statistics contained in this conceptual row.
protVal	long	tmnxL2tpTuProtStatsVal	The value of the object tmnxL2tpTuProtStatsType indicates the value of the statistics contained in this conceptual row.
<b>TunnelStatusStats</b> MIB table name: TIMETRA-L2TP-MIB.tmnxL2tpTuStatsTable Monitored class: l2tp.TunnelStatus			
activeSessions	long	tmnxL2tpTuStatsActiveSessions	The value of tmnxL2tpTuStatsActiveSessions indicates the number of sessions currently established in this tunnel.
controlRxOctets	UINT128	tmnxL2tpTuStatsControlRxOctets	The value of tmnxL2tpTuStatsControlRxOctets indicates the number of control channel octets received in this tunnel since the last re-initialization of the local network management subsystem, or the last time the tunnel statistics were cleared.
controlRxOctetsHw	long	tmnxL2tpTuStatsControlRxOctetsHw	The value of tmnxL2tpTuStatsControlRxOctetsHw indicates the higher 32-bits word of the value of tmnxL2tpTuStatsControlRxOctets.
controlRxOctetsLw	long	tmnxL2tpTuStatsControlRxOctetsLw	The value of tmnxL2tpTuStatsControlRxOctetsLw indicates the lower 32-bits word of the value of tmnxL2tpTuStatsControlRxOctets.

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5620 SAM counter name	Type	MIB counter name	Description
controlRxPkts	long	tmnxL2tpTuStatsControlRxPkts	The value of tmnxL2tpTuStatsControlRxPkts indicates the number of control packets received by this tunnel since the last re-initialization of the local network management subsystem, or the last time the tunnel statistics were cleared.
controlTxOctets	UINT128	tmnxL2tpTuStatsControlTxOctets	The value of tmnxL2tpTuStatsControlTxOctets indicates the number of control channel octets that were transmitted to the current tunnel endpoints in this tunnel since the last re-initialization of the local network management subsystem, or the last time the tunnel statistics were cleared.
controlTxOctetsHw	long	tmnxL2tpTuStatsControlTxOctetsHw	The value of tmnxL2tpTuStatsControlTxOctetsHw indicates the higher 32-bits word of the value of tmnxL2tpTuStatsControlTxOctets.
controlTxOctetsLw	long	tmnxL2tpTuStatsControlTxOctetsLw	The value of tmnxL2tpTuStatsControlTxOctetsLw indicates the lower 32-bits word of the value of tmnxL2tpTuStatsControlTxOctets.
controlTxPkts	long	tmnxL2tpTuStatsControlTxPkts	The value of tmnxL2tpTuStatsControlTxPkts indicates the number of control packets that were transmitted to the current tunnel endpoints in this tunnel since the last re-initialization of the local network management subsystem, or the last time the tunnel statistics were cleared.
errorRxPkts	long	tmnxL2tpTuStatsErrorRxPkts	The value of tmnxL2tpTuStatsErrorRxPkts indicates the number of errored packets that were received on this tunnel since the last re-initialization of the local network management subsystem, or the last time the tunnel statistics were cleared.
errorTxPkts	long	tmnxL2tpTuStatsErrorTxPkts	The value of tmnxL2tpTuStatsErrorTxPkts indicates the number of packet transmission errors on this tunnel since the last re-initialization of the local network management subsystem, or the last time the tunnel statistics were cleared.
failedSessions	long	tmnxL2tpTuStatsFailedSessions	The value of tmnxL2tpTuStatsFailedSessions indicates the number of sessions in this tunnel that failed to reach the established state since the last re-initialization of the local network management subsystem, or the last time the tunnel statistics were cleared.

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5620 SAM counter name	Type	MIB counter name	Description
fsmMsgAccepted	long	tmnxL2tpTuStatsFsmMsgAccepted	The value of tmnxL2tpTuStatsFsmMsgAccepted indicates the number of Finite State Machine (FSM) messages that were accepted on this tunnel since the last re-initialization of the local network management subsystem, or the last time the tunnel statistics were cleared.
fsmMsgDuplicateRx	long	tmnxL2tpTuStatsFsmMsgDuplicateRx	The value of tmnxL2tpTuStatsFsmMsgDuplicateRx indicates the number of Finite State Machine (FSM) duplicate messages that were received on this tunnel since the last re-initialization of the local network management subsystem, or the last time the tunnel statistics were cleared.
fsmMsgOutOfWndwRx	long	tmnxL2tpTuStatsFsmMsgOutOfWndwRx	The value of tmnxL2tpTuStatsFsmMsgOutOfWndwRx indicates the number of Finite State Machine (FSM) messages that were received out of the receive window on this tunnel since the last re-initialization of the local network management subsystem, or the last time the tunnel statistics were cleared.
lastCleared	long	tmnxL2tpTuStatsLastCleared	The value of the object tmnxL2tpTuStatsLastCleared indicates the value of sysUpTime when the contents of this conceptual row were cleared for the last time. The value zero means that the contents of this conceptual row have not yet been cleared.
qLengthAckCur	long	tmnxL2tpTuStatsQLengthAckCur	The value of tmnxL2tpTuStatsErrorRxPkts indicates the the current length of the acknowledged message queue on this tunnel.
qLengthAckMax	long	tmnxL2tpTuStatsQLengthAckMax	The value of tmnxL2tpTuStatsErrorRxPkts indicates the the maximum length of the acknowledged message queue on this tunnel since the last re-initialization of the local network management subsystem, or the last time the tunnel statistics were cleared.
qLengthUnsentCur	long	tmnxL2tpTuStatsQLengthUnsentCur	The value of tmnxL2tpTuStatsErrorRxPkts indicates the the current length of the unsent message queue on this tunnel.
qLengthUnsentMax	long	tmnxL2tpTuStatsQLengthUnsentMax	The value of tmnxL2tpTuStatsQLengthUnsentMax indicates the the maximum length of the unsent message queue on this tunnel since the last re-initialization of the local network management subsystem, or the last time the tunnel statistics were cleared.

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5620 SAM counter name	Type	MIB counter name	Description
totalSessions	long	tmnxL2tpTuStatsTotalSessions	The value of tmnxL2tpTuStatsTotalSessions indicates the number of session creation attempts in this tunnel since the last re-initialization of the local network management subsystem, or the last time the tunnel statistics were cleared.
windowSizeCur	long	tmnxL2tpTuStatsWindowSizeCur	The value of tmnxL2tpTuStatsErrorRxPkts indicates the current size of the receive window on this tunnel.

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Table A-23 lag statistics

5620 SAM counter name	Type	MIB counter name	Description
<b>LagStats</b> MIB table name: TIMETRA-LAG-MIB.tLagOperationTable Monitored class: lag.Interface			
portThresholdFalling	long	tLagPortThresholdFalling	counts the number of linkDown or dynamicCost events for the Link Aggregation Group caused by the number of physical ports being less than or equal to tLagPortThreshold value.
portThresholdRising	long	tLagPortThresholdRising	counts the number of linkUp or dynamicCost events for the Link Aggregation Group caused by the number of physical ports being greater than tLagPortThreshold value.
<b>MultiChassisLagMemberStats</b> MIB table name: TIMETRA-MC-REDUNDANCY-MIB.tmnxMcLagLagStatsTable Monitored classes: <ul style="list-style-type: none"> <li>lag.MultiChassisLagMember</li> <li>multichassis.MultiChassisLagMember</li> </ul>			
configPacketsReceived	long	tmnxMcLagLagStatsPktsRxConfig	The value of tmnxMcLagLagStatsPktsRxConfig indicates how many MC-Lag control packets of type lag config were received on this system from the peer for this lag.
configPacketsTransmitted	long	tmnxMcLagLagStatsPktsTxConfig	The value of tmnxMcLagLagStatsPktsTxConfig indicates how many MC-Lag control packets of type lag config were sent on this system to the peer for this lag.
failedPacketsTransmitted	long	tmnxMcLagLagStatsPktsTxFailed	The value of tmnxMcLagLagStatsPktsTxFailed indicates how many MC-Lag control packets failed to be transmitted on this system to the peer for this lag.
statePacketsReceived	long	tmnxMcLagLagStatsPktsRxState	The value of tmnxMcLagLagStatsPktsRxState indicates how many MC-Lag control packets of type lag state were received on this system from the peer for this lag.

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5620 SAM counter name	Type	MIB counter name	Description
statePacketsTransmitted	long	tmnxMcLagLagStatsPktsTxState	The value of tmnxMcLagLagStatsPktsTxState indicates how many MC-Lag control packets of type lag state were sent on this system to the peer for this lag.

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Table A-24 Ldp statistics

5620 SAM counter name	Type	MIB counter name	Description
<b>InterfaceStats</b> MIB table name: TIMETRA-LDP-MIB.vRtrLdpIfStatsTable Monitored class: ldp.Interface			
existingAdjacencies	long	vRtrLdpIfExistingAdjacencies	The value of vRtrLdpIfExistingAdjacencies gives a count of the total active adjacencies on this LDP interface or with this targeted peer.
<b>LdpEgressStats</b> MIB table name: TIMETRA-LDP-MIB.vRtrLdpEgrStatisticsTable Monitored class: ldp.AccountingFecPrefix			
ldpInProfileOctetsFc0	UINT128	vRtrLdpInProfileOctetsFc0	The value of vRtrLdpInProfileOctetsFc0 indicates the number of in profile octets received for Forwarding Class 0.
ldpInProfileOctetsFc1	UINT128	vRtrLdpInProfileOctetsFc1	The value of vRtrLdpInProfileOctetsFc1 indicates the number of in profile octets received for Forwarding Class 1.
ldpInProfileOctetsFc2	UINT128	vRtrLdpInProfileOctetsFc2	The value of vRtrLdpInProfileOctetsFc2 indicates the number of in profile octets received for Forwarding Class 2.
ldpInProfileOctetsFc3	UINT128	vRtrLdpInProfileOctetsFc3	The value of vRtrLdpInProfileOctetsFc3 indicates the number of in profile octets received for Forwarding Class 3.
ldpInProfileOctetsFc4	UINT128	vRtrLdpInProfileOctetsFc4	The value of vRtrLdpInProfileOctetsFc4 indicates the number of in profile octets received for Forwarding Class 4.
ldpInProfileOctetsFc5	UINT128	vRtrLdpInProfileOctetsFc5	The value of vRtrLdpInProfileOctetsFc5 indicates the number of in profile octets received for Forwarding Class 5.
ldpInProfileOctetsFc6	UINT128	vRtrLdpInProfileOctetsFc6	The value of vRtrLdpInProfileOctetsFc6 indicates the number of in profile octets received for Forwarding Class 6.
ldpInProfileOctetsFc7	UINT128	vRtrLdpInProfileOctetsFc7	The value of vRtrLdpInProfileOctetsFc7 indicates the number of in profile octets received for Forwarding Class 7.
ldpInProfilePktsFc0	UINT128	vRtrLdpInProfilePktsFc0	The value of vRtrLdpInProfilePktsFc0 indicates the number of in profile packets received for Forwarding Class 0.
ldpInProfilePktsFc1	UINT128	vRtrLdpInProfilePktsFc1	The value of vRtrLdpInProfilePktsFc1 indicates the number of in profile packets received for Forwarding Class 1.

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5620 SAM counter name	Type	MIB counter name	Description
ldpInProfilePktsFc2	UINT128	vRtrLdpInProfilePktsFc2	The value of vRtrLdpInProfilePktsFc2 indicates the number of in profile packets received for Forwarding Class 2.
ldpInProfilePktsFc3	UINT128	vRtrLdpInProfilePktsFc3	The value of vRtrLdpInProfilePktsFc3 indicates the number of in profile packets received for Forwarding Class 3.
ldpInProfilePktsFc4	UINT128	vRtrLdpInProfilePktsFc4	The value of vRtrLdpInProfilePktsFc4 indicates the number of in profile packets received for Forwarding Class 4.
ldpInProfilePktsFc5	UINT128	vRtrLdpInProfilePktsFc5	The value of vRtrLdpInProfilePktsFc5 indicates the number of in profile packets received for Forwarding Class 5.
ldpInProfilePktsFc6	UINT128	vRtrLdpInProfilePktsFc6	The value of vRtrLdpInProfilePktsFc6 indicates the number of in profile packets received for Forwarding Class 6.
ldpInProfilePktsFc7	UINT128	vRtrLdpInProfilePktsFc7	The value of vRtrLdpInProfilePktsFc7 indicates the number of in profile packets received for Forwarding Class 7.
ldpOutOfProfOctetsFc0	UINT128	vRtrLdpOutOfProfOctetsFc0	The value of vRtrLdpOutOfProfOctetsFc0 indicates the number of out of profile octets received for Forwarding Class 0.
ldpOutOfProfOctetsFc1	UINT128	vRtrLdpOutOfProfOctetsFc1	The value of vRtrLdpOutOfProfOctetsFc1 indicates the number of out of profile octets received for Forwarding Class 1.
ldpOutOfProfOctetsFc2	UINT128	vRtrLdpOutOfProfOctetsFc2	The value of vRtrLdpOutOfProfOctetsFc2 indicates the number of out of profile octets received for Forwarding Class 2.
ldpOutOfProfOctetsFc3	UINT128	vRtrLdpOutOfProfOctetsFc3	The value of vRtrLdpOutOfProfOctetsFc3 indicates the number of out of profile octets received for Forwarding Class 3.
ldpOutOfProfOctetsFc4	UINT128	vRtrLdpOutOfProfOctetsFc4	The value of vRtrLdpOutOfProfOctetsFc4 indicates the number of out of profile octets received for Forwarding Class 4.
ldpOutOfProfOctetsFc5	UINT128	vRtrLdpOutOfProfOctetsFc5	The value of vRtrLdpOutOfProfOctetsFc5 indicates the number of out of profile octets received for Forwarding Class 5.
ldpOutOfProfOctetsFc6	UINT128	vRtrLdpOutOfProfOctetsFc6	The value of vRtrLdpOutOfProfOctetsFc6 indicates the number of out of profile octets received for Forwarding Class 6.
ldpOutOfProfOctetsFc7	UINT128	vRtrLdpOutOfProfOctetsFc7	The value of vRtrLdpOutOfProfOctetsFc7 indicates the number of out of profile octets received for Forwarding Class 7.
ldpOutOfProfPktsFc0	UINT128	vRtrLdpOutOfProfPktsFc0	The value of vRtrLdpOutOfProfPktsFc0 indicates the number of out of profile packets received for Forwarding Class 0.
ldpOutOfProfPktsFc1	UINT128	vRtrLdpOutOfProfPktsFc1	The value of vRtrLdpOutOfProfPktsFc1 indicates the number of out of profile packets received for Forwarding Class 1.
ldpOutOfProfPktsFc2	UINT128	vRtrLdpOutOfProfPktsFc2	The value of vRtrLdpOutOfProfPktsFc2 indicates the number of out of profile packets received for Forwarding Class 2.

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5620 SAM counter name	Type	MIB counter name	Description
ldpOutOfProfPktsFc3	UINT128	vRtrLdpOutOfProfPktsFc3	The value of vRtrLdpOutOfProfPktsFc3 indicates the number of out of profile packets received for Forwarding Class 3.
ldpOutOfProfPktsFc4	UINT128	vRtrLdpOutOfProfPktsFc4	The value of vRtrLdpOutOfProfPktsFc4 indicates the number of out of profile packets received for Forwarding Class 4.
ldpOutOfProfPktsFc5	UINT128	vRtrLdpOutOfProfPktsFc5	The value of vRtrLdpOutOfProfPktsFc5 indicates the number of out of profile packets received for Forwarding Class 5.
ldpOutOfProfPktsFc6	UINT128	vRtrLdpOutOfProfPktsFc6	The value of vRtrLdpOutOfProfPktsFc6 indicates the number of out of profile packets received for Forwarding Class 6.
ldpOutOfProfPktsFc7	UINT128	vRtrLdpOutOfProfPktsFc7	The value of vRtrLdpOutOfProfPktsFc7 indicates the number of out of profile packets received for Forwarding Class 7.
<b>SessionStats</b> MIB table name: TIMETRA-LDP-MIB.vRtrLdpSessionStatsTable Monitored class: ldp.Session			
addressMessagesReceived	long	vRtrLdpSessStatsAddrIn	The value of vRtrLdpSessStatsAddrIn counts the number of Address Messages that have been received during this session.
addressMessagesSent	long	vRtrLdpSessStatsAddrOut	The value of vRtrLdpSessStatsAddrOut counts the number of Address Messages that have been sent during this session.
addressWithdrawMessagesReceived	long	vRtrLdpSessStatsAddrWithdrawIn	The value of vRtrLdpSessStatsAddrWithdrawIn counts the number of Address Withdraw Messages that have been received during this session.
addressWithdrawMessagesSent	long	vRtrLdpSessStatsAddrWithdrawOut	The value of vRtrLdpSessStatsAddrWithdrawOut counts the number of Address Withdraw Messages that have been sent during this session.
fecReceived	long	vRtrLdpSessStatsFECRecv	The value of vRtrLdpSessStatsFECRecv counts the number of FECs received for this session.
fecSent	long	vRtrLdpSessStatsFECSent	The value of vRtrLdpSessStatsFECSent counts the number of FECs sent for this session.
helloMessagesReceived	long	vRtrLdpSessStatsHelloIn	The value of vRtrLdpSessStatsHelloIn counts the number of Hello Messages that have been received during this session.
helloMessagesSent	long	vRtrLdpSessStatsHelloOut	The value of vRtrLdpSessStatsHelloOut counts the number of Hello Messages that have been sent during this session.
initMessagesReceived	long	vRtrLdpSessStatsInitIn	The value of vRtrLdpSessStatsInitIn counts the number of Init Messages that have been received during this session.
initMessagesSent	long	vRtrLdpSessStatsInitOut	The value of vRtrLdpSessStatsInitOut counts the number of Init Messages that have been sent during this session.

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5620 SAM counter name	Type	MIB counter name	Description
keepAliveMessagesReceived	long	vRtrLdpSessStatsKeepaliveIn	The value of vRtrLdpSessStatsKeepaliveIn counts the number of Keepalive Messages that have been received during this session.
keepAliveMessagesSent	long	vRtrLdpSessStatsKeepaliveOut	The value of vRtrLdpSessStatsKeepaliveOut counts the number of Keepalive Messages that have been sent during this session.
labelAbortsReceived	long	vRtrLdpSessStatsLabelAbortIn	The value of vRtrLdpSessStatsLabelAbortIn counts the number of Label Abort Messages that have been received during this session.
labelAbortsSent	long	vRtrLdpSessStatsLabelAbortOut	The value of vRtrLdpSessStatsLabelAbortOut counts the number of Label Abort Messages that have been sent during this session.
labelMappingsReceived	long	vRtrLdpSessStatsLabelMappingIn	The value of vRtrLdpSessStatsLabelMappingIn counts the number of Label Mapping Messages that have been received during this session.
labelMappingsSent	long	vRtrLdpSessStatsLabelMappingOut	The value of vRtrLdpSessStatsLabelMappingOut counts the number of Label Mapping Messages that have been sent during this session.
labelReleasesReceived	long	vRtrLdpSessStatsLabelReleaseIn	The value of vRtrLdpSessStatsLabelReleaseIn counts the number of Label Release Messages that have been received during this session.
labelReleasesSent	long	vRtrLdpSessStatsLabelReleaseOut	The value of vRtrLdpSessStatsLabelReleaseOut counts the number of Label Release Messages that have been sent during this session.
labelRequestsReceived	long	vRtrLdpSessStatsLabelRequestIn	The value of vRtrLdpSessStatsLabelRequestIn counts the number of Label Request Messages that have been received during this session.
labelRequestsSent	long	vRtrLdpSessStatsLabelRequestOut	The value of vRtrLdpSessStatsLabelRequestOut counts the number of Label Request Messages that have been sent during this session.
labelWithdrawsReceived	long	vRtrLdpSessStatsLabelWithdrawIn	The value of vRtrLdpSessStatsLabelWithdrawIn counts the number of Label Withdraw Messages that have been received during this session.
labelWithdrawsSent	long	vRtrLdpSessStatsLabelWithdrawOut	The value of vRtrLdpSessStatsLabelWithdrawOut counts the number of Label Withdraw Messages that have been sent during this session.
linkAdjacencies	long	vRtrLdpSessStatsLinkAdj	The value of vRtrLdpSessStatsLinkAdj specifies the number of link adjacencies for this session.

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5620 SAM counter name	Type	MIB counter name	Description
notificationMessagesReceived	long	vRtrLdpSessStatsNotificationIn	The value of vRtrLdpSessStatsNotificationIn counts the number of Notification Messages that have been received during this session.
notificationMessagesSent	long	vRtrLdpSessStatsNotificationOut	The value of vRtrLdpSessStatsNotificationOut counts the number of Notification Messages that have been sent during this session.
targetedAdjacencies	long	vRtrLdpSessStatsTargAdj	The value of vRtrLdpSessStatsTargAdj specifies the number of targeted adjacencies for this session.
<b>SiteStats</b> MIB table name: TIMETRA-LDP-MIB.vRtrLdpStatsTable Monitored class: ldp.Site			
activeAdjacencies	long	vRtrLdpStatsActiveAdjacencies	The value of vRtrLdpStatsActiveAdjacencies specifies the number of active adjacencies (i.e. established sessions) associated with the LDP instance.
activeInterfaces	long	vRtrLdpStatsActiveInterfaces	The value of vRtrLdpStatsActiveInterfaces specifies the number of active (i.e. operationally up) interfaces associated with the LDP instance.
activeSessions	long	vRtrLdpStatsActiveSessions	The value of vRtrLdpStatsActiveSessions specifies the number of active sessions (i.e. session in some form of creation) associated with the LDP instance.
activeTargetedSessions	long	vRtrLdpStatsActiveTargSessions	The value of vRtrLdpStatsActiveTargSessions specifies the number of active (i.e. operationally up) targeted sessions associated with the LDP instance.
addressFECsReceived	long	vRtrLdpStatsAddrFECRecv	The value of vRtrLdpStatsAddrFECRecv specifies the number of Address FECs received by the LDP instance from its neighbors.
addressFECsSent	long	vRtrLdpStatsAddrFECSent	The value of vRtrLdpStatsAddrFECSent specifies the number of Address FECs sent by the LDP instance to its neighbors.
attemptedSessions	long	vRtrLdpStatsAttemptedSessions	The value of vRtrLdpStatsAttemptedSessions specifies the total number of attempted sessions for this LDP instance.
badLdpIdentifierErrors	long	vRtrLdpStatsBadLdpIdentifierErrors	The value of vRtrLdpStatsBadLdpIdentifierErrors gives the number of Bad LDP Identifier Fatal Errors detected for sessions associated with this LDP instance. REFERENCE LDP Specification, Section 3.5.1.2.

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5620 SAM counter name	Type	MIB counter name	Description
badMessageLengthErrors	long	vRtrLdpStatsBadMessageLengthErrors	The value of vRtrLdpStatsBadMessageLengthErrors gives the number of Bad Message Length Fatal Errors detected for sessions associated with this LDP instance. REFERENCE LDP Specification, Section 3.5.1.2.
badPduLengthErrors	long	vRtrLdpStatsBadPduLengthErrors	The value of vRtrLdpStatsBadPduLengthErrors gives the number of Bad Pdu Length Fatal Errors detected for sessions associated with this LDP instance. REFERENCE LDP Specification, Section 3.5.1.2.
badTlvLengthErrors	long	vRtrLdpStatsBadTlvLengthErrors	The value of vRtrLdpStatsBadTlvLengthErrors gives the number of Bad TLV Length Fatal Errors detected for sessions associated with this LDP instance. REFERENCE LDP Specification, Section 3.5.1.2.
inactiveInterfaces	long	vRtrLdpStatsInactiveInterfaces	The value of vRtrLdpStatsInactiveInterfaces specifies the number of inactive (i.e. operationally down) interfaces associated with the LDP instance.
inactiveTargetedSessions	long	vRtrLdpStatsInactiveTargetedSessions	The value of vRtrLdpStatsInactiveTargetedSessions specifies the number of inactive (i.e. operationally down) targeted sessions associated with the LDP instance.
keepAliveExpiredErrors	long	vRtrLdpStatsKeepAliveExpiredErrors	The value of vRtrLdpStatsKeepAliveExpiredErrors gives the number of Session Keep Alive Timer Expired Errors detected for sessions associated with this LDP instance. REFERENCE LDP Specification, Section 3.5.1.2.
malformedTlvValueErrors	long	vRtrLdpStatsMalformedTlvValueErrors	The value of vRtrLdpStatsMalformedTlvValueErrors gives the number of Malformed TLV Value Fatal Errors detected for sessions associated with this LDP instance. REFERENCE LDP Specification, Section 3.5.1.2.
operDownEvents	long	vRtrLdpStatsOperDownEvents	The value of vRtrLdpStatsOperDownEvents specifies the number of times the LDP instance has gone operationally down since the instance was created.
serviceFECsReceived	long	vRtrLdpStatsSvcFECRecv	The value of vRtrLdpStatsSvcFECRecv specifies the number of Service FECs received by the LDP instance from its neighbors.
serviceFECsSent	long	vRtrLdpStatsSvcFECSent	The value of vRtrLdpStatsSvcFECSent specifies the number of Service FECs sent by the LDP instance to its neighbors.

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5620 SAM counter name	Type	MIB counter name	Description
sessionRejectedAdvertisementModeErrors	long	vRtrLdpStatsSessRejAdvErrors	The value of vRtrLdpStatsSessRejAdvErrors gives the total number of Session Rejected/Parameters Advertisement Mode Error Notification Messages sent or received by this LDP instance.
sessionRejectedLabelRangeErrors	long	vRtrLdpStatsSessRejLabelRangeErrors	The value of vRtrLdpStatsSessRejLabelRangeErrors gives the total number of Session Rejected/Parameters Label Range Error Notification Messages sent or received by this LDP instance.
sessionRejectedMaxPduLengthErrors	long	vRtrLdpStatsSessRejMaxPduErrors	The value of vRtrLdpStatsSessRejMaxPduErrors gives the total number of Session Rejected/Parameters Max Pdu Length Error Notification Messages sent or received by this LDP instance.
sessionRejectedNoHelloErrors	long	vRtrLdpStatsSessRejNoHelloErrors	The value of vRtrLdpStatsSessRejNoHelloErrors gives the total number of Session Rejected/No Hello Error Notification Messages sent or received by this LDP instance.
shutdownNotificationsReceived	long	vRtrLdpStatsShutdownNotifRecv	The value of vRtrLdpStatsShutdownNotifRecv gives the number of Shutdown Notifications received related to sessions associated with this LDP instance.
shutdownNotificationsSent	long	vRtrLdpStatsShutdownNotifSent	The value of vRtrLdpStatsShutdownNotifSent gives the number of Shutdown Notifications sent related to sessions associated with this LDP instance.
<b>SiteStatsExtension</b> MIB table name: TIMETRA-LDP-MIB.vRtrLdpStatsTable Monitored class: ldp.Site			
p2mpFecReceived	long	vRtrLdpStatsP2MPFECRecv	The value of vRtrLdpStatsP2MPFECRecv specifies the number of P2MP FECs received by the ldp instance from its neighbors.
p2mpFecSent	long	vRtrLdpStatsP2MPFECSent	The value of vRtrLdpStatsP2MPFECSent specifies the number of P2MP FECs sent by the ldp instance to its neighbors.
<b>TargetedPeerStats</b> MIB table name: TIMETRA-LDP-MIB.vRtrLdpIfStatsTable Monitored class: ldp.TargetedPeer			
existingAdjacencies	long	vRtrLdpIfExistingAdjacencies	The value of vRtrLdpIfExistingAdjacencies gives a count of the total active adjacencies on this LDP interface or with this targeted peer.

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Table A-25 lldp statistics

5620 SAM counter name	Type	MIB counter name	Description
<b>LLDPRxPortStats</b> MIB table name: TIMETRA-LLDP-MIB.tmnxLldpStatsRxPortTable Monitored class: lldp.LLDPPortConfiguration			
lldpStatsRxPortAgeouts	long	tmnxLldpStatsRxPortAgeouts	The counter that represents the number of age-outs that occurred on a given port. An age-out is the number of times the complete set of information advertised by a particular MSAP has been deleted from tables contained in tmnxLldpRemoteSystemsData and lldpExtensions objects because the information timeliness interval has expired. This counter is similar to lldpStatsRemTablesAgeouts, except that the counter is on a per port basis. This enables NMS to poll tables associated with the tmnxLldpRemoteSystemsData objects and all LLDP extension objects associated with remote systems on the indicated port only. This counter should be set to zero during agent initialization and its value should not be saved in non-volatile storage. When a port's admin status changes from 'disabled' to 'rxOnly', 'txOnly' or 'txAndRx', the counter associated with the same port should reset to 0. The agent should also flush all remote system information associated with the same port. This counter should be incremented only once when the complete set of information is invalidated (aged out) from all related tables on a particular port. Partial ageing is not allowed, and thus, should not change the value of this counter. REFERENCE IEEE Std 802.1AB-200X 10.5.2.
lldpStatsRxPortFrameDiscard	long	tmnxLldpStatsRxPortFrameDiscard	The number of LLDP frames received by this LLDP agent on the indicated port, and then discarded for any reason. This counter can provide an indication that LLDP header formatting problems may exist with the local LLDP agent in the sending system or that LLDPDU validation problems may exist with the local LLDP agent in the receiving system. REFERENCE IEEE Std 802.1AB-200X 10.5.2.
lldpStatsRxPortFrameErrs	long	tmnxLldpStatsRxPortFrameErrs	The number of invalid LLDP frames received by this LLDP agent on the indicated port, while this LLDP agent is enabled. REFERENCE IEEE Std 802.1AB-200X 10.5.2.
lldpStatsRxPortFrames	long	tmnxLldpStatsRxPortFrames	The number of valid LLDP frames received by this LLDP agent on the indicated port, while this LLDP agent is enabled. REFERENCE IEEE Std 802.1AB-200X 10.5.2.

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5620 SAM counter name	Type	MIB counter name	Description
lldpStatsRxPortTLVDiscard	long	tmnxLldpStatsRxPortTLV Discard	The number of LLDP TLVs discarded for any reason by this LLDP agent on the indicated port. REFERENCE IEEE Std 802.1AB-200X 10.5.2.
lldpStatsRxPortTLVUnknown	long	tmnxLldpStatsRxPortTLV Unknown	The number of LLDP TLVs received on the given port that are not recognized by this LLDP agent on the indicated port. An unrecognized TLV is referred to as the TLV whose type value is in the range of reserved TLV types (000 1001 - 111 1110) in Table 9.1 of IEEE Std 802.1AB-2004. An unrecognized TLV may be a basic management TLV from a later LLDP version. REFERENCE IEEE Std 802.1AB-200X 10.5.2.
<b>LLDPTxPortStats</b> MIB table name: TIMETRA-LLDP-MIB.tmnxLldpStatsTxPortTable Monitored class: lldp.LLDPPortConfiguration			
lldpStatsTxLLDPDULengthErrs	long	tmnxLldpStatsTxLLDPDULengthErrs	The number of LLDPD Length Errors recorded for the Port. REFERENCE IEEE Std 802.1AB-200X 10.2.7.2.
lldpStatsTxPortFrames	long	tmnxLldpStatsTxPortFrames	The number of LLDP frames transmitted by this LLDP agent on the indicated port. REFERENCE IEEE Std 802.1AB-200X 10.5.2.

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Table A-26 lte statistics

5620 SAM counter name	Type	MIB counter name	Description
<b>GxPeerStats</b> MIB table name: TIMETRA-MOBILE-PDN-MIB.tmnxMobPdnGxStatTable Monitored class: lte.GxPeer			
bearerBindingAndEventReportingFunctionTransmitted	long	tmnxMobPdnGxStatBberfs	The value of tmnxMobPdnGxStatBberfs indicates the number of Bearer Binding and Event Reporting Function (BBERF) procedures transmitted by this peer.
capabilitiesExchangeAnswersReceived	long	tmnxMobPdnGxStatRxCea	The value of tmnxMobPdnGxStatRxCea indicates the number of Capabilities Exchange Answer (CEA) messages received from this peer.
capabilitiesExchangeRequestsTransmitted	long	tmnxMobPdnGxStatTxCer	The value of tmnxMobPdnGxStatTxCer indicates the number of Capabilities Exchange Request (CER) messages transmitted to this peer.
cardSlotNumber	long	tmnxCardSlotNum	—
chassisIndex	long	tmnxChassisIndex	—
connectionAttempts	long	tmnxMobPdnGxStatConnAttempts	The value of tmnxMobPdnGxStatConnAttempts indicates the number of connections attempted to this peer.

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5620 SAM counter name	Type	MIB counter name	Description
connectionFailures	long	tmnxMobPdnGxStatConnFailures	The value of tmnxMobPdnGxStatConnFailures indicates the number of failed connections with this peer.
creditControlAnswerInitialMalformedPacketsReceived	long	tmnxMobPdnGxStatRxCCAInitialMalformPkt	The value of tmnxMobPdnGxStatRxCCAInitialMalformPkt indicates the number of Credit Control Answer (CCA) Initial malformed packets received from this peer.
creditControlAnswerInitialMissingMandatoryInformationElementPacketsReceived	long	tmnxMobPdnGxStatRxCCAInitialMisslePkts	The value of tmnxMobPdnGxStatRxCCAInitialMisslePkts indicates the number of Credit Control Answer (CCA) Initial missing mandatory Information Element (IE) packets received from this peer.
creditControlAnswerInitialUnknownPacketsReceived	long	tmnxMobPdnGxStatRxCCAInitialUnknownPkt	The value of tmnxMobPdnGxStatRxCCAInitialUnknownPkt indicates the number of Credit Control Answer (CCA) Initial unknown packets received from this peer.
creditControlAnswerInitialUnknownSessionPacketsReceived	long	tmnxMobPdnGxStatRxCCAInitialUnkSession	The value of tmnxMobPdnGxStatRxCCAInitialUnkSession indicates the number of Credit Control Answer (CCA) Initial unknown session packets received from this peer.
creditControlAnswerTerminationMalformedPacketsReceived	long	tmnxMobPdnGxStatRxCCATerminationMalformPkt	The value of tmnxMobPdnGxStatRxCCATerminationMalformPkt indicates the number of Credit Control Answer (CCA) Termination malformed packets received from this peer.
creditControlAnswerTerminationMissingMandatoryInformationElementPacketsReceived	long	tmnxMobPdnGxStatRxCCATerminationMisslePkts	The value of tmnxMobPdnGxStatRxCCATerminationMisslePkts indicates the number of Credit Control Answer (CCA) Termination missing mandatory Information Element (IE) packets received from this peer.
creditControlAnswerTerminationUnknownPacketsReceived	long	tmnxMobPdnGxStatRxCCATerminationUnknownPkt	The value of tmnxMobPdnGxStatRxCCATerminationUnknownPkt indicates the number of Credit Control Answer (CCA) Termination unknown packets received from this peer.
creditControlAnswerTerminationUnknownSessionPacketsReceived	long	tmnxMobPdnGxStatRxCCATerminationUnkSession	The value of tmnxMobPdnGxStatRxCCATerminationUnkSession indicates the number of Credit Control Answer (CCA) Termination unknown session packets received from this peer.
creditControlAnswerUpdateMalformedPacketsReceived	long	tmnxMobPdnGxStatRxCCAUpdateMalformPkt	The value of tmnxMobPdnGxStatRxCCAUpdateMalformPkt indicates the number of Credit Control Answer (CCA) Update malformed packets received from this peer.
creditControlAnswerUpdateMissingMandatoryInformationElementPacketsReceived	long	tmnxMobPdnGxStatRxCCAUpdateMisslePkts	The value of tmnxMobPdnGxStatRxCCAUpdateMisslePkts indicates the number of Credit Control Answer (CCA) Update missing mandatory Information Element (IE) packets received from this peer.

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5620 SAM counter name	Type	MIB counter name	Description
creditControlAnswerUpdateUnknownPacketsReceived	long	tmnxMobPdnGxStatRxCcaUUnknownPkt	The value of tmnxMobPdnGxStatRxCcaUUnknownPkt indicates the number of Credit Control Answer (CCA) Update unknown packets received from this peer.
creditControlAnswerUpdateUnknownSessionPacketsReceived	long	tmnxMobPdnGxStatRxCcaUUnkSession	The value of tmnxMobPdnGxStatRxCcaUUnkSession indicates the number of Credit Control Answer (CCA) Update unknown session packets received from this peer.
creditControlRequestInitialAnswersReceived	long	tmnxMobPdnGxStatRxCcaInitial	The value of tmnxMobPdnGxStatRxCcaInitial indicates the number of Credit Control Answer (CCA) Initial messages received from this peer.
creditControlRequestInitialFailuresReceived	long	tmnxMobPdnGxStatCcrInitFails	The value of tmnxMobPdnGxStatCcrInitFails indicates the number of Credit Control Request (CCR) Initial message failures.
creditControlRequestInitialRequestsTransmitted	long	tmnxMobPdnGxStatTxCcrInitial	The value of tmnxMobPdnGxStatTxCcrInitial indicates the number of Credit Control Request (CCR) Initial messages transmitted to this peer.
creditControlRequestTerminationFailuresReceived	long	tmnxMobPdnGxStatCcrTermFails	The value of tmnxMobPdnGxStatCcrTermFails indicates the number of Credit Control Request (CCR) Termination message failures.
creditControlRequestTerminationRequestsReceived	long	tmnxMobPdnGxStatRxCcaTerminate	The value of tmnxMobPdnGxStatRxCcaTerminate indicates the number of Credit Control Answer (CCA) Termination messages received from this peer.
creditControlRequestTerminationRequestsTransmitted	long	tmnxMobPdnGxStatTxCcrTerminate	The value of tmnxMobPdnGxStatTxCcrTerminate indicates the number of Credit Control Request (CCR) Termination messages transmitted to this peer.
creditControlRequestUpdateAnswersReceived	long	tmnxMobPdnGxStatRxCcaUpdate	The value of tmnxMobPdnGxStatRxCcaUpdate indicates the number of Credit Control Answer (CCA) Update messages received from this peer.
creditControlRequestUpdateFailuresReceived	long	tmnxMobPdnGxStatCcrUpdateFails	The value of tmnxMobPdnGxStatCcrUpdateFails indicates the number of Credit Control Request (CCR) Update message failures.
creditControlRequestUpdateRequestsTransmitted	long	tmnxMobPdnGxStatTxCcrUpdate	The value of tmnxMobPdnGxStatTxCcrUpdate indicates the number of Credit Control Request (CCR) Update messages transmitted to this peer.

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5620 SAM counter name	Type	MIB counter name	Description
deviceWatchdogAnswersReceived	long	tmnxMobPdnGxStatRxDwa	The value of tmnxMobPdnGxStatRxDwa indicates the number of Device Watchdog Answer (DWA) messages received from this peer.
deviceWatchdogRequestsTransmitted	long	tmnxMobPdnGxStatTxDwr	The value of tmnxMobPdnGxStatTxDwr indicates the number of Device Watchdog Request (DWR) messages transmitted to this peer.
disconnectPeerAnswersTransmitted	long	tmnxMobPdnGxStatTxDpa	The value of tmnxMobPdnGxStatTxDpa indicates the number of Disconnect Peer Answer (DPA) messages transmitted to this peer.
disconnectPeerRequestsReceived	long	tmnxMobPdnGxStatRxDpr	The value of tmnxMobPdnGxStatRxDpr indicates the number of Disconnect Peer Request (DPR) messages received from this peer.
epcId	long	tmnxMobGwId	The value of tmnxMobGwId uniquely identifies a mobile gateway configured in the system.
invalidCapabilitiesExchangeAnswersReceived	long	tmnxMobPdnGxStatRxInvalidCea	The value of tmnxMobPdnGxStatRxInvalidCea indicates the number of invalid Capabilities Exchange Answer (CEA) messages received from this peer.
oversizedMsgReceived	long	tmnxMobPdnGxStatRxMsgTooBig	The value of tmnxMobPdnGxStatRxMsgTooBig indicates the number of oversize messages received from this peer.
peerIpAddress	String	tmnxMobPdnGxPeerAddress	The value of tmnxMobPdnGxPeerAddress indicates the IP address of the peer on Gx reference point.
peerIpAddressType	int	tmnxMobPdnGxPeerAddressType	The value of tmnxMobPdnGxPeerAddressType indicates the type of address represented by tmnxMobPdnGxPeerAddress.
peerTcpPort	int	tmnxMobPdnGxPeerPort	The value of tmnxMobPdnGxPeerPort indicates the port number of this peer.
reAuthorizationAnswersTransmitted	long	tmnxMobPdnGxStatTxRaa	The value of tmnxMobPdnGxStatTxRaa indicates the number of Re-Auth Answer (RAA) messages transmitted to this peer.
reAuthorizationRequestsMalformedPacketsReceived	long	tmnxMobPdnGxStatRxRarMalformPkts	The value of tmnxMobPdnGxStatRxRarMalformPkts indicates the number of Re-Auth Request (RAR) malformed packets received from this peer.
reAuthorizationRequestsMissingMandatoryInformationElementPacketsReceived	long	tmnxMobPdnGxStatRxRarMisslePkts	The value of tmnxMobPdnGxStatRxRarMisslePkts indicates the number of Re-Auth Request (RAR) missing mandatory Information Element (IE) packets received from this peer.

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5620 SAM counter name	Type	MIB counter name	Description
reAuthorizationRequestsNacksTransmitted	long	tmnxMobPdnGxStatTxRaaNack	The value of tmnxMobPdnGxStatTxRaaNack indicates the number of Re-Auth Answer (RAA) negative acknowledgement (NACK) messages transmitted to this peer.
reAuthorizationRequestsReceived	long	tmnxMobPdnGxStatRxRar	The value of tmnxMobPdnGxStatRxRar indicates the number of Re-Auth Request (RAR) messages received from this peer.
reAuthorizationRequestsUnknownPacketsReceived	long	tmnxMobPdnGxStatRxRarUnknownPkts	The value of tmnxMobPdnGxStatRxRarUnknownPkts indicates the number of Re-Auth Request (RAR) unknown packets received from this peer.
reAuthorizationRequestsUnknownSessionPacketsReceived	long	tmnxMobPdnGxStatRxRarUnkSession	The value of tmnxMobPdnGxStatRxRarUnkSession indicates the number of Re-Auth Request (RAR) unknown session packets received from this peer.
totalMalformedPacketsReceived	long	tmnxMobPdnGxStatRxMalformedPkts	The value of tmnxMobPdnGxStatRxMalformedPkts indicates the number of malformed packets received from this peer.
totalMissingMandatoryInformationElementPacketsReceived	long	tmnxMobPdnGxStatRxMissinglePkts	The value of tmnxMobPdnGxStatRxMissinglePkts indicates the number of missing mandatory Information Element (IE) packets received from this peer.
totalMsgReceived	long	tmnxMobPdnGxStatRxMsgs	The value of tmnxMobPdnGxStatRxMsgs indicates the total number of messages received from this peer.
totalMsgRetransmitted	long	tmnxMobPdnGxStatTxRetransmitMsgs	The value of tmnxMobPdnGxStatTxRetransmitMsgs indicates the number of retransmit messages transmitted to this peer.
totalMsgTransmitted	long	tmnxMobPdnGxStatTxMsgs	The value of tmnxMobPdnGxStatTxMsgs indicates the total number of messages transmitted to this peer.
totalUnknownPacketsReceived	long	tmnxMobPdnGxStatRxUnknownPkts	The value of tmnxMobPdnGxStatRxRarMalformPkts indicates the number of unknown packets received from this peer.
transportDisconnectionMsgReceived	long	tmnxMobPdnGxStatRxTransportDisc	The value of tmnxMobPdnGxStatRxTransportDisc indicates the number of remote transport disconnect messages received from this peer.
undersizedMsgReceived	long	tmnxMobPdnGxStatRxMsgTooSmall	The value of tmnxMobPdnGxStatRxMsgTooSmall indicates the number of small messages received from this peer.
unexpectedVersionMsgReceived	long	tmnxMobPdnGxStatRxMsgUnexpectVer	The value of tmnxMobPdnGxStatRxMsgUnexpectVer indicates the number of unexpected version messages received from this peer.
virtualRouterId	int	vRtrID	—

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5620 SAM counter name	Type	MIB counter name	Description
<b>IpPoolEntryStats</b> MIB table name: TIMETRA-VRTR-MIB.vRtrIpPoolStatTable Monitored class: lte.IpPoolEntry			
ipPoolNoOfAddressesAllocated	long	vRtrIpPoolStatAllocated	The value of the object vRtrIpPoolStatAllocated indicates the number of IP Addresses used.
ipPoolNoOfAddressesFree	long	vRtrIpPoolStatFree	The value of the object vRtrIpPoolStatFree indicates the number of free IP Addresses.
ipPoolNoOfAddressesHeld	long	vRtrIpPoolStatHeld	The value of the object vRtrIpPoolStatHeld indicates the number of IP Addresses held.
<b>RfPeerStats</b> MIB table name: TIMETRA-MOBILE-GATEWAY-MIB.tmnxMobGwRfStatTable Monitored class: lte.RfPeer			
acrInterimMsgTransmitFailed	long	tmnxMobGwRfStatTxAcrlnterimFail	The value of tmnxMobGwRfStatTxAcrlnterimFail indicates the number of Accounting Request (ACR) Interim message failures.
acrInterimMsgTransmitted	long	tmnxMobGwRfStatTxAcrlnterim	The value of tmnxMobGwRfStatTxAcrlnterim indicates the number of Accounting Request (ACR) Interim messages transmitted to this peer.
acrStartMsgTransmitFailed	long	tmnxMobGwRfStatTxAcrtartFails	The value of tmnxMobGwRfStatTxAcrtartFails indicates the number of Accounting Request (ACR) Start message failures.
acrStartMsgTransmitted	long	tmnxMobGwRfStatTxAcrtart	The value of tmnxMobGwRfStatTxAcrtart indicates the number of Accounting Request (ACR) Start messages transmitted to this peer.
acrStopMsgTransmitFailed	long	tmnxMobGwRfStatTxAcrtopFails	The value of tmnxMobGwRfStatTxAcrtopFails indicates the number of Accounting Request (ACR) Stop message failures.
acrStopMsgTransmitted	long	tmnxMobGwRfStatTxAcrtop	The value of tmnxMobGwRfStatTxAcrtop indicates the number of Accounting Request (ACR) Stop messages transmitted to this peer.
ceaReceived	long	tmnxMobGwRfStatRxCea	The value of tmnxMobGwRfStatRxCea indicates the number of Capabilities Exchange Answer (CEA) messages received from this peer.
cerTransmitted	long	tmnxMobGwRfStatTxCer	The value of tmnxMobGwRfStatTxCer indicates the number of Capabilities Exchange Request (CER) messages transmitted to this peer.
chassisIndex	long	tmnxChassisIndex	—
connAttempts	long	tmnxMobGwRfStatConnAttempts	The value of tmnxMobGwRfStatConnAttempts indicates the number of connections attempted to this peer.

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5620 SAM counter name	Type	MIB counter name	Description
connFailures	long	tmnxMobGwRfStatConnFailures	The value of tmnxMobGwRfStatConnFailures indicates the number of failed connections with this peer.
dpaTransmitted	long	tmnxMobGwRfStatTxDpa	The value of tmnxMobGwRfStatTxDpa indicates the number of Disconnect Peer Answer (DPA) messages transmitted to this peer.
dprReceived	long	tmnxMobGwRfStatRxDpr	The value of tmnxMobGwRfStatRxDpr indicates the number of Disconnect Peer Request (DPR) messages received from this peer.
dwaReceived	long	tmnxMobGwRfStatRxDwa	The value of tmnxMobGwRfStatRxDwa indicates the number of Device Watchdog Answer (DWA) messages received from this peer.
dwrTransmitted	long	tmnxMobGwRfStatTxDwr	The value of tmnxMobGwRfStatTxDwr indicates the number of Device Watchdog Request (DWR) messages transmitted to this peer.
epcid	long	tmnxMobGwId	The value of tmnxMobGwId uniquely identifies a mobile gateway configured in the system.
invalidCeaReceived	long	tmnxMobGwRfStatRxInvalidCea	The value of tmnxMobGwRfStatRxInvalidCea indicates the number of invalid Capabilities Exchange Answer (CEA) messages received from this peer.
peerIpAddress	String	tmnxMobGwRfPeerAddresses	The value of tmnxMobGwRfPeerAddresses indicates the IP address of the peer on Rf reference point.
peerIpAddressType	int	tmnxMobGwRfPeerAddressType	The value of tmnxMobGwRfPeerAddressType indicates the type of address represented by tmnxMobGwRfPeerAddresses.
peerTcpPort	int	tmnxMobGwRfPeerPort	The value of tmnxMobGwRfPeerPort indicates the port number of this peer.
tooBigMsgReceived	long	tmnxMobGwRfStatRxMsgTooBig	The value of tmnxMobGwRfStatRxMsgTooBig indicates the number of oversize messages received from this peer.
tooSmallMsgReceived	long	tmnxMobGwRfStatRxMsgTooSmall	The value of tmnxMobGwRfStatRxMsgTooSmall indicates the number of small messages received from this peer.
totalMsgReceived	long	tmnxMobGwRfStatRxMsgs	The value of tmnxMobGwRfStatRxMsgs indicates the total number of messages received from this peer.
totalMsgRetransmitted	long	tmnxMobGwRfStatTxRetransmitMsgs	The value of tmnxMobGwRfStatTxRetransmitMsgs indicates the number of retransmit messages transmitted to this peer.

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5620 SAM counter name	Type	MIB counter name	Description
totalMsgTransmitted	long	tmnxMobGwRfStatTxMsgs	The value of tmnxMobGwRfStatTxMsgs indicates the total number of messages transmitted to this peer.
transportDiscMsgReceived	long	tmnxMobGwRfStatRxTransportDisc	The value of tmnxMobGwRfStatRxTransportDisc indicates the number of remote transport disconnect messages received from this peer.
unexpectedVerMsgReceived	long	tmnxMobGwRfStatRxMsgUnexpectVer	The value of tmnxMobGwRfStatRxMsgUnexpectVer indicates the number of unexpected version messages received from this peer.
virtualRouterId	int	vRtrID	—
<b>S11AgwPeerStats</b> MIB table name: TIMETRA-MOBILE-SERVING-MIB.tmnxMobServS11StatTable Monitored class: lte.S11Peer			
cardSlotNumber	long	tmnxCardSlotNum	—
chassisIndex	long	tmnxChassisIndex	—
createBearerRequestReceived	long	tmnxMobServS11StatCreateBearrReq	The value of tmnxMobServS11StatCreateBearrReq indicates the number of create bearer request messages transmitted to this peer.
createBearerResponseTransmitted	long	tmnxMobServS11StatCreateBearrRsp	The value of tmnxMobServS11StatCreateBearrRsp indicates the number of create bearer response messages received from this peer with cause code set to request accepted.
createSessionRequestReceived	long	tmnxMobServS11StatCreateSessnReq	The value of tmnxMobServS11StatCreateSessnReq indicates the number of create session request messages received from this peer.
createSessionResponseTransmitted	long	tmnxMobServS11StatCreateSessnRsp	The value of tmnxMobServS11StatCreateSessnRsp indicates the number of create session response messages transmitted to this peer with cause code set to request accepted.
deleteBearerRequestReceived	long	tmnxMobServS11StatDeleteBearrReq	The value of tmnxMobServS11StatDeleteBearrReq indicates the number of delete bearer request messages transmitted to this peer.
deleteBearerResponseTransmitted	long	tmnxMobServS11StatDeleteBearrRsp	The value of tmnxMobServS11StatDeleteBearrRsp indicates the number of delete bearer response messages received from this peer with cause code set to request accepted.

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5620 SAM counter name	Type	MIB counter name	Description
deleteSessionRequestReceived	long	tmnxMobServS11StatDeleteSessnReq	The value of tmnxMobServS11StatDeleteSessnReq indicates the number of delete session request messages received from this peer.
deleteSessionResponseTransmitted	long	tmnxMobServS11StatDeleteSessnRsp	The value of tmnxMobServS11StatDeleteSessnRsp indicates the number of delete session response messages transmitted to this peer with cause code set to request accepted.
downlinkAcknowledgementsReceived	long	tmnxMobServS11StatRxDLAcks	The value of tmnxMobServS11StatRxDLAcks indicates the number of downlink data notification acknowledgements received from this peer with cause code set to request accepted.
downlinkFailureNotificationsReceived	long	tmnxMobServS11StatRxDLFailNotify	The value of tmnxMobServS11StatRxDLFailNotify indicates the number of downlink data notification failure indication messages received from this peer.
downlinkNotificationsTransmitted	long	tmnxMobServS11StatTxDLNotify	The value of tmnxMobServS11StatTxDLNotify indicates the number of downlink data notification messages transmitted to this peer.
echoRequestReceived	long	tmnxMobServS11StatRxEchoRequests	The value of tmnxMobServS11StatRxEchoRequests indicates the number of echo request messages received from this peer.
echoRequestTransmitted	long	tmnxMobServS11StatTxEchoRequests	The value of tmnxMobServS11StatTxEchoRequests indicates the number of echo request messages transmitted to this peer.
echoResponseReceived	long	tmnxMobServS11StatRxEchoResp	The value of tmnxMobServS11StatRxEchoResp indicates the number of echo response messages received from this peer.
echoResponseTransmitted	long	tmnxMobServS11StatTxEchoResp	The value of tmnxMobServS11StatTxEchoResp indicates the number of echo response messages transmitted to this peer.
malformedPacketsReceived	long	tmnxMobServS11StatRxMalfrmedPkts	The value of tmnxMobServS11StatRxMalfrmedPkts indicates the number of malformed packets received from this peer.
missingInfoElementPacketsReceived	long	tmnxMobServS11StatRxMissnglPkts	The value of tmnxMobServS11StatRxMissnglPkts indicates the number of missing mandatory Information Element (IE) packets received from this peer.
modifyBearerRequestReceived	long	tmnxMobServS11StatModifyBearrReq	The value of tmnxMobServS11StatModifyBearrReq indicates the number of modify bearer request messages received from this peer.

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5620 SAM counter name	Type	MIB counter name	Description
modifyBearerResponseTransmitted	long	tmnxMobServS11StatModifyBearrRsp	The value of tmnxMobServS11StatModifyBearrRsp indicates the number of modify bearer response messages transmitted to this peer with cause code set to request accepted.
numberOfBearerCommandMsgRecd	long	tmnxMobServS11StatModifyBearrCmd	The value of tmnxMobServS11StatModifyBearrCmd indicates the number of modify bearer command messages received from this peer.
numberOfBearerResourceCmdPackets	long	tmnxMobServS11StatBearrResCmd	The value of tmnxMobServS11StatBearrResCmd indicates the number of bearer resource command packets on the gateway.
numberOfCreateBearerResponseMessagesReceived	long	tmnxMobServS11StatCreatBearRspFl	The value of tmnxMobServS11StatCreatBearRspFl indicates the number of create bearer response messages received from this peer with cause code not set to request accepted.
numberOfCreateIndirectDFTTunnelMessages	long	tmnxMobServS11StatCrtIndTnlRspFl	The value of tmnxMobServS11StatCrtIndTnlRspFl indicates the number of Create Indirect Data Forwarding Tunnel Response messages transmitted to this peer with cause code not set to request accepted.
numberOfCreateSessionResponseMessagesTransmitted	long	tmnxMobServS11StatCreatSesnRspFl	The value of tmnxMobServS11StatCreatSesnRspFl indicates the number of create session response messages transmitted to this peer with cause code not set to request accepted.
numberOfCrtIndrTnlReq	long	tmnxMobServS11StatCrtIndrTnlReq	The value of tmnxMobServS11StatCrtIndrTnlReq indicates the number of Create Indirect Data Forwarding Tunnel Request messages transmitted by this peer.
numberOfCrtIndrTnlResp	long	tmnxMobServS11StatCrtIndrTnlResp	The value of tmnxMobServS11StatCrtIndrTnlResp indicates the number of Create Indirect Data Forwarding Tunnel Response messages transmitted to this peer with cause code set to request accepted.
numberOfDelBearerCommandMsgRecd	long	tmnxMobServS11StatDeleteBearrCmd	The value of tmnxMobServS11StatDeleteBearrCmd indicates the number of delete bearer command messages received from this peer.
numberOfDelBearerFailMsgRecd	long	tmnxMobServS11StatDeleteBearrFlr	The value of tmnxMobServS11StatDeleteBearrFlr indicates the number of delete bearer failure messages received from this peer.

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5620 SAM counter name	Type	MIB counter name	Description
numberOfDeleteBearerResponseMessagesReceived	long	tmnxMobServS11StatDelBearrRspFl	The value of tmnxMobServS11StatDelBearrRspFl indicates the number of delete bearer response messages received from this peer with cause code not set to request accepted.
numberOfDeleteIndirectDFTTunnelMessages	long	tmnxMobServS11StatDelIndTnlRspFl	The value of tmnxMobServS11StatDelIndTnlRspFl indicates the number of Delete Indirect Data Forwarding Tunnel Response messages transmitted to this peer with cause code not set to request accepted.
numberOfDeleteSessionResponseMessagesTransmitted	long	tmnxMobServS11StatDelSesnRspFl	The value of tmnxMobServS11StatDelSesnRspFl indicates the number of delete session response messages transmitted to this peer with cause code not set to request accepted.
numberOfDelIndrTnlReq	long	tmnxMobServS11StatDelIndrTnlReq	The value of tmnxMobServS11StatDelIndrTnlReq indicates the number of Delete Indirect Data Forwarding Tunnel Request messages transmitted by this peer.
numberOfDelIndrTnlResp	long	tmnxMobServS11StatDelIndrTnlResp	The value of tmnxMobServS11StatDelIndrTnlResp indicates the number of Delete Indirect Data Forwarding Tunnel Response messages transmitted to this peer with cause code set to request accepted.
numberOfDownLinkDataAckRcvd	long	tmnxMobServS11StatRxDLAcksFail	The value of tmnxMobServS11StatRxDLAcksFail indicates the number of downlink data notification acknowledgements received from this peer with cause code not set to request accepted.
numberOfFailedBearerResourceIndPackets	long	tmnxMobServS11StatBrrResFailInd	The value of tmnxMobServS11StatBrrResFailInd indicates the number of bearer resource failure indication packets on the gateway.
numberOfModifyBearerFailMsgRecd	long	tmnxMobServS11StatModifyBearrFlr	The value of tmnxMobServS11StatModifyBearrFlr indicates the number of modify bearer failure messages received from this peer.
numberOfModifyBearerResponseMessagesReceived	long	tmnxMobServS11StatModBearrRspFl	The value of tmnxMobServS11StatModBearrRspFl indicates the number of modify bearer response messages transmitted to this peer with cause code not set to request accepted.
numberOfRelBearersReq	long	tmnxMobServS11StatRelBearersReq	The value of tmnxMobServS11StatRelBearersReq indicates the number of Release Access Bearers Request messages transmitted by this peer.

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5620 SAM counter name	Type	MIB counter name	Description
numberOfRelBearersResp	long	tmnxMobServS11StatRelBearersResp	The value of tmnxMobServS11StatRelBearersResp indicates the number of Release Access Bearers Response messages transmitted to this peer with cause code set to request accepted.
numberOfReleaseAccBearersResponseMsgTransmitted	long	tmnxMobServS11StatRelBearrRespFl	The value of tmnxMobServS11StatRelBearrRespFl indicates the number of Release Access Bearers Response messages transmitted to this peer with cause code not set to request accepted.
numberOfResumeNotifAckfromSGWtoMME	long	tmnxMobServS11StatResNoticeAck	The value of tmnxMobServS11StatResNoticeAck indicates the number of resume notification acknowledgements sent from the Serving Gateway (SGW) to the Mobility Management Entity (MME).
numberOfResumeNotifReqatSGWfromMME	long	tmnxMobServS11StatResNoticeReq	The value of tmnxMobServS11StatResNoticeReq indicates the number of resume notification requests received at the Serving Gateway (SGW) from the Mobility Management Entity (MME).
numberOfSusNotifAckfromSGWtoMME	long	tmnxMobServS11StatSuspNoticeAck	The value of tmnxMobServS11StatSuspNoticeAck indicates the number of suspend notification acknowledgements sent from the Serving Gateway (SGW) to the Mobility Management Entity (MME).
numberOfSusNotifReqatSGWfromMME	long	tmnxMobServS11StatSuspNoticeReq	The value of tmnxMobServS11StatSuspNoticeReq indicates the number of suspend notification requests received at the Serving Gateway(SGW) from the Mobility Management Entity (MME).
numberOfUpdateBearerReqMsg	long	tmnxMobServS11StatUpdateBearrReq	The value of tmnxMobServS11StatUpdateBearrReq indicates the number of update bearer request messages transmitted to this peer.
numberOfUpdateBearerResMsg	long	tmnxMobServS11StatUpdateBearrRsp	The value of tmnxMobServS11StatUpdateBearrRsp indicates the number of update bearer response messages received from this peer with cause code set to request accepted.
numberOfUpdateBearerResponseMsgRecd	long	tmnxMobServS11StatUpdtBearrRspFl	The value of tmnxMobServS11StatUpdtBearrRspFl indicates the number of update bearer response messages received from this peer with cause code not set to request accepted.
pathManagementFailures	long	tmnxMobServS11StatPathMgmtFails	The value of tmnxMobServS11StatPathMgmtFails indicates the number of path management failures for this peer.

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5620 SAM counter name	Type	MIB counter name	Description
peerRestartCount	long	tmnxMobServS11StatPeerRestartCnt	The value of tmnxMobServS11StatPeerRestartCnt indicates the counter value of the number of times this peer restarted.
peerRestarts	long	tmnxMobServS11StatPeerRestarts	The value of tmnxMobServS11StatPeerRestarts indicates the number of times this peer restarted.
unknownTypePacketsReceived	long	tmnxMobServS11StatRxUnknownPkts	The value of tmnxMobServS11StatRxUnknownPkts indicates the number of unknown message type packets received from this peer.
virtualRouterId	int	vRtrID	—
<b>S1uAgwPeerStats</b> MIB table name: TIMETRA-MOBILE-SERVING-MIB.tmnxMobServS1uStatTable Monitored class: lte.S1uPeer			
bearerContextNotFoundErrorsReceived	long	tmnxMobServS1uStatBcNotFound	The value of tmnxMobServS1uStatBcNotFound indicates the number of bearer context not found errors on this peer.
cardSlotNumber	long	tmnxCardSlotNum	—
chassisIndex	long	tmnxChassisIndex	—
echoRequestReceived	long	tmnxMobServS1uStatRxEchoRequests	The value of tmnxMobServS1uStatRxEchoRequests indicates the number of echo request messages received from this peer.
echoRequestTransmitted	long	tmnxMobServS1uStatTxEchoRequests	The value of tmnxMobServS1uStatTxEchoRequests indicates the number of echo request messages transmitted to this peer.
echoResponseReceived	long	tmnxMobServS1uStatRxEchoResponse	The value of tmnxMobServS1uStatRxEchoResponse indicates the number of echo response messages received from this peer.
echoResponseTransmitted	long	tmnxMobServS1uStatTxEchoResponse	The value of tmnxMobServS1uStatTxEchoResponse indicates the number of echo response messages transmitted to this peer.
pathManagementFailures	long	tmnxMobServS1uStatPathMgmtFails	The value of tmnxMobServS1uStatPathMgmtFails indicates the number of path management failures for this peer.
peerRestartCount	long	tmnxMobServS1uStatPeerRestartCnt	The value of tmnxMobServS1uStatPeerRestartCnt indicates the counter value of the number of times this peer restarted.
peerRestarts	long	tmnxMobServS1uStatPeerRestarts	The value of tmnxMobServS1uStatPeerRestarts indicates the number of times this peer restarted.
virtualRouterId	int	vRtrID	—

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5620 SAM counter name	Type	MIB counter name	Description
<b>S5AgwPeerStats</b> MIB table name: TIMETRA-MOBILE-GATEWAY-MIB.tmnxMobGwS5StatTable Monitored class: lte.S5Peer			
cardSlotNumber	long	tmnxCardSlotNum	—
chassisIndex	long	tmnxChassisIndex	—
createBearerRequestReceived	long	tmnxMobGwS5StatCreateBearerReq	The value of tmnxMobGwS5StatCreateBearerReq indicates the number of create bearer request messages received from this peer or transmitted to this peer.
createBearerResponseTransmitted	long	tmnxMobGwS5StatCreateBearerRsp	The value of tmnxMobGwS5StatCreateBearerRsp indicates the number of create bearer response messages received from this peer or transmitted to this peer with cause code set to request accepted.
createSessionRequestReceived	long	tmnxMobGwS5StatCreateSessnReq	The value of tmnxMobGwS5StatCreateSessnReq indicates the number of create session request messages received from this peer or transmitted to this peer.
createSessionResponseTransmitted	long	tmnxMobGwS5StatCreateSessnRsp	The value of tmnxMobGwS5StatCreateSessnRsp indicates the number of create session response messages received from this peer or transmitted to this peer with cause code set to request accepted.
deleteBearerCommand	long	tmnxMobGwS5StatDeleteBearrCmd	The value of tmnxMobGwS5StatDeleteBearrCmd indicates the number of delete bearer command messages received from this peer.
deleteBearerFailure	long	tmnxMobGwS5StatDeleteBearrFlr	The value of tmnxMobGwS5StatDeleteBearrFlr indicates the number of delete bearer failure messages received from this peer.
deleteBearerRequestReceived	long	tmnxMobGwS5StatDeleteBearerReq	The value of tmnxMobGwS5StatDeleteBearerReq indicates the number of delete bearer request messages received from this peer or transmitted to this peer.
deleteBearerResponseTransmitted	long	tmnxMobGwS5StatDeleteBearerRsp	The value of tmnxMobGwS5StatDeleteBearerRsp indicates the number of delete bearer response messages received from this peer or transmitted to this peer with cause code set to request accepted.
deleteSessionRequestReceived	long	tmnxMobGwS5StatDeleteSessnReq	The value of tmnxMobGwS5StatDeleteSessnReq indicates the number of delete session request messages received from this peer or transmitted to this peer.

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5620 SAM counter name	Type	MIB counter name	Description
deleteSessionResponseTransmitted	long	tmnxMobGwS5StatDeleteSessnResp	The value of tmnxMobGwS5StatDeleteSessnResp indicates the number of delete session response messages received from this peer or transmitted to this peer with cause code set to request accepted.
echoRequestReceived	long	tmnxMobGwS5StatRxEchoRequests	The value of tmnxMobGwS5StatRxEchoRequests indicates the number of echo request messages received from this peer.
echoRequestTransmitted	long	tmnxMobGwS5StatTxEchoRequests	The value of tmnxMobGwS5StatTxEchoRequests indicates the number of echo request messages transmitted to this peer.
echoResponseReceived	long	tmnxMobGwS5StatRxEchoResponses	The value of tmnxMobGwS5StatRxEchoResponses indicates the number of echo response messages received from this peer.
echoResponseTransmitted	long	tmnxMobGwS5StatTxEchoResponses	The value of tmnxMobGwS5StatTxEchoResponses indicates the number of echo response messages transmitted to this peer.
malformedPacketsReceived	long	tmnxMobGwS5StatRxMalformedPkts	The value of tmnxMobGwS5StatRxMalformedPkts indicates the number of malformed packets received from this peer.
missingInfoElementPacketsReceived	long	tmnxMobGwS5StatRxMissingPkts	The value of tmnxMobGwS5StatRxMissingPkts indicates the number of missing mandatory Information Element (IE) packets received from this peer.
modifyBearerCommand	long	tmnxMobGwS5StatModifyBarrCmd	The value of tmnxMobGwS5StatModifyBarrCmd indicates the number of modify bearer command messages received from this peer.
modifyBearerFailure	long	tmnxMobGwS5StatModifyBarrFlr	The value of tmnxMobGwS5StatModifyBarrFlr indicates the number of modify bearer failure messages received from this peer.
modifyBearerRequestReceived	long	tmnxMobGwS5StatModifyBearerReq	The value of tmnxMobGwS5StatModifyBearerReq indicates the number of modify bearer request messages received from this peer or transmitted to this peer.
modifyBearerResponseTransmitted	long	tmnxMobGwS5StatModifyBearerRsp	The value of tmnxMobGwS5StatModifyBearerRsp indicates the number of modify bearer response messages received from this peer or transmitted to this peer with cause code set to request accepted.
noOfBearerResourceCmdPkts	long	tmnxMobGwS5StatBarrResCmd	The value of tmnxMobGwS5StatBarrResCmd indicates the number of bearer resource command packets on the gateway.

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5620 SAM counter name	Type	MIB counter name	Description
noOfBearerResourceFailureIndPcks	long	tmnxMobGwS5StatBearrResFailInd	The value of tmnxMobGwS5StatBearrResFailInd indicates the number of bearer resource failure indication packets on the gateway.
noOfCreateBearerRespMsgRecdOrTrans	long	tmnxMobGwS5StatCreateBearerRspFl	The value of tmnxMobGwS5StatCreateBearerRspFl indicates the number of create bearer response messages received from this peer or transmitted to this peer with cause code not set to request accepted.
noOfCreateSessionRespMsgRecdOrTrans	long	tmnxMobGwS5StatCreateSessnRspFl	The value of tmnxMobGwS5StatCreateSessnRspFl indicates the number of create session response messages received from this peer or transmitted to this peer with cause code not set to request accepted.
noOfDeleteBearerRespMsgRecdOrTrans	long	tmnxMobGwS5StatDeleteBearerRspFl	The value of tmnxMobGwS5StatDeleteBearerRspFl indicates the number of delete bearer response messages received from this peer or transmitted to this peer with cause code not set to request accepted.
noOfModifyBearerRespMsgRecdOrTrans	long	tmnxMobGwS5StatModifyBearerRspFl	The value of tmnxMobGwS5StatModifyBearerRspFl indicates the number of modify bearer response messages received from this peer or transmitted to this peer with cause code not set to request accepted.
noOfResumeNotifAckRecdOrTrans	long	tmnxMobGwS5StatResumeNoticeAck	The value of tmnxMobGwS5StatResumeNoticeAck indicates the number of resume notification acknowledgements received from this peer or transmitted to this peer.
noOfResumeNotifReqRecdOrTrans	long	tmnxMobGwS5StatResumeNoticeReq	The value of tmnxMobGwS5StatResumeNoticeReq indicates the number of resume notification requests received from this peer or transmitted to this peer.
noOfSuspendNotifAckRecdOrTrans	long	tmnxMobGwS5StatSuspendNoticeAck	The value of tmnxMobGwS5StatSuspendNoticeAck indicates the number of suspend notification acknowledgements received from this peer or transmitted to this peer.
noOfSuspendNotifReqRecdOrTrans	long	tmnxMobGwS5StatSuspendNoticeReq	The value of tmnxMobGwS5StatSuspendNoticeReq indicates the number of suspend notification requests received from this peer or transmitted to this peer.
noOfUpdateBearerRespMsgRecdOrTrans	long	tmnxMobGwS5StatUpdateBearerRspFl	The value of tmnxMobGwS5StatUpdateBearerRspFl indicates the number of update bearer response messages received from this peer or transmitted to this peer with cause code not set to request accepted.

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5620 SAM counter name	Type	MIB counter name	Description
pathManagementFailures	long	tmnxMobGwS5StatPathMgmtFails	The value of tmnxMobGwS5StatPathMgmtFails indicates the number of path management failures for this peer.
peerRestartCount	long	tmnxMobGwS5StatPeerRestartCount	The value of tmnxMobGwS5StatPeerRestartCount indicates the counter value of the number of times this peer restarted.
peerRestarts	long	tmnxMobGwS5StatDeleteSessnRespFl	The value of tmnxMobGwS5StatDeleteSessnRespFl indicates the number of delete session response messages received from this peer or transmitted to this peer with cause code not set to request accepted.
peerRestarts	long	tmnxMobGwS5StatPeerRestarts	The value of tmnxMobGwS5StatPeerRestarts indicates the number of times this peer restarted after registering with the system.
unknownTypePacketsReceived	long	tmnxMobGwS5StatRxUnknownPkts	The value of tmnxMobGwS5StatRxUnknownPkts indicates the number of unknown message type packets received from this peer.
updateBearerRequest	long	tmnxMobGwS5StatUpdateBearerReq	The value of tmnxMobGwS5StatUpdateBearerReq indicates the number of update bearer request messages received from this peer or transmitted to this peer.
updateBearerResponses	long	tmnxMobGwS5StatUpdateBearerRsp	The value of tmnxMobGwS5StatUpdateBearerRsp indicates the number of update bearer response messages received from this peer or transmitted to this peer with cause code set to request accepted.
virtualRouterId	int	vRtrID	—
<b>S8AgwPeerStats</b> MIB table name: TIMETRA-MOBILE-GATEWAY-MIB.tmnxMobGwS8StatTable Monitored class: lte.S8Peer			
chassisIndex	long	tmnxChassisIndex	—
createBearerRequestReceived	long	tmnxMobGwS8StatCreateBearerReq	The value of tmnxMobGwS8StatCreateBearerReq indicates the number of create bearer request messages received from this peer or transmitted to this peer.
createBearerResponseMsgReceived	long	tmnxMobGwS8StatCreatBerrRspFl	The value of tmnxMobGwS8StatCreatBerrRspFl indicates the number of create bearer response messages received from this peer or transmitted to this peer with cause code not set to request accepted.

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5620 SAM counter name	Type	MIB counter name	Description
createBearerResponseTransmitted	long	tmnxMobGwS8StatCreateBearerRsp	The value of tmnxMobGwS8StatCreateBearerRsp indicates the number of create bearer response messages received from this peer or transmitted to this peer with cause code set to request accepted.
createProxyBindingAcknowledgementReceived	long	tmnxMobGwS8StatCreatePba	The value of tmnxMobGwS8StatCreatePba indicates the number of Create Proxy Binding Acknowledgement (PBA) messages received from this peer.
createProxyBindingUpdateTransmitted	long	tmnxMobGwS8StatCreatePbu	The value of tmnxMobGwS8StatCreatePbu indicates the number of Create Proxy Binding Update (PBU) messages transmitted to this peer.
createSessionRequestReceived	long	tmnxMobGwS8StatCreateSessnReq	The value of tmnxMobGwS8StatCreateSessnReq indicates the number of create session request messages received from this peer or transmitted to this peer.
createSessionResponseMsgReceived	long	tmnxMobGwS8StatCreatSessnRspFl	The value of tmnxMobGwS8StatCreatSessnRspFl indicates the number of create session response messages received from this peer or transmitted to this peer with cause code not set to request accepted.
createSessionResponseTransmitted	long	tmnxMobGwS8StatCreateSessnResp	The value of tmnxMobGwS8StatCreateSessnResp indicates the number of create session response messages received from this peer or transmitted to this peer with cause code set to request accepted.
deleteBasicRateAccessTransmitted	long	tmnxMobGwS8StatBra	The value of tmnxMobGwS8StatBra indicates the number of network initiated delete Basic Rate Access (BRA) messages transmitted to this peer.
deleteBasicRateInterfaceTransmitted	long	tmnxMobGwS8StatBri	The value of tmnxMobGwS8StatBri indicates the number of network initiated delete Basic Rate Interface (BRI) messages received from this peer.
deleteBearerRequestReceived	long	tmnxMobGwS8StatDeleteBearerReq	The value of tmnxMobGwS8StatDeleteBearerReq indicates the number of delete bearer request messages received from this peer or transmitted to this peer.
deleteBearerResponseMsgReceived	long	tmnxMobGwS8StatDelBeaRrRspFail	The value of tmnxMobGwS8StatDelBeaRrRspFail indicates the number of delete bearer response messages received from this peer or transmitted to this peer with cause code not set to request accepted.
deleteBearerResponseTransmitted	long	tmnxMobGwS8StatDeleteBearerRsp	The value of tmnxMobGwS8StatDeleteBearerRsp indicates the number of delete bearer response messages received from this peer or transmitted to this peer with cause code set to request accepted.

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5620 SAM counter name	Type	MIB counter name	Description
deleteProxyBindingAcknowledgementReceived	long	tmnxMobGwS8StatDeletePba	The value of tmnxMobGwS8StatDeletePba indicates the number of Delete Proxy Binding Acknowledgement (PBA) messages received from this peer.
deleteProxyBindingUpdateTransmitted	long	tmnxMobGwS8StatDeletePbu	The value of tmnxMobGwS8StatDeletePbu indicates the number of Delete Proxy Binding Update (PBU) messages transmitted to this peer.
deleteSessionRequestReceived	long	tmnxMobGwS8StatDeleteSessnReq	The value of tmnxMobGwS8StatDeleteSessnReq indicates the number of delete session request messages received from this peer or transmitted to this peer.
deleteSessionResponseMsgReceived	long	tmnxMobGwS8StatDelSessnRspFail	The value of tmnxMobGwS8StatDelSessnRspFail indicates the number of delete session response messages received from this peer or transmitted to this peer with cause code not set to request accepted.
deleteSessionResponseTransmitted	long	tmnxMobGwS8StatDeleteSessnResp	The value of tmnxMobGwS8StatDeleteSessnResp indicates the number of delete session response messages received from this peer or transmitted to this peer with cause code set to request accepted.
echoRequestReceived	long	tmnxMobGwS8StatRxEchoRequests	The value of tmnxMobGwS8StatRxEchoRequests indicates the number of echo request messages received from this peer.
echoRequestTransmitted	long	tmnxMobGwS8StatTxEchoRequests	The value of tmnxMobGwS8StatTxEchoRequests indicates the number of echo request messages transmitted to this peer.
echoResponseReceived	long	tmnxMobGwS8StatRxEchoResponses	The value of tmnxMobGwS8StatRxEchoResponses indicates the number of echo response messages received from this peer.
echoResponseTransmitted	long	tmnxMobGwS8StatTxEchoResponses	The value of tmnxMobGwS8StatTxEchoResponses indicates the number of echo response messages transmitted to this peer.
malformedPacketsReceived	long	tmnxMobGwS8StatRxMalformedPkts	The value of tmnxMobGwS8StatRxMalformedPkts indicates the number of malformed packets received from this peer.
missingInfoElementPacketsReceived	long	tmnxMobGwS8StatRxMissingPkts	The value of tmnxMobGwS8StatRxMissingPkts indicates the number of missing mandatory Information Element (IE) packets received from this peer.
modifyBearerRequestReceived	long	tmnxMobGwS8StatModifyBearerReq	The value of tmnxMobGwS8StatModifyBearerReq indicates the number of modify bearer request messages received from this peer or transmitted to this peer.

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5620 SAM counter name	Type	MIB counter name	Description
modifyBearerResponseMsgReceived	long	tmnxMobGwS8StatModBe arrRspFail	The value of tmnxMobGwS8StatModBearrRspFail indicates the number of modify bearer response messages received from this peer or transmitted to this peer with cause code not set to request accepted.
modifyBearerResponseTransmitted	long	tmnxMobGwS8StatModify BearerRsp	The value of tmnxMobGwS8StatModifyBearerRsp indicates the number of modify bearer response messages received from this peer or transmitted to this peer with cause code set to request accepted.
pathManagementFailures	long	tmnxMobGwS8StatPathMg mtFails	The value of tmnxMobGwS8StatPathMgmtFails indicates the number of path management failures for this peer.
peerIpAddress	String	tmnxMobGwS8PeerAddre ss	The value of tmnxMobGwS8PeerAddress indicates the IP address of the peer on S8 reference point.
peerIpAddressType	int	tmnxMobGwS8PeerAddre ssType	The value of tmnxMobGwS8PeerAddressType indicates the type of address represented by tmnxMobGwS8PeerAddress.
peerRestartCount	long	tmnxMobGwS8StatPeerRe strtCount	The value of tmnxMobGwS8StatPeerRestrtCount indicates the counter value of the number of times this peer restarted.
peerRestarts	long	tmnxMobGwS8StatPeerRe starts	The value of tmnxMobGwS8StatPeerRestarts indicates the number of times this peer restarted after registering with the system.
peerTcpPort	int	tmnxMobGwS8PeerPort	The value of tmnxMobGwS8PeerPort indicates the port number of this peer.
unknownTypePacketsReceived	long	tmnxMobGwS8StatRxUnk nownPkts	The value of tmnxMobGwS8StatRxUnknownPkts indicates the number of unknown message type packets received from this peer.
updateBearerRequest	long	tmnxMobGwS8StatUpdate BearerReq	The value of tmnxMobGwS8StatUpdateBearerReq indicates the number of update bearer request messages received from this peer or transmitted to this peer.
updateBearerResponseMsgReceived	long	tmnxMobGwS8StatUpdatB earrRspFl	The value of tmnxMobGwS8StatUpdatBearrRspFl indicates the number of update bearer response messages received from this peer or transmitted to this peer with cause code not set to request accepted.
updateBearerResponses	long	tmnxMobGwS8StatUpdate BearerRsp	The value of tmnxMobGwS8StatUpdateBearerRsp indicates the number of update bearer response messages received from this peer or transmitted to this peer with cause code set to request accepted.
virtualRouterId	int	vRtrID	—

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5620 SAM counter name	Type	MIB counter name	Description
<b>GnPeerStats</b> MIB table name: TIMETRA-MOBILE-PDN-MIB.tmnxMobPdnGnStatTable Monitored class: lteegsn.GnPeer			
cardSlotNumber	long	tmnxCardSlotNum	—
chassisIndex	long	tmnxChassisIndex	—
createPdpRequest	long	tmnxMobPdnGnStatCreatePdpReq	The value of tmnxMobPdnGnStatCreatePdpReq indicates the number of create Packet Data Protocol (PDP) request messages received from this peer or transmitted to this peer.
createPdpResponse	long	tmnxMobPdnGnStatCreatePdpRsp	The value of tmnxMobPdnGnStatCreatePdpRsp indicates the number of create Packet Data Protocol (PDP) response messages received from this peer or transmitted to this peer.
deletePdpRequest	long	tmnxMobPdnGnStatDeletePdpReq	The value of tmnxMobPdnGnStatDeletePdpReq indicates the number of delete Packet Data Protocol (PDP) request messages received from this peer or transmitted to this peer.
deletePdpResponse	long	tmnxMobPdnGnStatDeletePdpRsp	The value of tmnxMobPdnGnStatDeletePdpRsp indicates the number of delete Packet Data Protocol (PDP) response messages received from this peer or transmitted to this peer.
modifyPdpRequest	long	tmnxMobPdnGnStatModifyPdpReq	The value of tmnxMobPdnGnStatModifyPdpReq indicates the number of modify Packet Data Protocol (PDP) request messages received from this peer or transmitted to this peer.
modifyPdpResponse	long	tmnxMobPdnGnStatModifyPdpRsp	The value of tmnxMobPdnGnStatModifyPdpRsp indicates the number of modify Packet Data Protocol (PDP) response messages received from this peer or transmitted to this peer.
peerIpAddress	String	tmnxMobPdnGnPeerAddress	The value of tmnxMobPdnGnPeerAddress indicates the IP address of the peer on Gn reference point.
peerIpAddressType	int	tmnxMobPdnGnPeerAddressType	The value of tmnxMobPdnGnPeerAddressType indicates the type of address represented by tmnxMobPdnGnPeerAddress.
peerPathMgmtFailures	long	tmnxMobPdnGnStatPathMgmtFails	The value of tmnxMobPdnGnStatPathMgmtFails indicates the number of path management failures for this peer.

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# *A. 7750 MG Release 3.0 statistics counters*

5620 SAM counter name	Type	MIB counter name	Description
peerRestartCount	long	tmnxMobPdnGnStatPeerRestrtCount	The value of tmnxMobPdnGnStatPeerRestrtCount indicates the counter value of the number of times this peer restarted.
peerRestarts	long	tmnxMobPdnGnStatPeerRestarts	The value of tmnxMobPdnGnStatPeerRestarts indicates the number of times this peer restarted after registering with the system.
peerTcpPort	int	tmnxMobPdnGnPeerPort	The value of tmnxMobPdnGnPeerPort indicates the port number of this peer.
rxEchoRequest	long	tmnxMobPdnGnStatRxEchoRequests	The value of tmnxMobPdnGnStatRxEchoRequests indicates the number of echo request messages received from this peer.
rxEchoResponse	long	tmnxMobPdnGnStatRxEchoResponses	The value of tmnxMobPdnGnStatRxEchoResponses indicates the number of echo response messages received from this peer.
rxErrorIndication	long	tmnxMobPdnGnStatRxErrorsIndCnt	The value of tmnxMobPdnGnStatRxErrorsIndCnt indicates the number of indication request errors transmitted to this peer.
rxMalformedPackets	long	tmnxMobPdnGnStatRxMalformedPkts	The value of tmnxMobPdnGnStatRxMalformedPkts indicates the number of malformed packets received from this peer.
rxMissingPackets	long	tmnxMobPdnGnStatRxMissingPkts	The value of tmnxMobPdnGnStatRxMissingPkts indicates the number of missing mandatory Information Element (IE) packets received from this peer.
rxUnknownPackets	long	tmnxMobPdnGnStatRxUnknownPkts	The value of tmnxMobPdnGnStatRxUnknownPkts indicates the number of unknown message type packets received from this peer.
txEchoRequest	long	tmnxMobPdnGnStatTxEchoRequests	The value of tmnxMobPdnGnStatTxEchoRequests indicates the number of echo request messages transmitted to this peer.
txEchoResponse	long	tmnxMobPdnGnStatTxEchoResponses	The value of tmnxMobPdnGnStatTxEchoResponses indicates the number of echo response messages transmitted to this peer.
txErrorIndication	long	tmnxMobPdnGnStatTxErrorsIndCnt	The value of tmnxMobPdnGnStatTxErrorsIndCnt indicates the number of indication response errors received from this peer.
virtualRouterId	int	vRtrID	—
<b>GyPeerStats</b> MIB table name: TIMETRA-MOBILE-PDN-MIB.tmnxMobPdnGyStatTable Monitored class: lteggns.GyPeer			

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5620 SAM counter name	Type	MIB counter name	Description
abortSessionAnswerMsgsTransmitted	long	tmnxMobPdnGyStatAsaMsgTx	The value of tmnxMobPdnGyStatAsaMsgTx indicates the number of Abort Session Answer (ASA) messages transmitted.
abortSessionAnswerNegativeAckMsgsTransmitted	long	tmnxMobPdnGyStatAsaNackMsgTx	The value of tmnxMobPdnGyStatAsaNackMsgTx indicates the number of Abort Session Answer (ASA) negative acknowledgement messages transmitted.
abortSessionRequestMalformedPktsReceived	long	tmnxMobPdnGyStatAsrMalPktRx	The value of tmnxMobPdnGyStatAsrMalPktRx indicates the number of Abort Session Request (ASR) malformed packets received.
abortSessionRequestMsgsReceived	long	tmnxMobPdnGyStatAsrMsgRx	The value of tmnxMobPdnGyStatAsrMsgRx indicates the number of Abort Session Request (ASR) messages received.
abortSessionRequestUnknownPktsReceived	long	tmnxMobPdnGyStatAsrUnkPktRx	The value of tmnxMobPdnGyStatAsrUnkPktRx indicates the number of Abort Session Request (ASR) unknown packets received.
capabilitiesExchangeRequestMsgsReceivedFromThisPeer	long	tmnxMobPdnGyStatRxCea	The value of tmnxMobPdnGyStatRxCea indicates the number of Capabilities Exchange Answer (CEA) messages received from this peer.
capabilitiesExchangeRequestMsgsTransmittedToThisPeer	long	tmnxMobPdnGyStatTxCer	The value of tmnxMobPdnGyStatTxCer indicates the number of Capabilities Exchange Request (CER) messages transmitted to this peer.
cardSlotNumber	long	tmnxCardSlotNum	—
chassisIndex	long	tmnxChassisIndex	—
connectionsAttemptedToThisPeer	long	tmnxMobPdnGyStatConnAttempts	The value of tmnxMobPdnGyStatConnAttempts indicates the number of connections attempted to this peer.
creditControlAnswerInitialMalformedPktsReceived	long	tmnxMobPdnGyStatCCAlnitMalPktRx	The value of tmnxMobPdnGyStatCCAlnitMalPktRx indicates the number of Credit Control Answer (CCA) initial malformed packets received.
creditControlAnswerInitialMsgRequestsReceived	long	tmnxMobPdnGyStatCCalnitMsgRx	The value of tmnxMobPdnGyStatCCalnitMsgRx indicates the number of Credit Control Answer (CCA) initial message requests received.
creditControlAnswerInitialUnknownPktsReceived	long	tmnxMobPdnGyStatCCalnitUnkPktRx	The value of tmnxMobPdnGyStatCCalnitUnkPktRx indicates the number of Credit Control Answer (CCA) initial unknown packets received.
creditControlAnswerTerminationMalformedPktsReceived	long	tmnxMobPdnGyStatCCATermMalPktRx	The value of tmnxMobPdnGyStatCCATermMalPktRx indicates the number of Credit Control Answer (CCA) termination malformed packets received.

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5620 SAM counter name	Type	MIB counter name	Description
creditControlAnswerTerminationMsgRequestsReceived	long	tmnxMobPdnGyStatCcaTermMsgRx	The value of tmnxMobPdnGyStatCcaTermMsgRx indicates the number of Credit Control Answer (CCA) termination message requests received.
creditControlAnswerTerminationUnknownPktsReceived	long	tmnxMobPdnGyStatCcaTermUnkPktRx	The value of tmnxMobPdnGyStatCcaTermUnkPktRx indicates the number of Credit Control Answer (CCA) termination unknown packets received.
creditControlAnswerUpdateMalformedPktsReceived	long	tmnxMobPdnGyStatCCAUpdtMalPktRx	The value of tmnxMobPdnGyStatCCAUpdtMalPktRx indicates the number of Credit Control Answer (CCA) update malformed packets received.
creditControlAnswerUpdateMsgRequestsReceived	long	tmnxMobPdnGyStatCcaUpdateMsgRx	The value of tmnxMobPdnGyStatCcaUpdateMsgRx indicates the number of Credit Control Answer (CCA) update message requests received.
creditControlAnswerUpdateUnknownPktsReceived	long	tmnxMobPdnGyStatCcaUpdUnkPktRx	The value of tmnxMobPdnGyStatCcaUpdUnkPktRx indicates the number of Credit Control Answer (CCA) update unknown packets received.
creditControlRequestInitialMsgRequestsFailed	long	tmnxMobPdnGyStatCcrInitMsgFails	The value of tmnxMobPdnGyStatCcrInitMsgFails indicates the number of Credit Control Request (CCR) initial message requests failed.
creditControlRequestInitialMsgRequestsTransmitted	long	tmnxMobPdnGyStatCcrInitMsgTx	The value of tmnxMobPdnGyStatCcrInitMsgTx indicates the number of Credit Control Request (CCR) initial message requests transmitted.
creditControlRequestMsgRequestsDenied	long	tmnxMobPdnGyStatCcrDenied	The value of tmnxMobPdnGyStatCcrDenied indicates the number of Credit Control Request (CCR) message requests denied.
creditControlRequestMsgRequestsGranted	long	tmnxMobPdnGyStatCcrGranted	The value of tmnxMobPdnGyStatCcrGranted indicates the number of Credit Control Request (CCR) message requests granted.
creditControlRequestTerminationMsgRequestsFailed	long	tmnxMobPdnGyStatCcrTermMsgFails	The value of tmnxMobPdnGyStatCcrTermMsgFails indicates the number of Credit Control Request (CCR) termination message requests failed.
creditControlRequestTerminationMsgRequestsTransmitted	long	tmnxMobPdnGyStatCcrTermMsgTx	The value of tmnxMobPdnGyStatCcrTermMsgTx indicates the number of Credit Control Request (CCR) termination message requests transmitted.

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5620 SAM counter name	Type	MIB counter name	Description
creditControlRequestUpdateMsgRequestsFailed	long	tmnxMobPdnGyStatCcrUpdMsgFails	The value of tmnxMobPdnGyStatCcrUpdMsgFails indicates the number of Credit Control Request (CCR) update message requests failed.
creditControlRequestUpdateMsgRequestsTransmitted	long	tmnxMobPdnGyStatCcrUpdateMsgTx	The value of tmnxMobPdnGyStatCcrUpdateMsgTx indicates the number of Credit Control Request (CCR) update message requests transmitted.
deviceWatchdogAnswerMsgsReceivedToThisPeer	long	tmnxMobPdnGyStatRxDwa	The value of tmnxMobPdnGyStatRxDwa indicates the number of Device Watchdog Answer (DWA) messages received from this peer.
deviceWatchdogRequestMsgsTransmittedToThisPeer	long	tmnxMobPdnGyStatTxDwr	The value of tmnxMobPdnGyStatTxDwr indicates the number of Device Watchdog Request (DWR) messages transmitted to this peer.
disconnectPeerAnswerMsgsTransmittedToThisPeer	long	tmnxMobPdnGyStatTxDpa	The value of tmnxMobPdnGyStatTxDpa indicates the number of Disconnect Peer Answer (DPA) messages transmitted to this peer.
disconnectPeerRequestMsgsReceivedFromThisPeer	long	tmnxMobPdnGyStatRxDpr	The value of tmnxMobPdnGyStatRxDpr indicates the number of Disconnect Peer Request (DPR) messages received from this peer.
epcid	long	tmnxMobGwld	The value of tmnxMobGwld uniquely identifies a mobile gateway configured in the system.
failedConnectionsWithThisPeer	long	tmnxMobPdnGyStatConnFails	The value of tmnxMobPdnGyStatConnFailures indicates the number of failed connections with this peer.
invalidCapabilitiesExchangeAnswerMsgsReceivedFromThisPeer	long	tmnxMobPdnGyStatRxInvalidCea	The value of tmnxMobPdnGyStatRxInvalidCea indicates the number of invalid Capabilities Exchange Answer (CEA) messages received from this peer.
malformedPktsReceived	long	tmnxMobPdnGyStatMalformedPktsRx	The value of tmnxMobPdnGyStatMalformedPktsRx indicates the number of malformed packets received.
missingAttributeValuePairPktsReceived	long	tmnxMobPdnGyStatMissingAvpPktRx	The value of tmnxMobPdnGyStatMissingAvpPktRx indicates the number of missing Attribute Value Pair (AVP) packets received.
missingAvpPktsReceivedForAsrMsg	long	tmnxMobPdnGyStatAsrMisAvpPktRx	The value of tmnxMobPdnGyStatAsrMisAvpPktRx indicates the number of missing Attribute Value Pair (AVP) packets received for Abort Session Request (ASR) message.

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5620 SAM counter name	Type	MIB counter name	Description
missingAvpPktsReceivedForCcalInitialMsg	long	tmnxMobPdnGyStatCcalMisAvpPktRx	The value of tmnxMobPdnGyStatCcalMisAvpPktRx indicates the number of missing Attribute Value Pair (AVP) packets received for Credit Control Answer (CCA) initial message.
missingAvpPktsReceivedForCcaTerminationMsg	long	tmnxMobPdnGyStatCcaTmisAvpPktRx	The value of tmnxMobPdnGyStatCcaTmisAvpPktRx indicates the number of missing Attribute Value Pair (AVP) packets received for Credit Control Answer (CCA) termination message.
missingAvpPktsReceivedForCcaUpdateMsg	long	tmnxMobPdnGyStatCcaUMisAvpPktRx	The value of tmnxMobPdnGyStatCcaUMisAvpPktRx indicates the number of missing Attribute Value Pair (AVP) packets received for Credit Control Answer (CCA) update message.
missingAvpPktsReceivedForRarMsg	long	tmnxMobPdnGyStatRarMisAvpPktRx	The value of tmnxMobPdnGyStatRarMisAvpPktRx indicates the number of missing Attribute Value Pair (AVP) packets received for Re-authorization Request (RAR) message.
msgsReceivedFromThisPeer	long	tmnxMobPdnGyStatRxMsgs	The value of tmnxMobPdnGyStatRxMsgs indicates the total number of messages received from this peer.
msgsTransmittedToThisPeer	long	tmnxMobPdnGyStatTxMsgs	The value of tmnxMobPdnGyStatTxMsgs indicates the total number of messages transmitted to this peer.
oversizeMsgsReceivedFromThisPeer	long	tmnxMobPdnGyStatRxMsgTooBig	The value of tmnxMobPdnGyStatRxMsgTooBig indicates the number of oversize messages received from this peer.
peerIpAddress	String	tmnxMobPdnGyPeerAddress	The value of tmnxMobPdnGyPeerAddress indicates the IP address of the peer on Gy reference point.
peerIpAddressType	int	tmnxMobPdnGyPeerAddressType	The value of tmnxMobPdnGyPeerAddressType indicates the type of address represented by tmnxMobPdnGyPeerAddress.
peerTcpPort	int	tmnxMobPdnGyPeerPort	The value of tmnxMobPdnGyPeerPort indicates the port number of this peer.
reAuthorizationAnswerMsgsTransmitted	long	tmnxMobPdnGyStatRaaMsgTx	The value of tmnxMobPdnGyStatRaaMsgTx indicates the number of Re-authorization Answer (RAA) messages transmitted.
reAuthorizationAnswerNegativeAckMsgsTransmitted	long	tmnxMobPdnGyStatRaaNackMsgTx	The value of tmnxMobPdnGyStatRaaNackMsgTx indicates the number of Re-authorization Answer (RAA) negative acknowledgement messages transmitted.
reAuthorizationRequestMalformedPktsReceived	long	tmnxMobPdnGyStatRarMalPktRx	The value of tmnxMobPdnGyStatRarMalPktRx indicates the number of Re-authorization Request (RAR) malformed packets received.

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5620 SAM counter name	Type	MIB counter name	Description
reAuthorizationRequestMsgsReceived	long	tmnxMobPdnGyStatRarMsgRx	The value of tmnxMobPdnGyStatRarMsgRx indicates the number of Re-authorization Request (RAR) messages received.
reAuthorizationRequestUnknownPktsReceived	long	tmnxMobPdnGyStatRarUnkPktRx	The value of tmnxMobPdnGyStatRarUnkPktRx indicates the number of Re-authorization Request (RAR) unknown packets received.
remoteTransportDisconnectMsgsReceivedFromThisPeer	long	tmnxMobPdnGyStatRxTransportDisc	The value of tmnxMobPdnGyStatRxTransportDisc indicates the number of remote transport disconnect messages received from this peer.
retransmitMsgsTransmittedToThisPeer	long	tmnxMobPdnGyStatTxRetransmitMsgs	The value of tmnxMobPdnGyStatTxRetransmitMsgs indicates the number of retransmit messages transmitted to this peer.
smallMsgsReceivedFromThisPeer	long	tmnxMobPdnGyStatRxMsgTooSmall	The value of tmnxMobPdnGyStatRxMsgTooSmall indicates the number of small messages received from this peer.
unexpectedVersionMsgsReceivedFromThisPeer	long	tmnxMobPdnGyStatRxMsgUnexpectVer	The value of tmnxMobPdnGyStatRxMsgUnexpectVer indicates the number of unexpected version messages received from this peer.
unknownPktsReceived	long	tmnxMobPdnGyStatUnkwnPktsRx	The value of tmnxMobPdnGyStatUnkwnPktsRx indicates the number of unknown packets received.
unknownSessionPktsReceivedForAbortSessionRequestMsgs	long	tmnxMobPdnGyStatAsrUnkSessPkts	The value of tmnxMobPdnGyStatAsrUnkSessPkts indicates the number of unknown session packets received for Abort Session Request (ASR) messages.
unknownSessionPktsReceivedForCreditControlAnswerInitialMsgs	long	tmnxMobPdnGyStatCcalUnkSessPkts	The value of tmnxMobPdnGyStatCcalUnkSessPkts indicates the number of unknown session packets received for Credit Control Answer (CCA) initial messages.
unknownSessionPktsReceivedForCreditControlAnswerTerminationMsgs	long	tmnxMobPdnGyStatCcaTUUnkSessPkts	The value of tmnxMobPdnGyStatCcaTUUnkSessPkts indicates the number of unknown session packets received for Credit Control Answer (CCA) termination messages.
unknownSessionPktsReceivedForCreditControlAnswerUpdateMsgs	long	tmnxMobPdnGyStatCcaUUnkSessPkts	The value of tmnxMobPdnGyStatCcaUUnkSessPkts indicates the number of unknown session packets received for Credit Control Answer (CCA) update messages.
unknownSessionPktsReceivedForReAuthorizationRequestMsgs	long	tmnxMobPdnGyStatRarUnkSessPkts	The value of tmnxMobPdnGyStatRarUnkSessPkts indicates the number of unknown session packets received for Re-authorization Request (RAR) messages.
virtualRouterId	int	vRtrID	—

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5620 SAM counter name	Type	MIB counter name	Description
<b>PgwGaPeerStats</b> MIB table name: TIMETRA-MOBILE-PDN-MIB.tmnxMobPdnGaStatTable Monitored class: lteggnsn.PgwGaPeer			
address	String	tmnxMobPdnGaStatAddress	The value of tmnxMobPdnGaStatAddress indicates the IP address of the peer on Ga reference point. When the length of tmnxMobPdnGaStatAddress is equal to 0 then the peer is a Fully Qualified Domain Name (FQDN) address and this entry represents an aggregate of all the peer IP addresses that this FQDN resolves to. In this case the value of tmnxMobPdnGaStatAddressType is unknown and the value of tmnxMobPdnGaStatPort is equal to 0.
addressType	int	tmnxMobPdnGaStatAddressType	The value of tmnxMobPdnGaStatAddressType indicates the type of address represented by tmnxMobPdnGaStatAddress. When the value of tmnxMobPdnGaStatAddressType is unknown then the peer is a Fully Qualified Domain Name (FQDN) address and this entry represents an aggregate of all the peer IP addresses that this FQDN resolves to.
cdsRx	long	tmnxMobPdnGaStatCdsRx	The value of tmnxMobPdnGaStatCdsRx indicates the total number of Charging Data Records (CDR) received on this peer.
cdsTx	long	tmnxMobPdnGaStatCdsTx	The value of tmnxMobPdnGaStatCdsTx indicates the total number of Charging Data Records (CDR) sent from this peer.
epcId	long	tmnxMobGwId	The value of tmnxMobGwId uniquely identifies a mobile gateway configured in the system.
gaCardSlotNumber	long	tmnxCardSlotNum	—
gaChassisIndex	long	tmnxChassisIndex	—
gtpPriGrpName	String	tmnxMobGtpPriGrpName	—
gtpPrimeFail	long	tmnxMobPdnGaStatGtpPrimeFail	The value of tmnxMobPdnGaStatGtpPrimeFail indicates the number of GPRS Tunneling Protocol (GTP) prime message failures transmitted to this peer.
gtpPriServerIndex	int	tmnxMobGtpPriServerIndex	—
nodeAlReqRetried	long	tmnxMobPdnGaStatNodeAlReqRetried	The value of tmnxMobPdnGaStatNodeAlReqRetried indicates the number of node alive request retry messages transmitted from this peer.

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5620 SAM counter name	Type	MIB counter name	Description
operState	int	tmnxMobPdnGaStatOperState	The value of tmnxMobPdnGaStatOperState indicates the current operational state of this group. The operational state may be one of: 'up' - connection goes 'up' and is used by the Ga module to send Charging Data Records (CDRs). 'down' - connection goes 'down' and is used by the Ga module to send Charging Data Records (CDRs). 'active' - connection is 'active' and is used by the Ga module to send Charging Data Records (CDRs).
port	int	tmnxMobPdnGaStatPort	The value of tmnxMobPdnGaStatPort indicates the port number of this peer. When the value of tmnxMobPdnGaStatPort is equal to 0 then the peer is a Fully Qualified Domain Name (FQDN) address and this entry represents an aggregate of all the peer IP addresses that this FQDN resolves to.
retrDataRecReqs	long	tmnxMobPdnGaStatRetrDataRecReqs	The value of tmnxMobPdnGaStatRetrDataRecReqs indicates the number of Data record transfer requests retried to this peer.
rtrEchoRequests	long	tmnxMobPdnGaStatRtrEchoRequests	The value of tmnxMobPdnGaStatRtrEchoRequests indicates the number of echo request messages retried to this peer.
rxCdrDupReqFf	long	tmnxMobPdnGaStatRxCdrDupReqFf	The value of tmnxMobPdnGaStatRxCdrDupReqFf indicates the number of Charging Data Records (CDR) responses with cause value 'duplicate requests already fulfilled' received from this peer.
rxCdrInvMsgFmat	long	tmnxMobPdnGaStatRxCdrInvMsgFmat	The value of tmnxMobPdnGaStatRxCdrInvMsgFmat indicates the number of Charging Data Records (CDR) responses with cause value 'invalid message format' received from this peer.
rxCdrMandleInc	long	tmnxMobPdnGaStatRxCdrMandleInc	The value of tmnxMobPdnGaStatRxCdrMandleInc indicates the number of Charging Data Records (CDR) responses with cause value 'mandatory Information Element (IE) incorrect' received from this peer.
rxCdrMandleMiss	long	tmnxMobPdnGaStatRxCdrMandleMiss	The value of tmnxMobPdnGaStatRxCdrMandleMiss indicates the number of Charging Data Records (CDR) responses with cause value 'mandatory Information Element (IE) missing' received from this peer.
rxCdrNoResAva	long	tmnxMobPdnGaStatRxCdrNoResAva	The value of tmnxMobPdnGaStatRxCdrNoResAva indicates the number of Charging Data Records (CDR) responses with cause value 'no resources available' received from this peer.

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5620 SAM counter name	Type	MIB counter name	Description
rxCdrOptIInc	long	tmnxMobPdnGaStatRxCdrOptIInc	The value of tmnxMobPdnGaStatRxCdrOptIInc indicates the number of Charging Data Records (CDR) responses with cause value 'optional Information Element (IE) incorrect' received from this peer.
rxCdrReqAcc	long	tmnxMobPdnGaStatRxCdrReqAcc	The value of tmnxMobPdnGaStatRxCdrReqAcc indicates the number of Charging Data Records (CDR) responses with cause value 'requests accepted' received from this peer.
rxCdrReqFfilled	long	tmnxMobPdnGaStatRxCdrReqFfilled	The value of tmnxMobPdnGaStatRxCdrReqFfilled indicates the number of Charging Data Records (CDR) responses with cause value 'requests already fulfilled' received from this peer.
rxCdrReqNotFf	long	tmnxMobPdnGaStatRxCdrReqNotFf	The value of tmnxMobPdnGaStatRxCdrReqNotFf indicates the number of Charging Data Records (CDR) responses with cause value 'requests not fulfilled' received from this peer.
rxCdrSrvNotSupp	long	tmnxMobPdnGaStatRxCdrSrvNotSupp	The value of tmnxMobPdnGaStatRxCdrSrvNotSupp indicates the number of Charging Data Records (CDR) responses with cause value 'service not supported' received from this peer.
rxCdrSystemFail	long	tmnxMobPdnGaStatRxCdrSystemFail	The value of tmnxMobPdnGaStatRxCdrSystemFail indicates the number of Charging Data Records (CDR) responses with cause value 'system failure' received from this peer.
rxCdrVerNotSupp	long	tmnxMobPdnGaStatRxCdrVerNotSupp	The value of tmnxMobPdnGaStatRxCdrVerNotSupp indicates the number of Charging Data Records (CDR) responses with cause value 'version not supported' received from this peer.
rxDataRecReqs	long	tmnxMobPdnGaStatRxDataRecReqs	The value of tmnxMobPdnGaStatRxDataRecReqs indicates the number of Data record transfer requests received by this peer.
rxEchoRequests	long	tmnxMobPdnGaStatRxEchoRequests	The value of tmnxMobPdnGaStatRxEchoRequests indicates the number of echo request messages received from this peer.
rxEchoResponses	long	tmnxMobPdnGaStatRxEchoResponses	The value of tmnxMobPdnGaStatRxEchoResponses indicates the number of echo response messages received from this peer.
rxInvalidMsgs	long	tmnxMobPdnGaStatRxInvalidMsgs	The value of tmnxMobPdnGaStatRxInvalidMsgs indicates the number of invalid messages received from this peer.

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5620 SAM counter name	Type	MIB counter name	Description
rxNodeAlRequests	long	tmnxMobPdnGaStatRxNodeAlRequests	The value of tmnxMobPdnGaStatRxNodeAlRequests indicates the number of node alive request messages received from this peer.
rxNodeAlResps	long	tmnxMobPdnGaStatRxNodeAlResps	The value of tmnxMobPdnGaStatRxNodeAlResps indicates the number of node alive response messages received on this peer.
rxRedirectionReq	long	tmnxMobPdnGaStatRxRedirectionReq	The value of tmnxMobPdnGaStatRxRedirectionReq indicates the number of redirection request messages received from this peer.
rxVerNotSupp	long	tmnxMobPdnGaStatRxVerNotSupp	The value of tmnxMobPdnGaStatRxVerNotSupp indicates the number of version not supported messages received from this peer.
txCdrMaxChngCond	long	tmnxMobPdnGaStatTxCdrMaxChngCond	The value of tmnxMobPdnGaStatTxCdrMaxChngCond indicates the number of Charging Data Records (CDR) maximum change condition requests transmitted to this peer.
txCdrMgmtInterv	long	tmnxMobPdnGaStatTxCdrMgmtInterv	The value of tmnxMobPdnGaStatTxCdrMgmtInterv indicates the number of Charging Data Records (CDR) transferred due to management intervention on this peer.
txCdrMsTmzChng	long	tmnxMobPdnGaStatTxCdrMsTmzChng	The value of tmnxMobPdnGaStatTxCdrMsTmzChng indicates the number of Charging Data Records (CDR) MS Time Zone Change requests transmitted to this peer.
txCdrPlmnChange	long	tmnxMobPdnGaStatTxCdrPlmnChange	The value of tmnxMobPdnGaStatTxCdrPlmnChange indicates the number of Charging Data Records (CDR) Public Land Mobile Network (PLMN) change requests transmitted to this peer.
txCdrRatChng	long	tmnxMobPdnGaStatTxCdrRatChng	The value of tmnxMobPdnGaStatTxCdrRatChng indicates the number of Charging Data Records (CDR) Radio Access Type (RAT) change requests transmitted to this peer.
txCdrSerNdChLmt	long	tmnxMobPdnGaStatTxCdrSerNdChLmt	The value of tmnxMobPdnGaStatTxCdrSerNdChLmt indicates the number of Charging Data Records (CDR) Serving Node Change Limit requests transmitted to this peer.
txCdrTermination	long	tmnxMobPdnGaStatTxCdrTermination	The value of tmnxMobPdnGaStatTxCdrTermination indicates the number of Charging Data Records (CDR) termination requests transmitted to this peer.

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5620 SAM counter name	Type	MIB counter name	Description
txCdrTimeLimit	long	tmnxMobPdnGaStatTxCdrTimeLimit	The value of tmnxMobPdnGaStatTxCdrTimeLimit indicates the number of Charging Data Records (CDR) time limit requests transmitted to this peer.
txCdrVolLimit	long	tmnxMobPdnGaStatTxCdrVolLimit	The value of tmnxMobPdnGaStatTxCdrVolLimit indicates the number of Charging Data Records (CDR) volume limit requests transmitted to this peer.
txDataRecReqs	long	tmnxMobPdnGaStatTxDataRecReqs	The value of tmnxMobPdnGaStatTxDataRecReqs indicates the number of Data record requests transmitted to this peer.
txDataRecTferReq	long	tmnxMobPdnGaStatTxDataRecTferReq	The value of tmnxMobPdnGaStatTxDataRecTferReq indicates the number of duplicate Data record transfer requests transmitted to this peer.
txEchoRequests	long	tmnxMobPdnGaStatTxEchoRequests	The value of tmnxMobPdnGaStatTxEchoRequests indicates the number of echo request messages transmitted to this peer.
txEchoResponses	long	tmnxMobPdnGaStatTxEchoResponses	The value of tmnxMobPdnGaStatTxEchoResponses indicates the number of echo response messages transmitted to this peer.
txNodeAlRequests	long	tmnxMobPdnGaStatTxNodeAlRequests	The value of tmnxMobPdnGaStatTxNodeAlRequests indicates the number of node alive request messages transmitted from this peer.
txNodeAlResps	long	tmnxMobPdnGaStatTxNodeAlResps	The value of tmnxMobPdnGaStatTxNodeAlResps indicates the number of node alive response messages transmitted to this peer.
txRedrnResp	long	tmnxMobPdnGaStatTxRedrnResp	The value of tmnxMobPdnGaStatTxRedrnResp indicates the number of redirection request messages transmitted to this peer.
txVerNotSupp	long	tmnxMobPdnGaStatTxVerNotSupp	The value of tmnxMobPdnGaStatTxVerNotSupp indicates the number of version not supported messages transmitted to this peer.
unackDataRexReqs	long	tmnxMobPdnGaStatUnackDataRexReqs	The value of tmnxMobPdnGaStatUnackDataRexReqs indicates the number of Data record transfer requests unacknowledged by this peer.
upTime	long	tmnxMobPdnGaStatUpTime	The value of tmnxMobPdnGaStatUpTime indicates the time when the connection comes up.
virtualRouterId	int	vRtrID	—

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5620 SAM counter name	Type	MIB counter name	Description
<b>SgwGaPeerStats</b> MIB table name: TIMETRA-MOBILE-SERVING-MIB.tmnxMobSgwGaStatTable Monitored class: lteggns.SgwGaPeer			
address	String	tmnxMobSgwGaStatAddress	The value of tmnxMobSgwGaStatAddress indicates the IP address of the peer on Ga reference point. When the length of tmnxMobSgwGaStatAddress is equal to 0 then the peer is a Fully Qualified Domain Name (FQDN) address and this entry represents an aggregate of all the peer IP addresses that this FQDN resolves to. In this case the value of tmnxMobSgwGaStatAddressType is unknown and the value of tmnxMobSgwGaStatPort is equal to 0.
addressType	int	tmnxMobSgwGaStatAddressType	The value of tmnxMobSgwGaStatAddressType indicates the type of address represented by tmnxMobSgwGaStatAddress. When the value of tmnxMobSgwGaStatAddressType is unknown then the peer is a Fully Qualified Domain Name (FQDN) address and this entry represents an aggregate of all the peer IP addresses that this FQDN resolves to.
cdrsRx	long	tmnxMobSgwGaStatCdrsRx	The value of tmnxMobSgwGaStatCdrsRx indicates the total number of Charging Data Records (CDR) received on this peer.
cdrsTx	long	tmnxMobSgwGaStatCdrsTx	The value of tmnxMobSgwGaStatCdrsTx indicates the total number of Charging Data Records (CDR) sent from this peer.
epcId	long	tmnxMobGwId	The value of tmnxMobGwId uniquely identifies a mobile gateway configured in the system.
gaCardSlotNumber	long	tmnxCardSlotNum	—
gaChassisIndex	long	tmnxChassisIndex	—
gtpPrimeFail	long	tmnxMobSgwGaStatGtpPrimeFail	The value of tmnxMobSgwGaStatGtpPrimeFail indicates the number of GPRS Tunneling Protocol (GTP) prime message failures transmitted to this peer.
nodeAReqRetried	long	tmnxMobSgwGaStatNodeAReqRetried	The value of tmnxMobSgwGaStatNodeAReqRetried indicates the number of node alive request retry messages transmitted from this peer.

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5620 SAM counter name	Type	MIB counter name	Description
operState	int	tmnxMobSgwGaStatOperState	The value of tmnxMobSgwGaStatOperState indicates the current operational state of this group. The operational state may be one of: 'up' - connection goes 'up' and is used by the Ga module to send Charging Data Records (CDRs). 'down' - connection goes 'down' and is used by the Ga module to send Charging Data Records (CDRs). 'active' - connection is 'active' and is used by the Ga module to send Charging Data Records (CDRs).
port	int	tmnxMobSgwGaStatPort	The value of tmnxMobSgwGaStatPort indicates the port number of this peer. When the value of tmnxMobSgwGaStatPort is equal to 0 then the peer is a Fully Qualified Domain Name (FQDN) address and this entry represents an aggregate of all the peer IP addresses that this FQDN resolves to.
retrDataRecReqs	long	tmnxMobSgwGaStatRetrDataRecReqs	The value of tmnxMobSgwGaStatRetrDataRecReqs indicates the number of Data record transfer requests retried to this peer.
rtrEchoRequests	long	tmnxMobSgwGaStatRtrEchoRequests	The value of tmnxMobSgwGaStatRtrEchoRequests indicates the number of echo request messages retried to this peer.
rxCdrDupReqFf	long	tmnxMobSgwGaStatRxCdrDupReqFf	The value of tmnxMobSgwGaStatRxCdrDupReqFf indicates the number of Charging Data Records (CDR) responses with cause value 'duplicate requests already fulfilled' received from this peer.
rxCdrInvMsgFmat	long	tmnxMobSgwGaStatRxCdrInvMsgFmat	The value of tmnxMobSgwGaStatRxCdrInvMsgFmat indicates the number of Charging Data Records (CDR) responses with cause value 'invalid message format' received from this peer.
rxCdrMandleInc	long	tmnxMobSgwGaStatRxCdrMandleInc	The value of tmnxMobSgwGaStatRxCdrMandleInc indicates the number of Charging Data Records (CDR) responses with cause value 'mandatory Information Element (IE) incorrect' received from this peer.
rxCdrMandleMiss	long	tmnxMobSgwGaStatRxCdrMandleMiss	The value of tmnxMobSgwGaStatRxCdrMandleMiss indicates the number of Charging Data Records (CDR) responses with cause value 'mandatory Information Element (IE) missing' received from this peer.
rxCdrNoResAva	long	tmnxMobSgwGaStatRxCdrNoResAva	The value of tmnxMobSgwGaStatRxCdrNoResAva indicates the number of Charging Data Records (CDR) responses with cause value 'no resources available' received from this peer.

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5620 SAM counter name	Type	MIB counter name	Description
rxCdrOptIInc	long	tmnxMobSgwGaStatRxCdrOptIInc	The value of tmnxMobSgwGaStatRxCdrOptIInc indicates the number of Charging Data Records (CDR) responses with cause value 'optional Information Element (IE) incorrect' received from this peer.
rxCdrReqAcc	long	tmnxMobSgwGaStatRxCdrReqAcc	The value of tmnxMobSgwGaStatRxCdrReqAcc indicates the number of Charging Data Records (CDR) responses with cause value 'requests accepted' received from this peer.
rxCdrReqFfilled	long	tmnxMobSgwGaStatRxCdrReqFfilled	The value of tmnxMobSgwGaStatRxCdrReqFfilled indicates the number of Charging Data Records (CDR) responses with cause value 'requests already fulfilled' received from this peer.
rxCdrReqNotFf	long	tmnxMobSgwGaStatRxCdrReqNotFf	The value of tmnxMobSgwGaStatRxCdrReqNotFf indicates the number of Charging Data Records (CDR) responses with cause value 'requests not fulfilled' received from this peer.
rxCdrSrvNotSupp	long	tmnxMobSgwGaStatRxCdrSrvNotSupp	The value of tmnxMobSgwGaStatRxCdrSrvNotSupp indicates the number of Charging Data Records (CDR) responses with cause value 'Service not supported' received from this peer.
rxCdrSystemFail	long	tmnxMobSgwGaStatRxCdrSystemFail	The value of tmnxMobSgwGaStatRxCdrSystemFail indicates the number of Charging Data Records (CDR) responses with cause value 'system failure' received from this peer.
rxCdrVerNotSupp	long	tmnxMobSgwGaStatRxCdrVerNotSupp	The value of tmnxMobSgwGaStatRxCdrVerNotSupp indicates the number of Charging Data Records (CDR) responses with cause value 'version not supported' received from this peer.
rxDataRecReqs	long	tmnxMobSgwGaStatRxDataRecReqs	The value of tmnxMobSgwGaStatRxDataRecReqs indicates the number of Data record transfer requests received by this peer.
rxEchoRequests	long	tmnxMobSgwGaStatRxEchoRequests	The value of tmnxMobSgwGaStatRxEchoRequests indicates the number of echo request messages received from this peer.
rxEchoResponses	long	tmnxMobSgwGaStatRxEchoResponses	The value of tmnxMobSgwGaStatRxEchoResponses indicates the number of echo response messages received from this peer.
rxInvalidMsgs	long	tmnxMobSgwGaStatRxInvalidMsgs	The value of tmnxMobSgwGaStatRxInvalidMsgs indicates the number of invalid messages received from this peer.

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5620 SAM counter name	Type	MIB counter name	Description
rxNodeAlRequests	long	tmnxMobSgwGaStatRxNodeAlRequests	The value of tmnxMobSgwGaStatRxNodeAlRequests indicates the number of node alive request messages received from this peer.
rxNodeAlResps	long	tmnxMobSgwGaStatRxNodeAlResps	The value of tmnxMobSgwGaStatRxNodeAlResps indicates the number of node alive response messages received on this peer.
rxRedirectionReq	long	tmnxMobSgwGaStatRxRedirectionReq	The value of tmnxMobSgwGaStatRxRedirectionReq indicates the number of redirection request messages received from this peer.
rxVerNotSupp	long	tmnxMobSgwGaStatRxVerNotSupp	The value of tmnxMobSgwGaStatRxVerNotSupp indicates the number of version not supported messages received from this peer.
txCdrMaxChngCond	long	tmnxMobSgwGaStatTxCdrMaxChngCond	The value of tmnxMobSgwGaStatTxCdrMaxChngCond indicates the number of Charging Data Records (CDR) maximum change condition requests transmitted to this peer.
txCdrMgmtInterv	long	tmnxMobSgwGaStatTxCdrMgmtInterv	The value of tmnxMobSgwGaStatTxCdrMgmtInterv indicates the number of Charging Data Records (CDR) transferred due to management intervention on this peer.
txCdrMsTmzChng	long	tmnxMobSgwGaStatTxCdrMsTmzChng	The value of tmnxMobSgwGaStatTxCdrMsTmzChng indicates the number of Charging Data Records (CDR) MS Time Zone Change requests transmitted to this peer.
txCdrRatChng	long	tmnxMobSgwGaStatTxCdrRatChng	The value of tmnxMobSgwGaStatTxCdrRatChng indicates the number of Charging Data Records (CDR) Radio Access Type (RAT) change requests transmitted to this peer.
txCdrSerNdChLmt	long	tmnxMobSgwGaStatTxCdrSerNdChLmt	The value of tmnxMobSgwGaStatTxCdrSerNdChLmt indicates the number of Charging Data Records (CDR) Serving Node Change Limit requests transmitted to this peer.
txCdrTermination	long	tmnxMobSgwGaStatTxCdrTermination	The value of tmnxMobSgwGaStatTxCdrTermination indicates the number of Charging Data Records (CDR) termination requests transmitted to this peer.
txCdrTimeLimit	long	tmnxMobSgwGaStatTxCdrTimeLimit	The value of tmnxMobSgwGaStatTxCdrTimeLimit indicates the number of Charging Data Records (CDR) time limit requests transmitted to this peer.

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5620 SAM counter name	Type	MIB counter name	Description
txCdrVolLimit	long	tmnxMobSgwGaStatTxCdrVolLimit	The value of tmnxMobSgwGaStatTxCdrVolLimit indicates the number of Charging Data Records (CDR) volume limit requests transmitted to this peer.
txDataRecReqs	long	tmnxMobSgwGaStatTxDataRecReqs	The value of tmnxMobSgwGaStatTxDataRecReqs indicates the number of Data record requests transmitted to this peer.
txDataRecTferReq	long	tmnxMobSgwGaStatTxDataRecTferReq	The value of tmnxMobSgwGaStatTxDataRecTferReq indicates the number of duplicate Data record transfer requests transmitted to this peer.
txEchoRequests	long	tmnxMobSgwGaStatTxEchoRequests	The value of tmnxMobSgwGaStatTxEchoRequests indicates the number of echo request messages transmitted to this peer.
txEchoResponses	long	tmnxMobSgwGaStatTxEchoResponses	The value of tmnxMobSgwGaStatTxEchoResponses indicates the number of echo response messages transmitted to this peer.
txNodeAlRequests	long	tmnxMobSgwGaStatTxNodeAlRequests	The value of tmnxMobSgwGaStatTxNodeAlRequests indicates the number of node alive request messages transmitted from this peer.
txNodeAlResps	long	tmnxMobSgwGaStatTxNodeAlResps	The value of tmnxMobSgwGaStatTxNodeAlResps indicates the number of node alive response messages transmitted to this peer.
txRedrnResp	long	tmnxMobSgwGaStatTxRedrnResp	The value of tmnxMobSgwGaStatTxRedrnResp indicates the number of redirection request messages transmitted to this peer.
txVerNotSupp	long	tmnxMobSgwGaStatTxVerNotSupp	The value of tmnxMobSgwGaStatTxVerNotSupp indicates the number of version not supported messages transmitted to this peer.
unackDataRexReqs	long	tmnxMobSgwGaStatUnackDataRexReqs	The value of tmnxMobSgwGaStatUnackDataRexReqs indicates the number of Data record transfer requests unacknowledged by this peer.
upTime	long	tmnxMobSgwGaStatUpTime	The value of tmnxMobSgwGaStatUpTime indicates the time when the connection comes up.
virtualRouterId	int	vRtrID	—

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Table A-28 Iteli statistics

5620 SAM counter name	Type	MIB counter name	Description
<b>DFPeerStat</b> MIB table name: TIMETRA-MOBILE-GATEWAY-MIB.tmnxMobLiDfPeerTable Monitored class: Iteli.DFPeer			
df2TxPackets	long	tmnxMobLiDf2PeerPktsTx	The value of tmnxMobLiDf2PeerPktsTx indicates the number of packets transmitted to the Delivery Function 2 peer.
peerId	int	tmnxMobLiDfPeer	The value of tmnxMobLiDfPeer uniquely identifies a Delivery Function (DF) peer configured for Lawful Interception (LI) in the system.

Table A-29 Itepmip statistics

5620 SAM counter name	Type	MIB counter name	Description
<b>S2aPeerStats</b> MIB table name: TIMETRA-MOBILE-PDN-MIB.tmnxMobPdnS2aStatTable Monitored class: Itepmip.S2aPeer			
bindingRevocationMesReceived	long	tmnxMobPdnS2aStatBri	The value of tmnxMobPdnS2aStatBri indicates the number of Binding Revocation Indication messages transmitted to this peer.
cardSlotNumber	long	tmnxCardSlotNum	—
chassisIndex	long	tmnxChassisIndex	—
failedBindingRevocationAck	long	tmnxMobPdnS2aStatBraF ailure	The value of tmnxMobPdnS2aStatBraFailure indicates the number of failed Binding Revocation Acknowledgements received from this peer.
failedProxyBindingAckTransmitted	long	tmnxMobPdnS2aStatPbaF ailure	The value of tmnxMobPdnS2aStatPbaFailure indicates the number of failed Proxy Binding Acknowledgements transmitted to this peer.
heartBeatReqMsgReceived	long	tmnxMobPdnS2aStatHeartBeatReqRx	The value of tmnxMobPdnS2aStatHeartBeatReqRx indicates the number of heartbeat request messages received from this peer.
heartBeatReqMsgTransmitted	long	tmnxMobPdnS2aStatHeartBeatReqTx	The value of tmnxMobPdnS2aStatHeartBeatReqTx indicates the number of heartbeat request messages transmitted to this peer.
heartBeatResponseMsgReceived	long	tmnxMobPdnS2aStatHeartBeatRespRx	The value of tmnxMobPdnS2aStatHeartBeatRespRx indicates the number of heartbeat response messages received from this peer.

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5620 SAM counter name	Type	MIB counter name	Description
heartBeatResponseMsgTransmitted	long	tmnxMobPdnS2aStatHeartBeatRespTx	The value of tmnxMobPdnS2aStatHeartBeatRespTx indicates the number of heartbeat response messages transmitted to this peer.
isPGWcompatiblewithIPv6	boolean	tmnxMobPdnS2aStatHBCompatible	The value of tmnxMobPdnS2aStatHBCompatible indicates if the Packet Data Network Gateway (PGW) detects the peer to be compatible with Proxy Mobile IPv6 (PMIPv6) heartbeat mechanism. REFERENCE RFC 5847.
malformedPacketsReceived	long	tmnxMobPdnS2aStatRxMalformedPkts	The value of tmnxMobPdnS2aStatRxMalformedPkts indicates the number of malformed packets received from this peer.
missingInfoElementPacketsReceived	long	tmnxMobPdnS2aStatRxMissingPkts	The value of tmnxMobPdnS2aStatRxMissingPkts indicates the number of missing mandatory Information Element (IE) packets received from this peer.
pathManagementFailures	long	tmnxMobPdnS2aStatPathMgmtFail	The value of tmnxMobPdnS2aStatPathMgmtFail indicates the number of path management failures for this peer.
peerIpAddress	String	tmnxMobPdnS2aStatPeerAddress	The value of tmnxMobPdnS2aStatPeerAddress indicates the IP address of the peer on S2a reference point.
peerIpAddressType	int	tmnxMobPdnS2aStatPeerAddressType	The value of tmnxMobPdnS2aStatPeerAddressType indicates the type of address represented by tmnxMobPdnS2aStatPeerAddress.
peerRestartCount	long	tmnxMobPdnS2aStatPeerRestartCnt	The value of tmnxMobPdnS2aStatPeerRestartCnt indicates the counter value of the number of times this peer restarted.
peerRestarts	long	tmnxMobPdnS2aStatPeerRestart	The value of tmnxMobPdnS2aStatPeerRestart indicates if the peer has restarted after registering with the Packet Data Network Gateway (PGW).
peerTcpPort	int	tmnxMobPdnS2aStatPeerPort	The value of tmnxMobPdnS2aStatPeerPort indicates the port number of this peer.
proxyBindingUpdatesReceived	long	tmnxMobPdnS2aStatPbu	The value of tmnxMobPdnS2aStatPbu indicates the number of Proxy Binding Updates received from this peer.
successfulBindingRevocationAck	long	tmnxMobPdnS2aStatBraSuccess	The value of tmnxMobPdnS2aStatBraSuccess indicates the number of successful Binding Revocation Acknowledgements received from this peer.
successfulProxyBindingTransmitted	long	tmnxMobPdnS2aStatPbaSuccess	The value of tmnxMobPdnS2aStatPbaSuccess indicates the number of successful Proxy Binding transmitted to this peer.

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5620 SAM counter name	Type	MIB counter name	Description
unknownTypePacketsReceived	long	tmnxMobPdnS2aStatRxUnknownPkts	The value of tmnxMobPdnS2aStatRxUnknownPkts indicates the number of unknown message type packets received from this peer.
virtualRouterId	int	vRtrID	—
<b>S6bPeerStats</b> MIB table name: TIMETRA-MOBILE-PDN-MIB.tmnxMobPdnS6bStatTable Monitored class: ltepmip.S6bPeer			
cardSlotNumber	long	tmnxCardSlotNum	—
chassisIndex	long	tmnxChassisIndex	—
epcId	long	tmnxMobGwId	The value of tmnxMobGwId uniquely identifies a mobile gateway configured in the system.
pdnS6bStatAAADetachRx	long	tmnxMobPdnS6bStatAAADetachRx	The value of tmnxMobPdnS6bStatAAADetachRx indicates the number of AA Answer messages received from this peer for a detach.
pdnS6bStatAAAEExtRx	long	tmnxMobPdnS6bStatAAAEExtRx	The value of tmnxMobPdnS6bStatAAAEExtRx indicates the number of AA Answer messages received from this peer for a lifetime extension.
pdnS6bStatAAAInitAtchRx	long	tmnxMobPdnS6bStatAAAInitAtchRx	The value of tmnxMobPdnS6bStatAAAInitAtchRx indicates the number of AA Answer messages received from this peer for an initial attach.
pdnS6bStatAAAMissAVPPktRx	long	tmnxMobPdnS6bStatAAAMissAVPPktRx	The value of tmnxMobPdnS6bStatAAAMissAVPPktRx indicates the number of AA Answer messages missing a mandatory attribute received by Packet Data Network Gateway (PGW).
pdnS6bStatAAAReauthRx	long	tmnxMobPdnS6bStatAAAReauthRx	The value of tmnxMobPdnS6bStatAAAReauthRx indicates the number of AA Answer messages received from this peer for a reauthorization.
pdnS6bStatAAARejectRx	long	tmnxMobPdnS6bStatAAARejectRx	The value of tmnxMobPdnS6bStatAAARejectRx indicates the number of AA Answer messages received from this peer with Result-Code not set to diameter success.
pdnS6bStatAAASuccessRx	long	tmnxMobPdnS6bStatAAASuccessRx	The value of tmnxMobPdnS6bStatAAASuccessRx indicates the number of AA Answer messages received from this peer with Result-Code set to diameter success.

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5620 SAM counter name	Type	MIB counter name	Description
pdnS6bStatAAUnknSesPktRx	long	tmnxMobPdnS6bStatAAUnknSesPktRx	The value of tmnxMobPdnS6bStatAAUnknSesPktRx indicates the number of AA answer messages received by the Packet Data Network Gateway (PGW) for which a session does not exist.
pdnS6bStatAARDetachTx	long	tmnxMobPdnS6bStatAARDetachTx	The value of tmnxMobPdnS6bStatAARDetachTx indicates the number of AA Request messages transmitted to this peer when detaching a session.
pdnS6bStatAARExtnTx	long	tmnxMobPdnS6bStatAARExtnTx	The value of tmnxMobPdnS6bStatAARExtnTx indicates the number of AA Request messages transmitted to this peer on behalf of a lifetime extension.
pdnS6bStatAARInitTx	long	tmnxMobPdnS6bStatAARInitTx	The value of tmnxMobPdnS6bStatAARInitTx indicates the number of AA Request messages transmitted to this peer on behalf of an initial attach.
pdnS6bStatAARReauthTx	long	tmnxMobPdnS6bStatAARReauthTx	The value of tmnxMobPdnS6bStatAARReauthTx indicates the number of AA Request messages transmitted to this peer during a reauthorization.
pdnS6bStatAARRetries	long	tmnxMobPdnS6bStatAARRetries	The value of tmnxMobPdnS6bStatAARRetries indicates the number of times the Packet Data Network Gateway (PGW) retried to send an AA Request.
pdnS6bStatASAnswerTx	long	tmnxMobPdnS6bStatASAnswerTx	The value of tmnxMobPdnS6bStatASAnswerTx indicates the number of Abort session answer messages transmitted by the Packet Data Network Gateway (PGW).
pdnS6bStatASRequestRx	long	tmnxMobPdnS6bStatASRequestRx	The value of tmnxMobPdnS6bStatASRequestRx indicates the number of abort session request messages received by the Packet Data Network Gateway (PGW).
pdnS6bStatASRMissAVPPktRx	long	tmnxMobPdnS6bStatASRMissAVPPktRx	The value of tmnxMobPdnS6bStatASRMissAVPPktRx indicates the number of abort session request messages missing a mandatory parameter received by the Packet Data Network Gateway (PGW).
pdnS6bStatCEAMsgsRx	long	tmnxMobPdnS6bStatCEAMsgsRx	The value of tmnxMobPdnS6bStatCEAMsgsRx indicates the number of Capability Exchange Answer (CEA) messages received from this peer.
pdnS6bStatCERMsgsTx	long	tmnxMobPdnS6bStatCERMsgsTx	The value of tmnxMobPdnS6bStatCERMsgsTx indicates the number of Capability Exchange Request (CER) messages transmitted to this peer.

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5620 SAM counter name	Type	MIB counter name	Description
pdnS6bStatConnAttempts	long	tmnxMobPdnS6bStatConnAttempts	The value of tmnxMobPdnS6bStatConnAttempts indicates the number of connections attempted to this peer.
pdnS6bStatConnFailures	long	tmnxMobPdnS6bStatConnFailures	The value of tmnxMobPdnS6bStatConnFailures indicates the number of failed connections with this peer.
pdnS6bStatDPAMsgsRx	long	tmnxMobPdnS6bStatDPA MsgsRx	The value of tmnxMobPdnS6bStatDPAMsgsRx indicates the number of Disconnect Peer Answer (DPA) messages received from this peer.
pdnS6bStatDPAMsgsTx	long	tmnxMobPdnS6bStatDPA MsgsTx	The value of tmnxMobPdnS6bStatDPAMsgsTx indicates the number of Disconnect Peer Answer (DPA) messages transmitted to this peer.
pdnS6bStatDPRMsgsRx	long	tmnxMobPdnS6bStatDPR MsgsRx	The value of tmnxMobPdnS6bStatDPRMsgsRx indicates the number of Disconnect Peer Request (DPR) messages received from this peer.
pdnS6bStatDPRMsgsTx	long	tmnxMobPdnS6bStatDPR MsgsTx	The value of tmnxMobPdnS6bStatDPRMsgsTx indicates the number of Disconnect Peer Request (DPR) messages transmitted to this peer.
pdnS6bStatDWAMsgsRx	long	tmnxMobPdnS6bStatDWA MsgsRx	The value of tmnxMobPdnS6bStatDWAMsgsRx indicates the number of Device Watch Answer (DWA) messages received from this peer.
pdnS6bStatDWAMsgsTx	long	tmnxMobPdnS6bStatDWA MsgsTx	The value of tmnxMobPdnS6bStatDWAMsgsTx indicates the number of Device Watch Answer (DWA) messages transmitted to this peer.
pdnS6bStatDWRMsgsRx	long	tmnxMobPdnS6bStatDWR MsgsRx	The value of tmnxMobPdnS6bStatDWRMsgsRx indicates the number of Device Watchdog Request (DWR) messages received from this peer.
pdnS6bStatDWRMsgsTx	long	tmnxMobPdnS6bStatDWR MsgsTx	The value of tmnxMobPdnS6bStatDWRMsgsTx indicates the number of Device Watchdog Request (DWR) messages transmitted to this peer.
pdnS6bStatMessagesRx	long	tmnxMobPdnS6bStatMess agesRx	The value of tmnxMobPdnS6bStatMessagesRx indicates the total number of s6b application messages received from this peer.
pdnS6bStatMessagesTx	long	tmnxMobPdnS6bStatMess agesTx	The value of tmnxMobPdnS6bStatMessagesTx indicates the total number of s6b application messages transmitted to this peer.
pdnS6bStatRAAnswerTx	long	tmnxMobPdnS6bStatRAAn swerTx	The value of tmnxMobPdnS6bStatRAAnswerTx indicates the number of reauthorization answer messages transmitted by the Packet Data Network Gateway (PGW).

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5620 SAM counter name	Type	MIB counter name	Description
pdnS6bStatRARRequestRx	long	tmnxMobPdnS6bStatRARRequestRx	The value of tmnxMobPdnS6bStatRARRequestRx indicates the number of reauthorization request messages received by the Packet Data Network Gateway (PGW).
pdnS6bStatRARMissAVPPktRx	long	tmnxMobPdnS6bStatRARMissAVPPktRx	The value of tmnxMobPdnS6bStatRARMissAVPPktRx indicates the number of reauthorization request messages missing a mandatory attribute received by the Packet Data Network Gateway (PGW).
pdnS6bStatRxInvalidCea	long	tmnxMobPdnS6bStatRxInvalidCea	The value of tmnxMobPdnS6bStatRxInvalidCea indicates the number of invalid Capabilities Exchange Answer (CEA) messages received from this peer.
pdnS6bStatRxMsgTooBig	long	tmnxMobPdnS6bStatRxMsgTooBig	The value of tmnxMobPdnS6bStatRxMsgTooBig indicates the number of oversize messages received from this peer.
pdnS6bStatRxMsgTooSmall	long	tmnxMobPdnS6bStatRxMsgTooSmall	The value of tmnxMobPdnS6bStatRxMsgTooSmall indicates the number of small messages received from this peer.
pdnS6bStatRxMsgUnexpctVer	long	tmnxMobPdnS6bStatRxMsgUnexpctVer	The value of tmnxMobPdnS6bStatRxMsgUnexpctVer indicates the number of unexpected version messages received from this peer.
pdnS6bStatRxTransportDisc	long	tmnxMobPdnS6bStatRxTransportDisc	The value of tmnxMobPdnS6bStatRxTransportDisc indicates the number of remote transport disconnect messages received from this peer.
pdnS6bStatSTAMissAVPPktRx	long	tmnxMobPdnS6bStatSTAMissAVPPktRx	The value of tmnxMobPdnS6bStatSTAMissAVPPktRx indicates the number of session termination answer messages missing a mandatory attribute received by the Packet Data Network Gateway (PGW).
pdnS6bStatSTAnswerRx	long	tmnxMobPdnS6bStatSTAnswerRx	The value of tmnxMobPdnS6bStatSTAnswerRx indicates the number of session termination answer messages received by the Packet Data Network Gateway (PGW).
pdnS6bStatSTRequestTx	long	tmnxMobPdnS6bStatSTRequestTx	The value of tmnxMobPdnS6bStatSTRequestTx indicates the number of session termination request messages transmitted by the Packet Data Network Gateway (PGW).
pdnS6bStatSTRRetries	long	tmnxMobPdnS6bStatSTRRetries	The value of tmnxMobPdnS6bStatSTRRetries indicates the number of times the Packet Data Network Gateway (PGW) retried to send an session termination request.

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5620 SAM counter name	Type	MIB counter name	Description
pdnS6bStatTxRetransmitMsgs	long	tmnxMobPdnS6bStatTxRetransmitMsgs	The value of tmnxMobPdnS6bStatTxRetransmitMsgs indicates the number of retransmit messages transmitted to this peer.
peerIpAddress	String	tmnxMobPdnS6bPeerAddress	The value of tmnxMobPdnS6bPeerAddress indicates the IP address of the peer on S6b reference point.
peerIpAddressType	int	tmnxMobPdnS6bPeerAddressType	The value of tmnxMobPdnS6bPeerAddressType indicates the type of address represented by tmnxMobPdnS6bPeerAddress.
peerTcpPort	int	tmnxMobPdnS6bPeerPort	The value of tmnxMobPdnS6bPeerPort indicates the port number of this peer.
virtualRouterId	int	vRtrID	—

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Table A-30 Iteradius statistics

5620 SAM counter name	Type	MIB counter name	Description
<b>PdnRadiusPeerStats</b> MIB table name: TIMETRA-MOBILE-PDN-MIB.tmnxMobPdnRadStatTable Monitored class: Iteradius.PdnRadiusPeer			
cardSlotNumber	long	tmnxCardSlotNum	—
chassisIndex	long	tmnxChassisIndex	—
epcId	long	tmnxMobGwId	The value of tmnxMobGwId uniquely identifies a mobile gateway configured in the system.
pdnRadStatAccessAcceptRx	long	tmnxMobPdnRadStatAccessAcceptRx	The value of tmnxMobPdnRadStatAccessAcceptRx indicates the number of Access-Accept messages received by the PGW/GGSN. This includes messages that may be discarded due to errors.
pdnRadStatAccessRejectRx	long	tmnxMobPdnRadStatAccessRejectRx	The value of tmnxMobPdnRadStatAccessRejectRx indicates the number of Access-Reject messages received by the PGW/GGSN.
pdnRadStatAccessReqTx	long	tmnxMobPdnRadStatAccessReqTx	The value of tmnxMobPdnRadStatAccessReqTx indicates the number of Access-Request messages sent by the Packet Data Network Gateway (PGW)/Gateway GPRS Service Node (GGSN).
pdnRadStatAcctReqIntrmTx	long	tmnxMobPdnRadStatAcctReqIntrmTx	The value of tmnxMobPdnRadStatAcctReqIntrmTx indicates the number of Accounting-Request interim messages sent by the PGW/GGSN.

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5620 SAM counter name	Type	MIB counter name	Description
pdnRadStatAcctReqStartTx	long	tmnxMobPdnRadStatAcctReqStartTx	The value of tmnxMobPdnRadStatAcctReqStartTx indicates the number of Accounting-Request start messages sent by the PGW/GGSN.
pdnRadStatAcctReqStopTx	long	tmnxMobPdnRadStatAcctReqStopTx	The value of tmnxMobPdnRadStatAcctReqStopTx indicates the number of Accounting-Request stop messages sent by the PGW/GGSN.
pdnRadStatAcctResponseRx	long	tmnxMobPdnRadStatAcctResponseRx	The value of tmnxMobPdnRadStatAcctResponseRx indicates the number of Accounting-Response messages received by the PGW/GGSN.
pdnRadStatAuthError	long	tmnxMobPdnRadStatAuthError	The value of tmnxMobPdnRadStatAuthError indicates the number of invalid authenticator values in the Access-Response or Accounting-Response messages.
pdnRadStatDiscAckTx	long	tmnxMobPdnRadStatDiscAckTx	The value of tmnxMobPdnRadStatDiscAckTx indicates the number of Disconnect-ACK messages sent by the PGW/GGSN.
pdnRadStatDiscAuthError	long	tmnxMobPdnRadStatDiscAuthError	The value of tmnxMobPdnRadStatDiscAuthError indicates the number of invalid authenticator values in the Disconnect-Request messages.
pdnRadStatDiscMandAttrMiss	long	tmnxMobPdnRadStatDiscMandAttrMiss	The value of tmnxMobPdnRadStatDiscMandAttrMiss indicates the number of Disconnect-Request messages with missing mandatory attribute.
pdnRadStatDiscNakTx	long	tmnxMobPdnRadStatDiscNakTx	The value of tmnxMobPdnRadStatDiscNakTx indicates the number of The number of Disconnect-NAK messages sent by the PGW/GGSN.
pdnRadStatDiscReqRx	long	tmnxMobPdnRadStatDiscReqRx	The value of tmnxMobPdnRadStatDiscReqRx indicates the number of Disconnect-Request messages received by the PGW/GGSN.
pdnRadStatDiscSessNotFnd	long	tmnxMobPdnRadStatDiscSessNotFnd	The value of tmnxMobPdnRadStatDiscSessNotFnd indicates the number of inactive sessions found by Disconnect-Request messages.
pdnRadStatDiscUnexpcCode	long	tmnxMobPdnRadStatDiscUnexpcCode	The value of tmnxMobPdnRadStatDiscUnexpcCode indicates the number of unexpected messages recieved by the PGW/GGSN for Disconnect Requests.

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5620 SAM counter name	Type	MIB counter name	Description
pdnRadStatDiscUnsupprAttr	long	tmnxMobPdnRadStatDiscUnsupprAttr	The value of tmnxMobPdnRadStatDiscUnsupprAttr indicates the number of Disconnect-Request messages with an unrecognized/unsupported attribute.
pdnRadStatLastChanged	long	tmnxMobPdnRadStatLastChanged	The value of tmnxMobPdnRadStatLastChanged indicates the timestamp of the last change to this row in tmnxMobPdnRadStatTable.
pdnRadStatMandAttrErrors	long	tmnxMobPdnRadStatMandAttrErrors	The value of tmnxMobPdnRadStatMandAttrErrors indicates the number of Access-Accept messages contains an invalid or errored mandatory attribute.
pdnRadStatMandAttrMissing	long	tmnxMobPdnRadStatMandAttrMissing	The value of tmnxMobPdnRadStatMandAttrMissing indicates the number of Access-Accept messages with missing mandatory attribute. When the Access-Request is intended for IP address allocation, the response must contain a Framed-IP-Address, Framed-Pool, Framed-IPv6-Prefix or Framed-IPv6-Pool. When the Access-Request is used for pre-authentication, the Timetra-APN-Name attribute should be considered mandatory.
pdnRadStatMsgFinalTimeout	long	tmnxMobPdnRadStatMsgFinalTimeout	The value of tmnxMobPdnRadStatMsgFinalTimeout indicates the number of times when PGW/GGSN has exhausted its attempts to deliver this message.
pdnRadStatOptionalAttrErr	long	tmnxMobPdnRadStatOptionalAttrErr	The value of tmnxMobPdnRadStatOptionalAttrErr indicates the number of Access-Accept messages contains an invalid or errored optional attribute.
pdnRadStatPrFinalTimeout	long	tmnxMobPdnRadStatPrFinalTimeout	The value of tmnxMobPdnRadStatPrFinalTimeout indicates the number of times when PGW/GGSN has exhausted retries and timeouts for Access-Request or Accounting-Request.
pdnRadStatRespTime1to4	long	tmnxMobPdnRadStatRespTime1to4	The value of tmnxMobPdnRadStatRespTime1to4 indicates the number of Access-Request/Access-Response messages received between 1 and 4 seconds after the Access-Request/Accounting-Request was generated.

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5620 SAM counter name	Type	MIB counter name	Description
pdnRadStatRespTimeAbove4	long	tmnxMobPdnRadStatRespTimeAbove4	The value of tmnxMobPdnRadStatRespTimeAbove4 indicates the number of Access-Request/Access-Response messages received in more than 4 seconds after the Access-Request/Accounting-Request was generated. This should include messages received after the configured retry-timeout.
pdnRadStatRespTimeBelow1	long	tmnxMobPdnRadStatRespTimeBelow1	The value of tmnxMobPdnRadStatRespTimeBelow1 indicates the number of Access-Request/Access-Response messages received in less than 1 second after the Access-Request/Accounting-Request was generated.
pdnRadStatRetries	long	tmnxMobPdnRadStatRetries	The value of tmnxMobPdnRadStatRetries indicates the number of retries done to send a RADIUS message. This counter covers all RADIUS message types the PGW/GGSN is sending.
pdnRadStatUnexpectedCode	long	tmnxMobPdnRadStatUnexpectedCode	The value of tmnxMobPdnRadStatUnexpectedCode indicates the number of unexpected messages received by the PGW/GGSN. The unexpected messages can be such as an Access-Request, Accounting-Request or any response for a request that it did not send or it received for the RADIUS code that is not supported.
pdnRadStatUnsupportedAttr	long	tmnxMobPdnRadStatUnsupportedAttr	The value of tmnxMobPdnRadStatUnsupportedAttr indicates the number of Access-Accept messages contains an unrecognized/unsupported attribute.
peerIpAddress	String	tmnxMobPdnRadPeerAddress	The value of tmnxMobPdnRadPeerAddress indicates the IP address of the Radius peer.
peerIpAddressType	int	tmnxMobPdnRadPeerAddressType	The value of tmnxMobPdnRadPeerAddressType indicates the type of address represented by tmnxMobPdnRadPeerAddress.
radiusGroupProfileName	String	tmnxMobProfRadGrpName	—
radiusPeerProfileIndex	long	tmnxMobProfRadPeerIndex	—
virtualRouterId	int	vRtrID	—

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Table A-31 mld statistics

5620 SAM counter name	Type	MIB counter name	Description
<b>InterfaceStats</b> MIB table name: TIMETRA-MLD-MIB.vRtrMldIfStatsTable Monitored class: mld.Interface			
importPolicyDrops	long	vRtrMldIfImportPolicyDrops	The value of vRtrMldIfImportPolicyDrops indicates the total number of times the MLD protocol instance matched the host IP address or group or source addresses specified in the import policy vRtrMldIfImportPolicy.
rxBadChecksumPkts	long	vRtrMldIfRxBadChecksumPkts	The value of vRtrMldIfRxBadChecksumPkts indicates the total number of MLD packets with bad checksum received on this interface.
rxBadEncodings	long	vRtrMldIfRxBadEncodings	The value of vRtrMldIfRxBadEncodings indicates the total number of MLD packets received on this interface which were not encoded correctly.
rxBadLenPkts	long	vRtrMldIfRxBadLenPkts	The value of vRtrMldIfRxBadLenPkts indicates the total number of MLD packets with bad length received on this interface.
rxBadReceiveIfPkts	long	vRtrMldIfRxBadReceiveIfPkts	The value of vRtrMldIfRxBadReceiveIfPkts indicates the total number of MLD packets incorrectly received on this interface.
rxGenQueries	long	vRtrMldIfRxGenQueries	The value of vRtrMldIfRxGenQueries indicates the total number of MLD General Queries received on this interface.
rxGrpQueries	long	vRtrMldIfRxGrpQueries	The value of vRtrMldIfRxGrpQueries indicates the number of MLD Group Specific Queries received on this interface.
rxGrpSrcQueries	long	vRtrMldIfRxGrpSrcQueries	The value of vRtrMldIfRxGrpSrcQueries indicates the number of MLD Group and Source Specific Queries received on this interface.
rxLeaves	long	vRtrMldIfRxLeaves	The value of vRtrMldIfRxLeaves indicates the total number of MLD V2 Leaves received on this interface.
rxLocalScopePkts	long	vRtrMldIfRxLocalScopePkts	The value of the object vRtrMldIfRxLocalScopePkts indicates the number of MLD packets received on the link-local scope IPv6 multicast address.
rxNonLocal	long	vRtrMldIfRxNonLocal	The value of vRtrMldIfRxNonLocal indicates the total number of MLD packets received from a non-local sender.
rxNoRtrAlertPkts	long	vRtrMldIfRxNoRtrAlertPkts	The value of vRtrMldIfRxNoRtrAlertPkts indicates the total number of MLDv3 packets received on this interface which did not have the router alert flag set.

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5620 SAM counter name	Type	MIB counter name	Description
rxPktDrops	long	vRtrMldIfRxPktDrops	The value of vRtrMldIfRxPktDrops indicates the total number of MLD packets that were received on this interface but were dropped.
rxRsvdScopePkts	long	vRtrMldIfRxRsvdScopePkts	The value of the object vRtrMldIfRxRsvdScopePkts indicates the number of MLD packets received on the reserved scope IPv6 multicast address.
rxUnknownTypePkts	long	vRtrMldIfRxUnknownTypePkts	The value of vRtrMldIfRxUnknownTypePkts indicates the total number of MLD packets with unknown type received on this interface.
rxV1Reports	long	vRtrMldIfRxV1Reports	The value of vRtrMldIfRxV1Reports indicates the total number of MLD V1 Reports received on this interface.
rxV2Reports	long	vRtrMldIfRxV2Reports	The value of vRtrMldIfRxV2Reports indicates the total number of MLD V2 Reports received on this interface.
rxWrongVersions	long	vRtrMldIfRxWrongVersions	The value of vRtrMldIfRxWrongVersions indicates the total number of MLD packets with wrong versions received on this interface.
statsSGTypes	long	vRtrMldIfStatsSGTypes	The value of vRtrMldIfStatsSGTypes indicates the number of entries on this interface for which the source type is 'sg'.
statsStarGTypes	long	vRtrMldIfStatsStarGTypes	vRtrMldIfStatsStarGTypes indicates the number of entries on this interface for which the source type is 'starG'.
txErrors	long	vRtrMldIfTxErrors	The value of vRtrMldIfTxErrors indicates the total number of times there was an error transmitting the MLD packets on this interface.
txGenQueries	long	vRtrMldIfTxGenQueries	The value of vRtrMldIfTxGenQueries indicates the number of MLD General Queries transmitted on this interface.
txGrpQueries	long	vRtrMldIfTxGrpQueries	The value of vRtrMldIfTxGrpQueries indicates the number of MLD Group Specific Queries transmitted on this interface.
txGrpSrcQueries	long	vRtrMldIfTxGrpSrcQueries	The value of vRtrMldIfTxGrpSrcQueries indicates the number of MLD Group and Source Specific Queries transmitted on this interface.
txLeaves	long	vRtrMldIfTxLeaves	The value of vRtrMldIfTxLeaves indicates the total number of MLD Leaves transmitted on this interface.
txV1Reports	long	vRtrMldIfTxV1Reports	The value of vRtrMldIfTxV1Reports indicates the total number of MLD V1 Reports transmitted on this interface.
txV2Reports	long	vRtrMldIfTxV2Reports	The value of vRtrMldIfTxV2Reports indicates the total number of MLD V2 Reports transmitted on this interface.

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5620 SAM counter name	Type	MIB counter name	Description
<b>SiteStats</b> MIB table name: TIMETRA-MLD-MIB.vRtrMldGenStatsTable Monitored class: mld.Site			
statsSGTypes	long	vRtrMldGenStatsSGTypes	The value of vRtrMldGenStatsSGTypes indicates the number of entries in vRtrMldGrpSrcTable for which the source type is 'sg'.
statsStarGTypes	long	vRtrMldGenStatsStarGTypes	The value of vRtrMldGenStatsStarGTypes indicates the number of entries in vRtrMldGrpSrcTable for which the source type is 'starG'.

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Table A-32 mpls statistics

5620 SAM counter name	Type	MIB counter name	Description
<b>DynamicLspStats</b> MIB table name: TIMETRA-MPLS-MIB.vRtrMplsLspStatTable Monitored class: mpls.DynamicLsp			
configuredPaths	long	vRtrMplsLspConfiguredPaths	The number of paths configured for this LSP.
operationalPaths	long	vRtrMplsLspOperationalPaths	The number of operational paths for this LSP. This includes the path currently active, as well as operational standby paths.
pathChanges	long	vRtrMplsLspPathChanges	The number of path changes this LSP has had. For every path change (path down, path up, path change), a corresponding syslog/trap (if enabled) is generated for it.
standbyPaths	long	vRtrMplsLspStandbyPaths	The number of standby paths configured for this LSP.
timeSinceLastPathChange	long	vRtrMplsLspLastPathChange	The time in 10-millisecond units since the last change occurred on this LSP.
timeSinceLastPrimaryUpState	long	vRtrMplsLspPrimaryTimeUp	The total time in 10-millisecond units that this LSP's primary path has been operational. For example, the percentage contribution of the primary path to the operational time is given by $(vRtrMplsLspPrimaryTimeUp / vRtrMplsLspTimeUp * 100)$ .
<b>LspPathStats</b> MIB table name: TIMETRA-MPLS-MIB.vRtrMplsLspPathStatTable Monitored class: mpls.LspPath			
cspfQueries	long	vRtrMplsLspPathCspfQueries	The value of vRtrMplsLspPathCspfQueries specifies the number of CSPF queries that have been made for this LSP path.

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5620 SAM counter name	Type	MIB counter name	Description
retryAttempts	long	vRtrMplsLspPathRetryAttempts	The number of unsuccessful attempts which have been made to signal this path. As soon as the path gets signalled, this is set to 0.
timeDown	long	vRtrMplsLspPathTimeDown	The total time in 10-millisecond units that this LSP Path has not been operational.
timeUp	long	vRtrMplsLspPathTimeUp	The total time in 10-millisecond units that this LSP path has been operational. For example, the percentage up time can be determined by computing $(vRtrMplsLspPathTimeUp / vRtrMplsLspAge * 100)$ .
transitionCount	long	vRtrMplsLspPathTransitionCount	The object vRtrMplsLspPathTransitionCount maintains the number of transitions that have occurred for this LSP.
<b>LspStats</b> MIB table name: TIMETRA-MPLS-MIB.vRtrMplsLspStatTable Monitored classes: <ul style="list-style-type: none"> <li>mpls.DynamicLsp</li> <li>mpls.StaticLsp</li> <li>mpls.BypassOnlyLsp</li> </ul>			
age	long	vRtrMplsLspAge	The age (i.e., time from creation till now) of this LSP in 10-millisecond periods.
timeSinceLastDownState	long	vRtrMplsLspTimeDown	The total time in 10-millisecond units that this LSP has not been operational.
timeSinceLastTransition	long	vRtrMplsLspLastTransition	The time in 10-millisecond units since the last transition occurred on this LSP.
timeSinceLastUpState	long	vRtrMplsLspTimeUp	The total time in 10-millisecond units that this LSP has been operational. For example, the percentage up time can be determined by computing $(vRtrMplsLspTimeUp / vRtrMplsLspAge * 100)$ .
transitions	long	vRtrMplsLspTransitions	The number of state transitions (up -> down and down -> up) this LSP has undergone.
<b>MplsInterfaceStats</b> MIB table name: TIMETRA-MPLS-MIB.vRtrMplsIfStatTable Monitored class: mpls.Interface			
receiveOctets	UINT128	vRtrMplsIfRxOctetCount	The total number of bytes in MPLS labeled packets received on this interface.
receivePackets	UINT128	vRtrMplsIfRxPktCount	The total number of MPLS labeled packets received on this interface.
transmitOctets	UINT128	vRtrMplsIfTxOctetCount	The total number of bytes in MPLS labeled packets transmitted on this interface.
transmitPackets	UINT128	vRtrMplsIfTxPktCount	The total number of MPLS labeled packets transmitted from this interface.

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5620 SAM counter name	Type	MIB counter name	Description
<b>MplsLspEgressStats</b> MIB table name: TIMETRA-MPLS-MIB.vRtrMplsLspStatisticsTable Monitored class: mpls.DynamicLsp			
mplsInProfileOctetsFc0	UINT128	vRtrMplsInProfileOctetsFc0	The value of vRtrMplsInProfileOctetsFc0 indicates the number of in profile octets received for Forwarding Class 0.
mplsInProfileOctetsFc1	UINT128	vRtrMplsInProfileOctetsFc1	The value of vRtrMplsInProfileOctetsFc1 indicates the number of in profile octets received for Forwarding Class 1.
mplsInProfileOctetsFc2	UINT128	vRtrMplsInProfileOctetsFc2	The value of vRtrMplsInProfileOctetsFc2 indicates the number of in profile octets received for Forwarding Class 2.
mplsInProfileOctetsFc3	UINT128	vRtrMplsInProfileOctetsFc3	The value of vRtrMplsInProfileOctetsFc3 indicates the number of in profile octets received for Forwarding Class 3.
mplsInProfileOctetsFc4	UINT128	vRtrMplsInProfileOctetsFc4	The value of vRtrMplsInProfileOctetsFc4 indicates the number of in profile octets received for Forwarding Class 4.
mplsInProfileOctetsFc5	UINT128	vRtrMplsInProfileOctetsFc5	The value of vRtrMplsInProfileOctetsFc5 indicates the number of in profile octets received for Forwarding Class 5.
mplsInProfileOctetsFc6	UINT128	vRtrMplsInProfileOctetsFc6	The value of vRtrMplsInProfileOctetsFc6 indicates the number of in profile octets received for Forwarding Class 6.
mplsInProfileOctetsFc7	UINT128	vRtrMplsInProfileOctetsFc7	The value of vRtrMplsInProfileOctetsFc7 indicates the number of in profile octets received for Forwarding Class 7.
mplsInProfilePktsFc0	UINT128	vRtrMplsInProfilePktsFc0	The value of vRtrMplsInProfilePktsFc0 indicates the number of in profile packets received for Forwarding Class 0.
mplsInProfilePktsFc1	UINT128	vRtrMplsInProfilePktsFc1	The value of vRtrMplsInProfilePktsFc1 indicates the number of in profile packets received for Forwarding Class 1.
mplsInProfilePktsFc2	UINT128	vRtrMplsInProfilePktsFc2	The value of vRtrMplsInProfilePktsFc2 indicates the number of in profile packets received for Forwarding Class 2.
mplsInProfilePktsFc3	UINT128	vRtrMplsInProfilePktsFc3	The value of vRtrMplsInProfilePktsFc3 indicates the number of in profile packets received for Forwarding Class 3.
mplsInProfilePktsFc4	UINT128	vRtrMplsInProfilePktsFc4	The value of vRtrMplsInProfilePktsFc4 indicates the number of in profile packets received for Forwarding Class 4.
mplsInProfilePktsFc5	UINT128	vRtrMplsInProfilePktsFc5	The value of vRtrMplsInProfilePktsFc5 indicates the number of in profile packets received for Forwarding Class 5.
mplsInProfilePktsFc6	UINT128	vRtrMplsInProfilePktsFc6	The value of vRtrMplsInProfilePktsFc6 indicates the number of in profile packets received for Forwarding Class 6.
mplsInProfilePktsFc7	UINT128	vRtrMplsInProfilePktsFc7	The value of vRtrMplsInProfilePktsFc7 indicates the number of in profile packets received for Forwarding Class 7.

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5620 SAM counter name	Type	MIB counter name	Description
mplsOutOfProfOctetsFc0	UINT128	vRtrMplsOutOfProfOctetsFc0	The value of vRtrMplsOutOfProfOctetsFc0 indicates the number of out of profile octets received for Forwarding Class 0.
mplsOutOfProfOctetsFc1	UINT128	vRtrMplsOutOfProfOctetsFc1	The value of vRtrMplsOutOfProfOctetsFc1 indicates the number of out of profile octets received for Forwarding Class 1.
mplsOutOfProfOctetsFc2	UINT128	vRtrMplsOutOfProfOctetsFc2	The value of vRtrMplsOutOfProfOctetsFc2 indicates the number of out of profile octets received for Forwarding Class 2.
mplsOutOfProfOctetsFc3	UINT128	vRtrMplsOutOfProfOctetsFc3	The value of vRtrMplsOutOfProfOctetsFc3 indicates the number of out of profile octets received for Forwarding Class 3.
mplsOutOfProfOctetsFc4	UINT128	vRtrMplsOutOfProfOctetsFc4	The value of vRtrMplsOutOfProfOctetsFc4 indicates the number of out of profile octets received for Forwarding Class 4.
mplsOutOfProfOctetsFc5	UINT128	vRtrMplsOutOfProfOctetsFc5	The value of vRtrMplsOutOfProfOctetsFc5 indicates the number of out of profile octets received for Forwarding Class 5.
mplsOutOfProfOctetsFc6	UINT128	vRtrMplsOutOfProfOctetsFc6	The value of vRtrMplsOutOfProfOctetsFc6 indicates the number of out of profile octets received for Forwarding Class 6.
mplsOutOfProfOctetsFc7	UINT128	vRtrMplsOutOfProfOctetsFc7	The value of vRtrMplsOutOfProfOctetsFc7 indicates the number of out of profile octets received for Forwarding Class 7.
mplsOutOfProfPktsFc0	UINT128	vRtrMplsOutOfProfPktsFc0	The value of vRtrMplsOutOfProfPktsFc0 indicates the number of out of profile packets received for Forwarding Class 0.
mplsOutOfProfPktsFc1	UINT128	vRtrMplsOutOfProfPktsFc1	The value of vRtrMplsOutOfProfPktsFc1 indicates the number of out of profile packets received for Forwarding Class 1.
mplsOutOfProfPktsFc2	UINT128	vRtrMplsOutOfProfPktsFc2	The value of vRtrMplsOutOfProfPktsFc2 indicates the number of out of profile packets received for Forwarding Class 2.
mplsOutOfProfPktsFc3	UINT128	vRtrMplsOutOfProfPktsFc3	The value of vRtrMplsOutOfProfPktsFc3 indicates the number of out of profile packets received for Forwarding Class 3.
mplsOutOfProfPktsFc4	UINT128	vRtrMplsOutOfProfPktsFc4	The value of vRtrMplsOutOfProfPktsFc4 indicates the number of out of profile packets received for Forwarding Class 4.
mplsOutOfProfPktsFc5	UINT128	vRtrMplsOutOfProfPktsFc5	The value of vRtrMplsOutOfProfPktsFc5 indicates the number of out of profile packets received for Forwarding Class 5.
mplsOutOfProfPktsFc6	UINT128	vRtrMplsOutOfProfPktsFc6	The value of vRtrMplsOutOfProfPktsFc6 indicates the number of out of profile packets received for Forwarding Class 6.
mplsOutOfProfPktsFc7	UINT128	vRtrMplsOutOfProfPktsFc7	The value of vRtrMplsOutOfProfPktsFc7 indicates the number of out of profile packets received for Forwarding Class 7.
psbMatch	boolean	vRtrMplsLspStatsPSBMatch	The value of vRtrMplsLspStatsPSBMatch indicates if a path state block (PSB) match was made against this LSP name.

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5620 SAM counter name	Type	MIB counter name	Description
<b>MplsLspIngressStats</b> MIB table name: TIMETRA-MPLS-MIB.vRtrMplsLspStatisticsTable Monitored class: mpls.IngStatsPolicy			
mplsInProfileOctetsFc0	UINT128	vRtrMplsInProfileOctetsFc0	The value of vRtrMplsInProfileOctetsFc0 indicates the number of in profile octets received for Forwarding Class 0.
mplsInProfileOctetsFc1	UINT128	vRtrMplsInProfileOctetsFc1	The value of vRtrMplsInProfileOctetsFc1 indicates the number of in profile octets received for Forwarding Class 1.
mplsInProfileOctetsFc2	UINT128	vRtrMplsInProfileOctetsFc2	The value of vRtrMplsInProfileOctetsFc2 indicates the number of in profile octets received for Forwarding Class 2.
mplsInProfileOctetsFc3	UINT128	vRtrMplsInProfileOctetsFc3	The value of vRtrMplsInProfileOctetsFc3 indicates the number of in profile octets received for Forwarding Class 3.
mplsInProfileOctetsFc4	UINT128	vRtrMplsInProfileOctetsFc4	The value of vRtrMplsInProfileOctetsFc4 indicates the number of in profile octets received for Forwarding Class 4.
mplsInProfileOctetsFc5	UINT128	vRtrMplsInProfileOctetsFc5	The value of vRtrMplsInProfileOctetsFc5 indicates the number of in profile octets received for Forwarding Class 5.
mplsInProfileOctetsFc6	UINT128	vRtrMplsInProfileOctetsFc6	The value of vRtrMplsInProfileOctetsFc6 indicates the number of in profile octets received for Forwarding Class 6.
mplsInProfileOctetsFc7	UINT128	vRtrMplsInProfileOctetsFc7	The value of vRtrMplsInProfileOctetsFc7 indicates the number of in profile octets received for Forwarding Class 7.
mplsInProfilePktsFc0	UINT128	vRtrMplsInProfilePktsFc0	The value of vRtrMplsInProfilePktsFc0 indicates the number of in profile packets received for Forwarding Class 0.
mplsInProfilePktsFc1	UINT128	vRtrMplsInProfilePktsFc1	The value of vRtrMplsInProfilePktsFc1 indicates the number of in profile packets received for Forwarding Class 1.
mplsInProfilePktsFc2	UINT128	vRtrMplsInProfilePktsFc2	The value of vRtrMplsInProfilePktsFc2 indicates the number of in profile packets received for Forwarding Class 2.
mplsInProfilePktsFc3	UINT128	vRtrMplsInProfilePktsFc3	The value of vRtrMplsInProfilePktsFc3 indicates the number of in profile packets received for Forwarding Class 3.
mplsInProfilePktsFc4	UINT128	vRtrMplsInProfilePktsFc4	The value of vRtrMplsInProfilePktsFc4 indicates the number of in profile packets received for Forwarding Class 4.
mplsInProfilePktsFc5	UINT128	vRtrMplsInProfilePktsFc5	The value of vRtrMplsInProfilePktsFc5 indicates the number of in profile packets received for Forwarding Class 5.
mplsInProfilePktsFc6	UINT128	vRtrMplsInProfilePktsFc6	The value of vRtrMplsInProfilePktsFc6 indicates the number of in profile packets received for Forwarding Class 6.
mplsInProfilePktsFc7	UINT128	vRtrMplsInProfilePktsFc7	The value of vRtrMplsInProfilePktsFc7 indicates the number of in profile packets received for Forwarding Class 7.

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5620 SAM counter name	Type	MIB counter name	Description
mplsOutOfProfOctetsFc0	UINT128	vRtrMplsOutOfProfOctetsFc0	The value of vRtrMplsOutOfProfOctetsFc0 indicates the number of out of profile octets received for Forwarding Class 0.
mplsOutOfProfOctetsFc1	UINT128	vRtrMplsOutOfProfOctetsFc1	The value of vRtrMplsOutOfProfOctetsFc1 indicates the number of out of profile octets received for Forwarding Class 1.
mplsOutOfProfOctetsFc2	UINT128	vRtrMplsOutOfProfOctetsFc2	The value of vRtrMplsOutOfProfOctetsFc2 indicates the number of out of profile octets received for Forwarding Class 2.
mplsOutOfProfOctetsFc3	UINT128	vRtrMplsOutOfProfOctetsFc3	The value of vRtrMplsOutOfProfOctetsFc3 indicates the number of out of profile octets received for Forwarding Class 3.
mplsOutOfProfOctetsFc4	UINT128	vRtrMplsOutOfProfOctetsFc4	The value of vRtrMplsOutOfProfOctetsFc4 indicates the number of out of profile octets received for Forwarding Class 4.
mplsOutOfProfOctetsFc5	UINT128	vRtrMplsOutOfProfOctetsFc5	The value of vRtrMplsOutOfProfOctetsFc5 indicates the number of out of profile octets received for Forwarding Class 5.
mplsOutOfProfOctetsFc6	UINT128	vRtrMplsOutOfProfOctetsFc6	The value of vRtrMplsOutOfProfOctetsFc6 indicates the number of out of profile octets received for Forwarding Class 6.
mplsOutOfProfOctetsFc7	UINT128	vRtrMplsOutOfProfOctetsFc7	The value of vRtrMplsOutOfProfOctetsFc7 indicates the number of out of profile octets received for Forwarding Class 7.
mplsOutOfProfPktsFc0	UINT128	vRtrMplsOutOfProfPktsFc0	The value of vRtrMplsOutOfProfPktsFc0 indicates the number of out of profile packets received for Forwarding Class 0.
mplsOutOfProfPktsFc1	UINT128	vRtrMplsOutOfProfPktsFc1	The value of vRtrMplsOutOfProfPktsFc1 indicates the number of out of profile packets received for Forwarding Class 1.
mplsOutOfProfPktsFc2	UINT128	vRtrMplsOutOfProfPktsFc2	The value of vRtrMplsOutOfProfPktsFc2 indicates the number of out of profile packets received for Forwarding Class 2.
mplsOutOfProfPktsFc3	UINT128	vRtrMplsOutOfProfPktsFc3	The value of vRtrMplsOutOfProfPktsFc3 indicates the number of out of profile packets received for Forwarding Class 3.
mplsOutOfProfPktsFc4	UINT128	vRtrMplsOutOfProfPktsFc4	The value of vRtrMplsOutOfProfPktsFc4 indicates the number of out of profile packets received for Forwarding Class 4.
mplsOutOfProfPktsFc5	UINT128	vRtrMplsOutOfProfPktsFc5	The value of vRtrMplsOutOfProfPktsFc5 indicates the number of out of profile packets received for Forwarding Class 5.
mplsOutOfProfPktsFc6	UINT128	vRtrMplsOutOfProfPktsFc6	The value of vRtrMplsOutOfProfPktsFc6 indicates the number of out of profile packets received for Forwarding Class 6.
mplsOutOfProfPktsFc7	UINT128	vRtrMplsOutOfProfPktsFc7	The value of vRtrMplsOutOfProfPktsFc7 indicates the number of out of profile packets received for Forwarding Class 7.
psbMatch	boolean	vRtrMplsLspStatsPSBMatch	The value of vRtrMplsLspStatsPSBMatch indicates if a path state block (PSB) match was made against this LSP name.

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5620 SAM counter name	Type	MIB counter name	Description
<b>P2MPInstanceStats</b> MIB table name: TIMETRA-MPLS-MIB.vRtrMplsP2mplInstStatTable Monitored class: mpls.P2MPInstance			
configuredS2ls	long	vRtrMplsP2mplInstStatConfiguredS2ls	The value of vRtrMplsP2mplInstStatConfiguredS2ls indicates the number of S2ls configured for this P2MP LSP.
lastS2lChange	long	vRtrMplsP2mplInstStatLastS2lChange	The value of vRtrMplsP2mplInstStatLastS2lChange indicates the time since the last change occurred on this P2MP LSP.
lastS2lTimeDown	long	vRtrMplsP2mplInstStatLastS2lTimeDown	The value of vRtrMplsP2mplInstStatLastS2lTimeDown indicates the total time that this S2l has not been operational.
lastTrans	long	vRtrMplsP2mplInstStatLastTrans	The value of vRtrMplsP2mplInstStatLastTrans indicates the time since the last transition occurred on this P2mp instance.
operationalS2ls	long	vRtrMplsP2mplInstStatOperationalS2ls	The value of vRtrMplsP2mplInstStatOperationalS2ls indicates the number of operational S2ls for this P2MP LSP. This includes the S2ls currently active.
s2lChanges	long	vRtrMplsP2mplInstStatS2lChanges	The value of vRtrMplsP2mplInstStatS2lChanges indicates the number of S2l changes this P2MP LSP has had. For every S2l change (S2l down, S2l up, S2l change), a corresponding syslog/trap (if enabled) is generated for it.
s2lTimeUp	long	vRtrMplsP2mplInstStatLastS2lTimeUp	The value of vRtrMplsP2mplInstStatLastS2lTimeUp indicates the total time that this S2l has been operational.
timeDown	long	vRtrMplsP2mplInstStatTimeDown	The value of vRtrMplsP2mplInstStatTimeDown indicates the total time that this P2MP instance has not been operational.
timeUp	long	vRtrMplsP2mplInstStatTimeUp	The value of vRtrMplsP2mplInstStatTimeUp indicates the total time that this P2MP instance has been operational.
transitions	long	vRtrMplsP2mplInstStatTransitions	The The value of vRtrMplsP2mplInstStatTransitions indicates the number of state transitions (up -> down and down -> up) this P2mp instance has undergone.
<b>S2LPathStats</b> MIB table name: TIMETRA-MPLS-MIB.vRtrMplsS2lSubLspStatTable Monitored class: mpls.S2LPath			

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5620 SAM counter name	Type	MIB counter name	Description
cspfQueries	long	vRtrMplsS2lSubLspCspfQueries	The value of vRtrMplsS2lSubLspCspfQueries indicates the number of CSPF queries that have been made for this LSP S2L.
retryAttempts	long	vRtrMplsS2lSubLspRetryAttempts	The value of vRtrMplsS2lSubLspRetryAttempts indicates the number of unsuccessful attempts which have been made to signal this S2L. As soon as the S2L gets signalled, this is set to 0.
timeDown	long	vRtrMplsS2lSubLspTimeDown	The value of vRtrMplsS2lSubLspTimeUp indicates the total time that this LSP S2L has not been operational.
timeUp	long	vRtrMplsS2lSubLspTimeUp	The value of vRtrMplsS2lSubLspTimeUp indicates the total time that this LSP S2L has been operational. For example, the percentage up time can be determined by computing $(vRtrMplsS2lSubLspTimeUp / vRtrMplsLspAge * 100)$ .
transitionCount	long	vRtrMplsS2lSubLspTransitionCount	The value of vRtrMplsS2lSubLspTransitionCount indicates the number of transitions that have occurred for this LSP.
<b>SiteStats</b> MIB table name: TIMETRA-MPLS-MIB.vRtrMplsGeneralStatTable Monitored class: mpls.Site			
detourOriginate	long	vRtrMplsGeneralDetourLspOriginate	The value of vRtrMplsGeneralDetourLspOriginate indicates the number of detour LSPs that originate at this virtual router.
detourTerminate	long	vRtrMplsGeneralDetourLspTerminate	The value of vRtrMplsGeneralDetourLspTerminate indicates the number of detour LSPs that terminate at this virtual router.
detourTransit	long	vRtrMplsGeneralDetourLspTransit	The value of vRtrMplsGeneralDetourLspTransit indicates the number of detour LSPs that transit through this virtual router.
dynamicOriginate	long	vRtrMplsGeneralDynamicLspOriginate	The value of vRtrMplsGeneralDynamicLspOriginate indicates the number of dynamic LSPs that originate at this virtual router.
dynamicTerminate	long	vRtrMplsGeneralDynamicLspTerminate	The value of vRtrMplsGeneralDynamicLspTerminate indicates the number of dynamic LSPs that terminate at this virtual router.
dynamicTransit	long	vRtrMplsGeneralDynamicLspTransit	The value of vRtrMplsGeneralDynamicLspTransit indicates the number of dynamic LSPs that transit through this virtual router.
staticOriginate	long	vRtrMplsGeneralStaticLspOriginate	The value of vRtrMplsGeneralStaticLspOriginate indicates the number of static LSPs that originate at this virtual router.

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5620 SAM counter name	Type	MIB counter name	Description
staticTerminate	long	vRtrMplsGeneralStaticLspTerminate	The value of vRtrMplsGeneralStaticLspTerminate indicates the number of static LSPs that terminate at this virtual router.
staticTransit	long	vRtrMplsGeneralStaticLspTransit	The value of vRtrMplsGeneralStaticLspTransit indicates the number of static LSPs that transit through this virtual router.

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Table A-33 msdp statistics

5620 SAM counter name	Type	MIB counter name	Description
<b>PeerStats</b> MIB table name: TIMETRA-MSDP-MIB.tmnxMsdpPeerStatsTable Monitored classes: <ul style="list-style-type: none"> <li>msdp.Peer</li> <li>msdp.GroupPeer</li> </ul>			
errorMsgsReceived	long	tmnxMsdpPeerStatsErrorMsgsRecvd	The value of tmnxMsdpPeerStatsErrorMsgsRecvd indicates number of error messages received.
keepAliveMsgsReceived	long	tmnxMsdpPeerStatsKAMsgsRecvd	The value of tmnxMsdpPeerStatsKAMsgsRecvd indicates the number of keep-alive messages received.
keepAliveMsgsSent	long	tmnxMsdpPeerStatsKAMsgsSent	The value of tmnxMsdpPeerStatsKAMsgsSent indicates the number of keep-alive messages sent.
lastMsgPeer	long	tmnxMsdpPeerStatsLastMsgPeer	The value of tmnxMsdpPeerStatsLastMsgPeer indicates how long ago the last message was received from this peer instance.
lastStateChange	long	tmnxMsdpPeerStatsLastStChange	The value of tmnxMsdpPeerStatsLastStChange indicates how long ago the peer state changed.
peerTimeouts	long	tmnxMsdpPeerStatsPeerTimeouts	The value of tmnxMsdpPeerStatsPeerTimeouts indicates the number of peer timeouts.
remoteCloses	long	tmnxMsdpPeerStatsRemoteCloses	The value of tmnxMsdpPeerStatsRemoteCloses indicates the number of times the remote peer closed.
reservedMsgsReceived	long	tmnxMsdpPeerStatsResvMsgsRecvd	The value of tmnxMsdpPeerStatsResvMsgsRecvd indicates the number of MSDP messages received with type 'Reserved'.
rpfFailures	long	tmnxMsdpPeerStatsRPFFailures	The value of tmnxMsdpPeerStatsRPFFailures indicates number of reverse path forwarding (RPF) failures.

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5620 SAM counter name	Type	MIB counter name	Description
saLearned	long	tmnxMsdPeerStatsSALea rnt	The value of tmnxMsdPeerStatsSALea rnt indicates the number of unique source active entries in the cache learned from the peer.
saLimitExceeded	long	tmnxMsdPeerStatsActSr cLimExcd	The value of tmnxMsdPeerStatsActSrcLimExcd indicates the number of times the global active source limit has been exceeded by this peer instance.
saMsgsReceived	long	tmnxMsdPeerStatsSAMsg sRecvd	The value of tmnxMsdPeerStatsSAMsgsRecvd indicates the number of source-active messages received.
saMsgsSent	long	tmnxMsdPeerStatsSAMsg sSent	The value of tmnxMsdPeerStatsSAMsgsSent indicates the number of source-active messages sent.
saRejectExportPolicy	long	tmnxMsdPeerStatsSARej ImpPolicy	The value of tmnxMsdPeerStatsSARejImpPolicy indicates the number of source active messages from the peer that were rejected due to import policy.
saRejectImportPolicy	long	tmnxMsdPeerStatsSARej ExpPolicy	The value of tmnxMsdPeerStatsSARejExpPolicy indicates the number of source active messages from the peer that were not sent due to export policy.
saRequestMsgsReceived	long	tmnxMsdPeerStatsSAReq MsgsRecvd	The value of tmnxMsdPeerStatsSAReqMsgsRecvd indicates the number of source-active request messages received.
saRequestMsgsSent	long	tmnxMsdPeerStatsSAReq MsgsSent	The value of tmnxMsdPeerStatsSAReqMsgsSent indicates the number of source-active request messages sent.
saResponseMsgsReceived	long	tmnxMsdPeerStatsSARes MsgsRecvd	The value of tmnxMsdPeerStatsSAResMsgsRecvd indicates the number of source-active response messages received.
saResponseMsgsSent	long	tmnxMsdPeerStatsSARes MsgsSent	The value of tmnxMsdPeerStatsSAResMsgsSent indicates the number of source-active response messages sent.
unknownMsgsReceived	long	tmnxMsdPeerStatsUnkn MsgsRecvd	The value of tmnxMsdPeerStatsUnknMsgsRecvd indicates the number of unknown messages received.

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Table A-34 multicast statistics

5620 SAM counter name	Type	MIB counter name	Description
<b>McastCacChannelServiceStats</b> MIB table name: TIMETRA-MCAST-CAC-MIB.tmnxMcacServStatsTable Monitored class: multicast.McastCacPolicy			
action	int	tmnxMcacServStatsAction	The value of tmnxMcacServStatsAction indicates the action specified by the mcac policy for the service application to act upon.
algorithmReapply	boolean	tmnxMcacServStatsAlgoReapply	The value of tmnxMcacServStatsAlgoReapply indicates if the mcac policy was reapplied on the already accepted channel due lag constraints or if this was the first request for this channel from the service application.
bundleAvailBw	long	tmnxMcacServStatsBundleAvailBW	The value of tmnxMcacServStatsBundleAvailBW indicates the available bundle bandwidth after the requested channel was either accepted or discarded by the mcac policy.
channelBw	long	tmnxMcacServStatsChannelBW	The value of tmnxMcacServStatsChannelBW indicates the channel bandwidth configured at the mcac policy at the time of request from the service application.
channelRequestCount	long	tmnxMcacServStatsApplyAttempts	The value of tmnxMcacServStatsApplyAttempts indicates the number of times the mcac policy was applied for a particular channel entry by the service application.
channelType	int	tmnxMcacServStatsChannelType	The value of tmnxMcacServStatsChannelType indicates the channel type configured at the mcac policy at the time of request from the service application.
encapValueOrVCIId	String	tmnxMcacServStatsEncapValue	The value of tmnxMcacServStatsEncapValue indicates the SAP/SDP Encap value of which the mcac policy is applied.
interfaceAvailBw	long	tmnxMcacServStatsIntfAvailBW	The value of tmnxMcacServStatsIntfAvailBW indicates the available interface bandwidth after the requested channel was either accepted or discarded by the mcac policy.
portIdOrTunnelId	String	tmnxMcacServStatsPortId	The value of tmnxMcacServStatsPortId indicates the port Id of the SAP/SDP on which the mcac policy is applied.
reason	int	tmnxMcacServStatsReason	The value of tmnxMcacServStatsReason indicates the reason for the action specified by the mcac policy for the service application to act upon.

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5620 SAM counter name	Type	MIB counter name	Description
timeStamp	long	tmnxMcacServStatsTimeS tamp	The value of tmnxMcacServStatsTimeStamp indicates the timestamp of the last time the mcac policy was applied for this channel entry.
<b>McastCacChannelStats</b> MIB table name: TIMETRA-MCAST-CAC-MIB.tmnxMcacStatsTable Monitored class: multicast.McastCacPolicy			
action	int	tmnxMcacStatsAction	The value of tmnxMcacStatsAction indicates the action specified by the mcac policy for the application interface to act upon.
algorithmReapply	boolean	tmnxMcacStatsAlgoReapp ly	The value of tmnxMcacStatsAlgoReapply indicates if the mcac policy was reapplied on the already accepted channel due lag constraints or if this was the first request for this channel from the application.
bundleAvailBw	long	tmnxMcacStatsBundleAva ilBW	The value of tmnxMcacStatsBundleAvailBW indicates the available bundle bandwidth after the requested channel was either accepted or discarded by the mcac policy.
bundleName	String	tmnxMcacStatsBundleNa me	The value of tmnxMcacStatsBundleName indicates the name of the multicast CAC policy bundle. The value of tmnxMcacStatsBundleName could be an empty string, meaning that this particular statistics entry's channel did not belong to any bundle in the policy.
channelAddress	String	tmnxMcacStatsChlAddr	The value of tmnxMcacStatsChlAddr indicates the address of the multicast channel that mcac policy was applied upon when requested by the application interface. Address type is indicated by tmnxMcacStatsChlAddrType.
channelAddressType	int	tmnxMcacStatsChlAddrTy pe	The value of tmnxMcacStatsChlAddrType indicates the address type of tmnxMcacStatsChlAddr.
channelBw	long	tmnxMcacStatsChannelB W	The value of tmnxMcacStatsChannelBW indicates the channel bandwidth configured at the mcac policy at the time of request from the application interface.
channelRequestCount	long	tmnxMcacStatsApplyAtte mpts	The value of tmnxMcacStatsApplyAttempts indicates the number of times the mcac policy was applied for a particular channel entry by the application.
channelType	int	tmnxMcacStatsChannelTy pe	The value of tmnxMcacStatsChannelType indicates the channel type configured at the mcac policy at the time of request from the application interface.
interfaceAvailBw	long	tmnxMcacStatsIntfAvailB W	The value of tmnxMcacStatsIntfAvailBW indicates the available interface bandwidth after the requested channel was either accepted or discarded by the mcac policy.

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5620 SAM counter name	Type	MIB counter name	Description
interfaceId	long	tmnxMcacStatsIfIndex	The value of tmnxMcacStatsIfIndex indicates the application interface index that has applied mcac policy.
protocolName	int	tmnxMcacStatsProtocolIndex	The value of tmnxMcacStatsProtocolIndex indicates the application that has applied mcac policy.
reason	int	tmnxMcacStatsReason	The value of tmnxMcacStatsReason indicates the reason for the action specified by the mcac policy for the application interface to act upon.
timeStamp	long	tmnxMcacStatsTimeStamp	The value of tmnxMcacStatsTimeStamp indicates the timestamp of the last time the mcac policy was applied for this channel entry.
<b>McastCacOper</b> MIB table name: TIMETRA-MCAST-CAC-MIB.tmnxMcacOperTable Monitored class: multicast.McastCacPolicy			
activeChannels	long	tmnxMcacOperActiveChannels	The value of tmnxMcacOperActiveChannels indicates the number of active channels for this entry.
availMandBw	long	tmnxMcacOperAvailMandBw	The value of tmnxMcacOperAvailMandBw indicates the operational pre-reserved bandwidth in kilo-bits per second(kbps) for the mandatory channels on the bundle for this protocol interface instance.
availOptionalBw	long	tmnxMcacOperAvailOptnlBw	The value of tmnxMcacOperAvailOptnlBw indicates the operational available bandwidth in kilo-bits per second(kbps) on the bundle for this protocol interface instance.
currConstrLvl	long	tmnxMcacOperCurrConstrLvl	The value of tmnxMcacOperCurrConstrLvl indicates the current lag constraints bundle level id for the number of ports down (tmnxMcacOperPortsDown). This value is used to index the table tmnxMcacLevelTable to get the bundle level bandwidth.
inUseMandBw	long	tmnxMcacOperInUseMandBw	The value of tmnxMcacOperInUseMandBw indicates the operational in-use bandwidth in kilo-bits per second(kbps) for the mandatory channels on the bundle for this protocol interface instance.
inUseOptionalBw	long	tmnxMcacOperInUseOptnlBw	The value of tmnxMcacOperInUseOptnlBw indicates the operational in-use bandwidth in kilo-bits per second(kbps) for the optional channels on the bundle for this protocol interface instance.
maxBw	long	tmnxMcacOperMaxBw	The value of tmnxMcacOperMaxBw indicates the operational maximum bandwidth in kilo-bits per second(kbps) on the bundle for this protocol interface instance.

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5620 SAM counter name	Type	MIB counter name	Description
portsDown	long	tmnxMcacOperPortsDown	The value of tmnxMcacOperPortsDown indicates the the number of ports down on the application interface. This value is used to index the table tmnxMcacLagTable to get the bundle level id.
valuesInTransit	boolean	tmnxMcacOperValuesInTransit	The value of tmnxMcacOperValuesInTransit indicates that the operational (available and in-use mandatory/optional) value for the following objects are in transition due to configuration change: tmnxMcacOperAvailOptnlBw tmnxMcacOperAvailMandBw tmnxMcacOperInUseMandBw tmnxMcacOperInUseOptnlBw When Multicast CAC Policy is applied on the interface for the join of the next channel, the operational values will be recalculated and applied to the above objects and the value for tmnxMcacOperValuesInTransit will be set to 'false'. If the value of tmnxMcacOperValuesInTransit is 'true' then the values are in transition.
<b>McastCacServOperStats</b> MIB table name: TIMETRA-MCAST-CAC-MIB.tmnxMcacServOperTable Monitored class: multicast.McastCacPolicy			
activeChannels	long	tmnxMcacServOperActiveChannels	The value of tmnxMcacServOperActiveChannels indicates the number of active channels for this entry.
availMandBw	long	tmnxMcacServOperAvailMandBw	The value of tmnxMcacServOperAvailMandBw indicates the operational pre-reserved bandwidth in kilo-bits per second(kbps) for the mandatory channels on the bundle for this service application on sap/sdp instance.
availOptionalBw	long	tmnxMcacServOperAvailOptnlBw	The value of tmnxMcacServOperAvailOptnlBw indicates the operational available bandwidth in kilo-bits per second(kbps) on the bundle for this service application on sap/sdp instance.
currConstrtlvl	long	tmnxMcacServOperCurrConstrtlvl	The value of tmnxMcacServOperCurrConstrtlvl indicates the current lag constraints bundle level id for the number of ports down (tmnxMcacServOperPortsDown). This value is used to index the table tmnxMcacLevelTable to get the bundle level bandwidth.
inUseMandBw	long	tmnxMcacServOperInUseMandBw	The value of tmnxMcacServOperInUseMandBw indicates the operational in-use bandwidth in kilo-bits per second(kbps) for the mandatory channels on the bundle for this service application on sap/sdp instance.

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5620 SAM counter name	Type	MIB counter name	Description
inUseOptionalBw	long	tmnxMcacServOperInUseOptnlBw	The value of tmnxMcacServOperInUseOptnlBw indicates the operational in-use bandwidth in kilo-bits per second(kbps) for the optional channels on the bundle for this service application on sap/sdp instance.
maxBw	long	tmnxMcacServOperMaxBw	The value of tmnxMcacServOperMaxBw indicates the operational maximum bandwidth in kilo-bits per second(kbps) on the bundle for this service application on sap/sdp instance.
portsDown	long	tmnxMcacServOperPortsDown	The value of tmnxMcacServOperPortsDown indicates the the number of ports down on the service application on sap/sdp. This value is used to index the table tmnxMcacLagTable to get the bundle level id.
valuesInTransit	boolean	tmnxMcacServOperValuesInTransit	The value of tmnxMcacServOperValuesInTransit indicates that the operational (available and in-use mandatory/optional) value for the following objects are in transition due to configuration change: tmnxMcacServOperAvailOptnlBw tmnxMcacServOperAvailMandBw tmnxMcacServOperInUseMandBw tmnxMcacServOperInUseOptnlBw When Multicast CAC Policy is applied on the sap/sdp for the join of the next channel, the operational values will be recalculated and applied to the above objects and the value for tmnxMcacServOperValuesInTransit will be set to 'false'. If the value of tmnxMcacServOperValuesInTransit is 'true' then the values are in transition.

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Table A-35 multichassis statistics

5620 SAM counter name	Type	MIB counter name	Description
<b>McEPPeerStats</b> MIB table name: TIMETRA-MC-REDUNDANCY-MIB.tmnxMcEPPeerStatsTable Monitored class: multichassis.MultiChassisEndpoint			
configPacketsReceived	long	tmnxMcEPPeerStatsPktsRxConfig	The value of tmnxMcEPPeerStatsPktsRxConfig indicates how many valid MC-Endpoint control packets of type end-point config were received on this system from the peer.

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5620 SAM counter name	Type	MIB counter name	Description
failedMD5AuthenticationPacketsDropped	long	tmnxMcEPPeerStatsDropMD5	The value of tmnxMcEPPeerStatsDropMD5 indicates how many MC-Endpoint control packets were dropped on this system from the peer because the packet failed MD5 authentication.
failedPacketsTransmitted	long	tmnxMcEPPeerStatsPktsTxFailed	The value of tmnxMcEPPeerStatsPktsTxFailed indicates how many MC-Endpoint control packets failed to be transmitted from this system to the peer.
invalidLagIdPacketsDropped	long	tmnxMcEPPeerStatsDropTlvInvalidId	The value of tmnxMcEPPeerStatsDropTlvInvalidId indicates how many MC-Endpoint control packets were dropped on this system from the peer because the packet referred to an invalid or non multi-chassis end-point.
invalidSizePacketsDropped	long	tmnxMcEPPeerStatsDropTlvInvalidSz	The value of tmnxMcEPPeerStatsDropTlvInvalidSz indicates how many MC-Endpoint control packets were dropped on this system from the peer because the packet size was invalid.
keepAlivePacketsReceived	long	tmnxMcEPPeerStatsPktsRxKpalive	The value of tmnxMcEPPeerStatsPktsRxKpalive indicates how many valid MC-Endpoint control packets of type keepalive were received on this system from the peer.
keepalivePacketsTransmitted	long	tmnxMcEPPeerStatsPktsTxKpalive	The value of tmnxMcEPPeerStatsPktsTxKpalive indicates how many MC-Endpoint control packets of type keepalive were transmitted from this system to the peer.
noEpPeerPacketsDropped	long	tmnxMcEPPeerStatsDropEpNoPeer	The value of tmnxMcEPPeerStatsDropEpNoPeer indicates how many pkts were dropped because MC-Endpoint does not have a MC-peer assigned yet or MC-Endpoint is attached to a different peer.
outOfSequencePacketsDropped	long	tmnxMcEPPeerStatsDropOutOfSeq	The value of tmnxMcEPPeerStatsDropOutOfSeq indicates how many MC-Endpoint control packets were dropped on this system from the peer because the packet was out of sequence.
packetsReceived	long	tmnxMcEPPeerStatsPktsRx	The value of tmnxMcEPPeerStatsPktsRx indicates how many valid MC-Endpoint control packets were received on this system from the peer.
packetsTransmitted	long	tmnxMcEPPeerStatsPktsTx	The value of tmnxMcEPPeerStatsPktsTx indicates how many MC-Endpoint control packets were transmitted from this system to the peer.
peerConfigPacketsReceived	long	tmnxMcEPPeerStatsPktsRxPeerCfg	The value of tmnxMcEPPeerStatsPktsRxPeerCfg indicates how many valid MC-Endpoint control packets of type peer config were received on this system from the peer.

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5620 SAM counter name	Type	MIB counter name	Description
peerConfigPacketsTransmitted	long	tmnxMcEPPeerStatsPktsTxPeerCfg	The value of tmnxMcEPPeerStatsPktsTxPeerCfg indicates how many MC-Endpoint control packets of type peer config were transmitted from this system to the peer.
stateDisabledPacketsDropped	long	tmnxMcEPPeerStatsDropStateDsbl	The value of tmnxMcEPPeerStatsDropStateDsbl indicates how many MC-Endpoint control packets were dropped on this system from the peer because the peer was administratively disabled.
statePacketsReceived	long	tmnxMcEPPeerStatsPktsRxState	The value of tmnxMcEPPeerStatsPktsRxState indicates how many valid MC-Endpoint control packets of type end-point state were received on this system from the peer.
tooShortPacketsDropped	long	tmnxMcEPPeerStatsDropPktTooShrt	The value of tmnxMcEPPeerStatsDropPktTooShrt indicates how many MC-Endpoint control packets were dropped on this system from the peer because the packet was too short.
unknownTlvPacketsDropped	long	tmnxMcEPPeerStatsDropUnknownTlv	The value of tmnxMcEPPeerStatsDropUnknownTlv indicates how many MC-Endpoint control packets were dropped on this system from the peer because the packet contained an unknown TLV.
<b>MultiChassisPeerRingStats</b> MIB table name: TIMETRA-MC-REDUNDANCY-MIB.tmnxMcrPeerStatsTable Monitored class: multichassis.Peer			
keepAlivePacketsTransmitted	long	tmnxMcrPeerStatsTxKeepAlive	The value of tmnxMcrPeerStatsTxKeepAlive indicates how many valid MC-Ring control packets of type 'keepalive' were transmitted to the peer.
mcsIdRequestPacketsReceived	long	tmnxMcrPeerStatsRxMcsIdReq	The value of tmnxMcrPeerStatsRxMcsIdReq indicates how many valid MCS ID requests were received from the peer.
mcsIdRequestPacketsTransmitted	long	tmnxMcrPeerStatsTxMcsIdReq	The value of tmnxMcrPeerStatsTxMcsIdReq indicates how many valid MCS ID requests were transmitted to the peer.
mcsIdResponsePacketsReceived	long	tmnxMcrPeerStatsRxMcsIdRsp	The value of tmnxMcrPeerStatsRxMcsIdRsp indicates how many valid MCS ID responses were received from the peer.
mcsIdResponsePacketsTransmitted	long	tmnxMcrPeerStatsTxMcsIdRsp	The value of tmnxMcrPeerStatsTxMcsIdRsp indicates how many valid MCS ID responses were transmitted to the peer.
ringExistsRequestPacketsReceived	long	tmnxMcrPeerStatsRxRingExistsReq	The value of tmnxMcrPeerStatsRxRingExistsReq indicates how many valid 'ring exists' requests were received from the peer.

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5620 SAM counter name	Type	MIB counter name	Description
ringExistsRequestPacketsTransmitted	long	tmnxMcrPeerStatsTxRingExistsReq	The value of tmnxMcrPeerStatsTxRingExistsReq indicates how many valid 'ring exists' requests were transmitted to the peer.
ringExistsResponsePacketsReceived	long	tmnxMcrPeerStatsRxRingExistsRsp	The value of tmnxMcrPeerStatsRxRingExistsRsp indicates how many valid 'ring exists' responses were received from the peer.
ringExistsResponsePacketsTransmitted	long	tmnxMcrPeerStatsTxRingExistsRsp	The value of tmnxMcrPeerStatsTxRingExistsRsp indicates how many valid 'ring exists' responses were transmitted to the peer.
ringKeepAlivePacketsReceived	long	tmnxMcrPeerStatsRxKeepAlive	The value of tmnxMcrPeerStatsRxKeepAlive indicates how many valid MC-Ring control packets of type 'keepalive' were received from the peer.
ringSignallingPacketsReceived	long	tmnxMcrPeerStatsRx	The value of tmnxMcrPeerStatsRx indicates how many valid MC-Ring signalling messages were received from the peer.
ringSignallingPacketsTransmitted	long	tmnxMcrPeerStatsTx	The value of tmnxMcrPeerStatsTx indicates how many valid MC-Ring signalling messages were transmitted to the peer.
<b>MultiChassisRingNodeStats</b> MIB table name: TIMETRA-MC-REDUNDANCY-MIB.tmnxMcrRingNodeStatsTable Monitored class: multichassis.MultiChassisRingNode			
detectedPacketsAcknowledged	long	tmnxMcrRingNodeStatsTxDetectAck	The value of tmnxMcrRingNodeStatsTxDetectAck indicates how many valid 'detected ring node' signalling messages were acknowledged to the peer for this multi-chassis ring node.
detectedPacketsPeerAcknowledged	long	tmnxMcrRingNodeStatsRxDetectAck	The value of tmnxMcrRingNodeStatsRxDetectAck indicates how many valid 'detected ring node' signalling messages were acknowledged by the peer for this multi-chassis ring node.
detectedPacketsReceived	long	tmnxMcrRingNodeStatsRxDetect	The value of tmnxMcrRingNodeStatsRxDetect indicates how many valid 'detected ring node' signalling messages were received from the peer for this multi-chassis ring node.
detectedPacketsTransmitted	long	tmnxMcrRingNodeStatsTxDetect	The value of tmnxMcrRingNodeStatsTxDetect indicates how many valid 'detected ring node' signalling messages were transmitted to the peer for this multi-chassis ring node.
rncvPacketsReceived	long	tmnxMcrRingNodeStatsRncvRxResp	The value of tmnxMcrRingNodeStatsRncvRxResp indicates how many valid connectivity verification messages were received from this multi-chassis ring node.

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5620 SAM counter name	Type	MIB counter name	Description
rncvPacketsRoundTripTime	long	tmnxMcrRingNodeStatsRncvRtTime	The value of tmnxMcrRingNodeStatsRncvRtTime indicates the round-trip-time of the last successful connectivity verification for this multi-chassis ring node. If there has not been a successful connectivity verification, the value of tmnxMcrRingNodeStatsRncvRtTime is zero.
rncvPacketsTransmitted	long	tmnxMcrRingNodeStatsRncvTxReq	The value of tmnxMcrRingNodeStatsRncvTxReq indicates how many valid connectivity verification messages were transmitted to this multi-chassis ring node.
<b>MultiChassisRingStats</b> MIB table name: TIMETRA-MC-REDUNDANCY-MIB.tmnxMcrRingStatsTable Monitored class: multichassis.MultiChassisRing			
opaquePacketsReceivedDelivered	long	tmnxMcrRingStatsRxOpaqueDelivrd	The value of tmnxMcrRingStatsRxOpaqueDelivrd indicates how many valid opaque signalling messages were received from the peer and delivered for this multi-chassis ring.
opaquePacketsReceivedNoDestination	long	tmnxMcrRingStatsRxOpaqueNoDest	The value of tmnxMcrRingStatsRxOpaqueNoDest indicates how many valid opaque signalling messages were received from the peer and for which no destination could be found.
opaquePacketsTransmitted	long	tmnxMcrRingStatsTxOpaque	The value of tmnxMcrRingStatsTxOpaque indicates how many valid opaque signalling messages were transmitted to the peer for this multi-chassis ring.
sapsChangedPacketsReceived	long	tmnxMcrRingStatsRxSapsChanged	The value of tmnxMcrRingStatsRxSapsChanged indicates how many valid 'SAPs changed info' signalling messages were received from the peer for this multi-chassis ring.
sapsChangedPacketsTransmitted	long	tmnxMcrRingStatsTxSapsChanged	The value of tmnxMcrRingStatsTxSapsChanged indicates how many valid 'SAPs changed info' signalling messages were transmitted to the peer for this multi-chassis ring.
<b>PeerStats</b> MIB table name: TIMETRA-MC-REDUNDANCY-MIB.tmnxMcLagPeerStatsTable Monitored class: multichassis.Peer			
configPacketsReceived	long	tmnxMcLagPeerStatsPktsRxConfig	The value of tmnxMcLagPeerStatsPktsRxConfig indicates how many valid MC-Lag control packets of type lag config were received on this system from the peer.

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5620 SAM counter name	Type	MIB counter name	Description
failedMD5AuthenticationPacketsDropped	long	tmnxMcLagPeerStatsDropMD5	The value of tmnxMcLagPeerStatsDropMD5 indicates how many MC-Lag control packets were dropped on this system from the peer because the packet failed MD5 authentication.
failedPacketsTransmitted	long	tmnxMcLagPeerStatsPktsTxFailed	The value of tmnxMcLagPeerStatsPktsTxFailed indicates how many MC-Lag control packets failed to be transmitted from this system to the peer.
invalidLagIdPacketsDropped	long	tmnxMcLagPeerStatsDropTlvInvldId	The value of tmnxMcLagPeerStatsDropTlvInvldId indicates how many MC-Lag control packets were dropped on this system from the peer because the packet referred to an invalid or non multi-chassis lag.
invalidSizePacketsDropped	long	tmnxMcLagPeerStatsDropTlvInvldSz	The value of tmnxMcLagPeerStatsDropTlvInvldSz indicates how many MC-Lag control packets were dropped on this system from the peer because the packet size was invalid.
keepAlivePacketsReceived	long	tmnxMcLagPeerStatsPktsRxKpalive	The value of tmnxMcLagPeerStatsPktsRxKpalive indicates how many valid MC-Lag control packets of type keepalive were received on this system from the peer.
keepalivePacketsTransmitted	long	tmnxMcLagPeerStatsPktsTxKpalive	The value of tmnxMcLagPeerStatsPktsTxKpalive indicates how many MC-Lag control packets of type keepalive were transmitted from this system to the peer.
outOfSequencePacketsDropped	long	tmnxMcLagPeerStatsDropOutOfSeq	The value of tmnxMcLagPeerStatsDropOutOfSeq indicates how many MC-Lag control packets were dropped on this system from the peer because the packet was out of sequence.
packetsReceived	long	tmnxMcLagPeerStatsPktsRx	The value of tmnxMcLagPeerStatsPktsRx indicates how many valid MC-Lag control packets were received on this system from the peer.
packetsTransmitted	long	tmnxMcLagPeerStatsPktsTx	The value of tmnxMcLagPeerStatsPktsTx indicates how many MC-Lag control packets were transmitted from this system to the peer.
peerConfigPacketsReceived	long	tmnxMcLagPeerStatsPktsRxPeerCfg	The value of tmnxMcLagPeerStatsPktsRxPeerCfg indicates how many valid MC-Lag control packets of type peer config were received on this system from the peer.
peerConfigPacketsTransmitted	long	tmnxMcLagPeerStatsPktsTxPeerCfg	The value of tmnxMcLagPeerStatsPktsTxPeerCfg indicates how many MC-Lag control packets of type peer config were transmitted from this system to the peer.

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5620 SAM counter name	Type	MIB counter name	Description
stateDisabledPacketsDropped	long	tmnxMcLagPeerStatsDropStateDsbl	The value of tmnxMcLagPeerStatsDropStateDsbl indicates how many MC-Lag control packets were dropped on this system from the peer because the peer was administratively disabled.
statePacketsReceived	long	tmnxMcLagPeerStatsPktsRxState	The value of tmnxMcLagPeerStatsPktsRxState indicates how many valid MC-Lag control packets of type lag state were received on this system from the peer.
tooShortPacketsDropped	long	tmnxMcLagPeerStatsDropPktTooShrt	The value of tmnxMcLagPeerStatsDropPktTooShrt indicates how many MC-Lag control packets were dropped on this system from the peer because the packet was too short.
unknownTlvPacketsDropped	long	tmnxMcLagPeerStatsDropUnknownTlv	The value of tmnxMcLagPeerStatsDropUnknownTlv indicates how many MC-Lag control packets were dropped on this system from the peer because the packet contained an unknown TLV.
<b>PeerSynchronizationProtocolStats</b> MIB table name: TIMETRA-MC-REDUNDANCY-MIB.tmnxMcPeerSyncStatsTable Monitored class: multichassis.PeerSynchronizationProtocol			
bodyDecodeErrorPacketsReceived	long	tmnxMcPeerSyncPktsRxErrBody	The value of tmnxMcPeerSyncPktsRxErrBody indicates the number of packets with body decode errors received from the multi-chassis peer.
dataPacketsReceived	long	tmnxMcPeerSyncPktsRxData	The value of tmnxMcPeerSyncPktsRxData indicates the number of hello packets received from the multi-chassis peer.
dataPacketsTransmitted	long	tmnxMcPeerSyncPktsTxData	The value of tmnxMcPeerSyncPktsTxData indicates the number of data packets transmitted to the multi-chassis peer.
erroneousPacketsReceived	long	tmnxMcPeerSyncPktsRxErr	The value of tmnxMcPeerSyncPktsRxErr indicates the number of erroneous packets received from the multi-chassis peer.
headerDecodeErrorPacketsReceived	long	tmnxMcPeerSyncPktsRxErrHeader	The value of tmnxMcPeerSyncPktsRxErrHeader indicates the number of packets with header decode errors received from the multi-chassis peer.
helloPacketsReceived	long	tmnxMcPeerSyncPktsRxHello	The value of tmnxMcPeerSyncPktsRxHello indicates the number of hello packets received from the multi-chassis peer.
helloPacketsTransmitted	long	tmnxMcPeerSyncPktsTxHello	The value of tmnxMcPeerSyncPktsTxHello indicates the number of hello packets transmitted to the multi-chassis peer.

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5620 SAM counter name	Type	MIB counter name	Description
otherPacketsReceived	long	tmnxMcPeerSyncPktsRxOther	The value of tmnxMcPeerSyncPktsRxOther indicates the number of all other packet types received from the multi-chassis peer.
otherPacketsTransmitted	long	tmnxMcPeerSyncPktsTxOther	The value of tmnxMcPeerSyncPktsTxOther indicates the number of all other packet types transmitted to the multi-chassis peer.
packetTransmissionErrors	long	tmnxMcPeerSyncPktsTxErr	The value of tmnxMcPeerSyncPktsTxErr indicates the number of packet transmission errors.
sequenceNumberErrorPacketsReceived	long	tmnxMcPeerSyncPktsRxErrSeqNum	The value of tmnxMcPeerSyncPktsRxErrSeqNum indicates the number of packets with sequence number errors received from the multi-chassis peer.
totalPacketsReceived	long	tmnxMcPeerSyncPktsRxAll	The value of tmnxMcPeerSyncPktsRxAll indicates the total number of packets received from the multi-chassis peer.
totalPacketsTransmitted	long	tmnxMcPeerSyncPktsTxAll	The value of tmnxMcPeerSyncPktsTxAll indicates the total number of packets transmitted to the multi-chassis peer.

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Table A-36 nat statistics

5620 SAM counter name	Type	MIB counter name	Description
<b>IsaMemberStats</b> MIB table name: TIMETRA-NAT-MIB.tmnxNatIsaMemberStatsTable Monitored class: nat.IsaMda			
statsName	String	tmnxNatIsaMemberStatsName	The value of the object tmnxNatIsaMemberStatsName indicates the human-readable identifier of the statistics contained in this conceptual row.
statsType	int	tmnxNatIsaMemberStatsType	The value of tmnxNatIsaMemberStatsType indicates the type of NAT session statistics contained in this conceptual row.
statsValue	long	tmnxNatIsaMemberStatsVal	The value of the object tmnxNatIsaMemberStatsVal indicates the value of the statistics contained in this conceptual row.
<b>L2AwSubscriberStats</b> MIB table name: TIMETRA-NAT-MIB.tmnxNatL2AwSubStatTable Monitored class: nat.L2AwSubscriber			
icmpPortUsage	int	tmnxNatL2AwSubStatIcmpPortUsage	The value of the object tmnxNatL2AwSubStatIcmpPortUsage indicates the ICMP port usage of this NAT subscriber.

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5620 SAM counter name	Type	MIB counter name	Description
icmpPortUsageHi	boolean	tmnxNatL2AwSubStatIcmpPortUsageH	The value of the object tmnxNatL2AwSubStatIcmpPortUsageH indicates if the ICMP port usage of this NAT subscriber is high according to the values of the objects tmnxNatPlcyPortWatermarkHigh and tmnxNatPlcyPortWatermarkLow.
sessions	int	tmnxNatL2AwSubStatSessions	The value of tmnxNatL2AwSubStatSessions indicates the current number of active sessions of this NAT subscriber. In other words, it is the number of ports in use out of the nonreserved range.
sessionsPrio	int	tmnxNatL2AwSubStatSessionsPrio	The value of tmnxNatL2AwSubStatSessionsPrio indicates the current number of active prioritized sessions of this subscriber. In other words, it is the number of reserved ports in use.
sessionUsage	int	tmnxNatL2AwSubStatSessionUsage	The value of the object tmnxNatL2AwSubStatSessionUsage indicates the session usage of this NAT subscriber.
tcpPortUsage	int	tmnxNatL2AwSubStatTcpPortUsage	The value of the object tmnxNatL2AwSubStatTcpPortUsage indicates the TCP port usage of this NAT subscriber.
tcpPortUsageHi	boolean	tmnxNatL2AwSubStatTcpPortUsageHi	The value of the object tmnxNatL2AwSubStatTcpPortUsageHi indicates if the TCP port usage of this NAT subscriber is high according to the values of the objects tmnxNatPlcyPortWatermarkHigh and tmnxNatPlcyPortWatermarkLow.
udpPortUsage	int	tmnxNatL2AwSubStatUdpPortUsage	The value of the object tmnxNatL2AwSubStatUdpPortUsage indicates the UDP port usage of this NAT subscriber.
udpPortUsageHi	boolean	tmnxNatL2AwSubStatUdpPortUsageHi	The value of the object tmnxNatL2AwSubStatUdpPortUsageHi indicates if the UDP port usage of this NAT subscriber is high according to the values of the objects tmnxNatPlcyPortWatermarkHigh and tmnxNatPlcyPortWatermarkLow.
<b>LsnSubscriberStats</b> MIB table name: TIMETRA-NAT-MIB.tmnxNatLsnSubStatTable Monitored class: nat.LsnSubscriber			
icmpPortUsage	int	tmnxNatLsnSubStatIcmpPortUsage	The value of the object tmnxNatLsnSubStatIcmpPortUsage indicates the ICMP port usage of this NAT subscriber.

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5620 SAM counter name	Type	MIB counter name	Description
icmpPortUsageHi	boolean	tmnxNatLsnSubStatIcmpPortUsageHi	The value of the object tmnxNatLsnSubStatIcmpPortUsageHi indicates if the ICMP port usage of this NAT subscriber is high according to the values of the objects tmnxNatPlcyPortWatermarkHigh and tmnxNatPlcyPortWatermarkLow.
lsnSubId	long	tmnxNatLsnSubId	The value of tmnxNatLsnSubId indicates the identifier of this Large Scale NAT subscriber.
sessions	int	tmnxNatLsnSubStatSessions	The value of tmnxNatLsnSubStatSessions indicates the current number of active sessions of this NAT subscriber. In other words, it is the number of ports in use out of the nonreserved range.
sessionsPrio	int	tmnxNatLsnSubStatSessionsPrio	The value of tmnxNatLsnSubStatSessionsPrio indicates the current number of active prioritized sessions of this subscriber. In other words, it is the number of reserved ports in use.
sessionUsage	int	tmnxNatLsnSubStatSessionUsage	The value of the object tmnxNatLsnSubStatSessionUsage indicates the session usage of this NAT subscriber.
tcpPortUsage	int	tmnxNatLsnSubStatTcpPortUsage	The value of the object tmnxNatLsnSubStatTcpPortUsage indicates the TCP port usage of this NAT subscriber.
tcpPortUsageHi	boolean	tmnxNatLsnSubStatTcpPortUsageHi	The value of the object tmnxNatLsnSubStatTcpPortUsageHi indicates if the TCP port usage of this NAT subscriber is high according to the values of the objects tmnxNatPlcyPortWatermarkHigh and tmnxNatPlcyPortWatermarkLow.
udpPortUsage	int	tmnxNatLsnSubStatUdpPortUsage	The value of the object tmnxNatLsnSubStatUdpPortUsage indicates the UDP port usage of this NAT subscriber.
udpPortUsageHi	boolean	tmnxNatLsnSubStatUdpPortUsageHi	The value of the object tmnxNatLsnSubStatUdpPortUsageHi indicates if the UDP port usage of this NAT subscriber is high according to the values of the objects tmnxNatPlcyPortWatermarkHigh and tmnxNatPlcyPortWatermarkLow.
<b>NatPolicyStats</b> MIB table name: TIMETRA-NAT-MIB.tmnxNatPlcyStatsTable Monitored class: nat.IsaMda			
cardSlot	int	tmnxCardSlotNum	—
chassisIndex	int	tmnxChassisIndex	—
mdaSlot	int	tmnxMDASlotNum	—
policyName	String	tmnxNatPlcyName	The value of tmnxNatPlcyName specifies the name of this NAT policy.

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5620 SAM counter name	Type	MIB counter name	Description
statsName	String	tmnxNatPlcyStatsName	The value of the object tmnxNatPlcyStatsName indicates the human-readable identifier of the statistics contained in this conceptual row.
statsType	int	tmnxNatPlcyStatsType	The value of tmnxNatPlcyStatsType indicates the type of NAT usage statistics contained in this conceptual row.
statsValue	long	tmnxNatPlcyStatsVal	The value of the object tmnxNatPlcyStatsVal indicates the value of the statistics contained in this conceptual row.

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Table A-37 ospf statistics

5620 SAM counter name	Type	MIB counter name	Description
<b>AreaBasicStats</b> MIB table name: TIMETRA-OSPF-NG-MIB.tmnxOspfAreaTable Monitored class: ospf.AreaSite			
nssaTranslatorEvents	long	tmnxOspfAreaNssaTranslatorEvents	The value of tmnxOspfAreaNssaTranslatorEvents indicates the number of Translator State changes that have occurred since the last boot-up.
totalLSACount	long	tmnxOspfAreaScopeLsaCount	The value of tmnxOspfAreaScopeLsaCount indicates the total number of Area-Scope link state advertisements in this area's link-state database.
totalSpfRuns	long	tmnxOspfAreaSpfRuns	The value of tmnxOspfAreaSpfRuns indicates the number of times that the intra-area route table has been calculated using this area's link-state database. This is typically done using Dijkstra's algorithm.
totalUnknownLSACount	long	tmnxOspfAreaScopeUnkLsaCount	The value of tmnxOspfAreaScopeUnkLsaCount indicates the total number of unknown Area-Scope link-state advertisements in this area's link-state database.
<b>InterfaceGeneralStats</b> MIB table name: TIMETRA-OSPF-NG-MIB.tmnxOspfIfStatsTable Monitored class: ospf.Interface			
events	long	tmnxOspfIfEvents	The value of tmnxOspfIfEvents indicates the number of times this OSPF interface has changed its state, or an error has occurred.
<b>InterfaceReceiveStats</b> MIB table name: TIMETRA-OSPF-NG-MIB.tmnxOspfIfStatsTable Monitored class: ospf.Interface			

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5620 SAM counter name	Type	MIB counter name	Description
databaseDescriptionPackets	long	tmnxOspfIfRxDBDs	The value of tmnxOspfIfRxDBDs indicates the total number of OSPF Database Description packets received on this interface since tmnxOspfAdminState was last set to 'enabled'.
databaseDescriptionPackets	long	tmnxOspfIfTxDBDs	The value of tmnxOspfIfTxDBDs indicates the total number of OSPF Database Description packets transmitted on this interface since tmnxOspfAdminState was last set to 'enabled'.
helloPackets	long	tmnxOspfIfRxHellos	The value of tmnxOspfIfRxHellos indicates the total number of OSPF Hello packets received on this interface since tmnxOspfAdminState was last set to 'enabled'.
helloPackets	long	tmnxOspfIfTxHellos	The value of tmnxOspfIfTxHellos indicates the total number of OSPF Hello packets transmitted on this interface since tmnxOspfAdminState was last set to 'enabled'.
linkStateAcknowledgements	long	tmnxOspfIfRxLSAcks	The value of tmnxOspfIfRxLSAcks indicates the total number of Link State Acknowledgements received on this interface since tmnxOspfAdminState was last set to 'enabled'.
linkStateAcknowledgements	long	tmnxOspfIfTxLSAcks	The value of tmnxOspfIfTxLSAcks indicates the total number of OSPF Link State Acknowledgements transmitted on this interface since tmnxOspfAdminState was last set to 'enabled'.
linkStateRequests	long	tmnxOspfIfRxLSRs	The value of tmnxOspfIfRxLSRs indicates the total number of Link State Requests (LSRs) received on this interface since tmnxOspfAdminState was last set to 'enabled'.
linkStateRequests	long	tmnxOspfIfTxLSRs	The value of tmnxOspfIfTxLSRs indicates the total number of OSPF Link State Requests (LSRs) transmitted on this interface since tmnxOspfAdminState was last set to 'enabled'.
linkStateUpdates	long	tmnxOspfIfRxLSUs	The value of tmnxOspfIfRxLSUs indicates the total number of Link State Updates (LSUs) received on this interface since tmnxOspfAdminState was last set to 'enabled'.
linkStateUpdates	long	tmnxOspfIfTxLSUs	The value of tmnxOspfIfTxLSUs indicates the total number of OSPF Link State Updates (LSUs) transmitted on this interface since tmnxOspfAdminState was last set to 'enabled'.
lsasWithBadChecksums	long	tmnxOspfIfRxBadChecksums	The value of tmnxOspfIfRxBadChecksums indicates the count of LSAs received with bad checksums.

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5620 SAM counter name	Type	MIB counter name	Description
totalPackets	long	tmnxOspfIfRxPackets	The value of tmnxOspfIfRxPackets indicates the total number of OSPF packets received on this interface since tmnxOspfAdminState was last set to 'enabled'.
totalPackets	long	tmnxOspfIfTxPackets	The value of tmnxOspfIfTxPackets indicates the total number of OSPF packets transmitted on this interface since tmnxOspfAdminState was last set to 'enabled'.
<b>InterfaceStatusStats</b> MIB table name: TIMETRA-OSPF-NG-MIB.tmnxOspfIfStatsTable Monitored class: ospf.Interface			
authorizationFailures	long	tmnxOspfIfAuthFailures	The value of tmnxOspfIfAuthFailures indicates the total number of OSPF packets received with an invalid authorization key since tmnxOspfAdminState was last set to 'enabled'.
badAreas	long	tmnxOspfIfBadAreas	The value of tmnxOspfIfBadAreas indicates the total number of OSPF packets received with an area mismatch since tmnxOspfAdminState was last set to 'enabled'.
badAuthorizationTypes	long	tmnxOspfIfBadAuthTypes	The value of tmnxOspfIfBadAuthTypes indicates the total number of OSPF packets received with an invalid authorization type since tmnxOspfAdminState was last set to 'enabled'.
badDeadIntervals	long	tmnxOspfIfBadDeadIntervals	The value of tmnxOspfIfBadDeadIntervals indicates the total number of OSPF packets received where the dead interval given in the packet was not equal to that configured on this interface since tmnxOspfAdminState was last set to 'enabled'.
badDestinationAddresses	long	tmnxOspfIfBadDstAddrs	The value of tmnxOspfIfBadDstAddrs indicates the total number of OSPF packets received with the incorrect IP destination address since tmnxOspfAdminState was last set to 'enabled'.
badHelloIntervals	long	tmnxOspfIfBadHelloIntervals	The value of tmnxOspfIfBadHelloIntervals indicates the total number of OSPF packets received where the hello interval given in packet was not equal to that configured on this interface since tmnxOspfAdminState was last set to 'enabled'.
badLengths	long	tmnxOspfIfBadLengths	The value of tmnxOspfIfBadLengths indicates the total number of OSPF packets received on this interface with a total length not equal to the length given in the packet itself since tmnxOspfAdminState was last set to 'enabled'.

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5620 SAM counter name	Type	MIB counter name	Description
badNeighbors	long	tmnxOspfIfBadNeighbors	The value of tmnxOspfIfBadNeighbors indicates the total number of OSPF packets received where the neighbor information does not match the information this router has for the neighbor since tmnxOspfAdminState was last set to 'enabled'.
badNetworks	long	tmnxOspfIfBadNetworks	The value of tmnxOspfIfBadNetworks indicates the total number of OSPF packets received with invalid network or mask since tmnxOspfAdminState was last set to 'enabled'.
badOptions	long	tmnxOspfIfBadOptions	The value of tmnxOspfIfBadOptions indicates the total number of OSPF packets received with an option that does not match those configured for this interface or area since tmnxOspfAdminState was last set to 'enabled'.
badPacketTypes	long	tmnxOspfIfBadPacketTypes	The value of tmnxOspfIfBadPacketTypes indicates the total number of OSPF packets received with an invalid OSPF packet type since tmnxOspfAdminState was last set to 'enabled'.
badVersions	long	tmnxOspfIfBadVersions	The value of tmnxOspfIfBadVersions indicates the total number of OSPF packets received with bad OSPF version numbers since tmnxOspfAdminState was last set to 'enabled'.
badVirtualLinks	long	tmnxOspfIfBadVirtualLinks	The value of tmnxOspfIfBadVirtualLinks indicates the total number of OSPF packets received on this interface that are destined to a virtual link that does not exist since tmnxOspfAdminState was last set to 'enabled'.
discardPackets	long	tmnxOspfIfDiscardPackets	The value of tmnxOspfIfDiscardPackets indicates the total number of OSPF packets discarded on this interface since tmnxOspfAdminState was last set to 'enabled'.
retransmitOuts	long	tmnxOspfIfRetransmitOuts	The value of tmnxOspfIfRetransmitOuts indicates the total number of OSPF Retransmits sent on this interface since tmnxOspfAdminState was last set to 'enabled'.
<b>InterfaceTransmitStats</b> MIB table name: TIMETRA-OSPF-NG-MIB.tmnxOspfIfStatsTable Monitored class: ospf.Interface			
databaseDescriptionPackets	long	tmnxOspfIfRxDBDs	The value of tmnxOspfIfRxDBDs indicates the total number of OSPF Database Description packets received on this interface since tmnxOspfAdminState was last set to 'enabled'.

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5620 SAM counter name	Type	MIB counter name	Description
databaseDescriptionPackets	long	tmnxOspfIfTxDBDs	The value of tmnxOspfIfTxDBDs indicates the total number of OSPF Database Description packets transmitted on this interface since tmnxOspfAdminState was last set to 'enabled'.
helloPackets	long	tmnxOspfIfRxHellos	The value of tmnxOspfIfRxHellos indicates the total number of OSPF Hello packets received on this interface since tmnxOspfAdminState was last set to 'enabled'.
helloPackets	long	tmnxOspfIfTxHellos	The value of tmnxOspfIfTxHellos indicates the total number of OSPF Hello packets transmitted on this interface since tmnxOspfAdminState was last set to 'enabled'.
linkStateAcknowledgements	long	tmnxOspfIfRxLSAcks	The value of tmnxOspfIfRxLSAcks indicates the total number of Link State Acknowledgements received on this interface since tmnxOspfAdminState was last set to 'enabled'.
linkStateAcknowledgements	long	tmnxOspfIfTxLSAcks	The value of tmnxOspfIfTxLSAcks indicates the total number of OSPF Link State Acknowledgements transmitted on this interface since tmnxOspfAdminState was last set to 'enabled'.
linkStateRequests	long	tmnxOspfIfRxLSRs	The value of tmnxOspfIfRxLSRs indicates the total number of Link State Requests (LSRs) received on this interface since tmnxOspfAdminState was last set to 'enabled'.
linkStateRequests	long	tmnxOspfIfTxLSRs	The value of tmnxOspfIfTxLSRs indicates the total number of OSPF Link State Requests (LSRs) transmitted on this interface since tmnxOspfAdminState was last set to 'enabled'.
linkStateUpdates	long	tmnxOspfIfRxLSUs	The value of tmnxOspfIfRxLSUs indicates the total number of Link State Updates (LSUs) received on this interface since tmnxOspfAdminState was last set to 'enabled'.
linkStateUpdates	long	tmnxOspfIfTxLSUs	The value of tmnxOspfIfTxLSUs indicates the total number of OSPF Link State Updates (LSUs) transmitted on this interface since tmnxOspfAdminState was last set to 'enabled'.
totalPackets	long	tmnxOspfIfRxPackets	The value of tmnxOspfIfRxPackets indicates the total number of OSPF packets received on this interface since tmnxOspfAdminState was last set to 'enabled'.
totalPackets	long	tmnxOspfIfTxPackets	The value of tmnxOspfIfTxPackets indicates the total number of OSPF packets transmitted on this interface since tmnxOspfAdminState was last set to 'enabled'.

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5620 SAM counter name	Type	MIB counter name	Description
<b>NeighborGeneralStats</b> MIB table name: TIMETRA-OSPF-NG-MIB.tmnxOspfNbrStatsTable Monitored classes: <ul style="list-style-type: none"> <li>ospf.Neighbor</li> <li>ospf.OspfNeighbor</li> </ul>			
events	long	tmnxOspfNbrEvents	The value of tmnxOspfNbrEvents indicates the number of times this neighbor relationship has changed state, or an error has occurred.
retransmissionQueueLength	long	tmnxOspfNbrLsRetransQLen	The value of tmnxOspfNbrLsRetransQLen indicates the current length of the retransmission queue.
<b>NeighborStatusStats</b> MIB table name: TIMETRA-OSPF-NG-MIB.tmnxOspfNbrStatsTable Monitored class: ospf.Neighbor			
badMtus	long	tmnxOspfNbrBadMTUs	The value of tmnxOspfNbrBadMTUs indicates the total number of times when the MTU in a received database description packet was larger than the MTU of the receiving interface since tmnxOspfAdminState was last set to 'enabled'.
badNeighborStates	long	tmnxOspfNbrBadNbrStates	The value of tmnxOspfNbrBadNbrStates indicates the total number of OSPF packets received when the neighbor state was not expecting to receive this packet type since tmnxOspfAdminState was last set to 'enabled'.
badPackets	long	tmnxOspfNbrBadPackets	The value of tmnxOspfNbrBadPackets indicates the total number of times when an LS update was received with an illegal LS type or an option mismatch since tmnxOspfAdminState was last set to 'enabled'.
badSequenceNumbers	long	tmnxOspfNbrBadSeqNums	The value of tmnxOspfNbrBadSeqNums indicates the total number of times when a database description packet was received with a sequence number mismatch since tmnxOspfAdminState was last set to 'enabled'.
duplicates	long	tmnxOspfNbrDuplicates	The value of tmnxOspfNbrDuplicates indicates the total number of times when a duplicate database description packet was received during the Exchange state since tmnxOspfAdminState was last set to 'enabled'.
lsaInstallFailed	long	tmnxOspfNbrLsaInstallFailed	The value of tmnxOspfNbrLsaInstallFailed indicates the total number of times an LSA could not be installed into the LSDB due to a resource allocation issue since tmnxOspfAdminState was last set to 'enabled'.

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5620 SAM counter name	Type	MIB counter name	Description
lsaNotInLSDB	long	tmnxOspfNbrLsaNotInLsds	The value of tmnxOspfNbrLsaNotInLsds indicates the total number of times when an LS request was received for an LSA not installed in the LSDB of this router since tmnxOspfAdminState was last set to 'enabled'.
numberOfRestarts	long	tmnxOspfNbrNumRestarts	The value of tmnxOspfNbrNumRestarts indicates the number of times the neighbor has attempted restart.
optionMismatches	long	tmnxOspfNbrOptionMismatches	The value of tmnxOspfNbrOptionMismatches indicates the total number of times when a LS update was received with an option mismatch since tmnxOspfAdminState was last set to 'enabled'.
<b>ShamLinkGeneralStats</b> MIB table name: TIMETRA-OSPF-NG-MIB.tmnxOspfShamIfStatsTable Monitored class: ospf.ShamLink			
events	long	tmnxOspfShamIfEvents	The value of tmnxOspfShamIfEvents indicates the number of state changes or error events on this sham link.
<b>ShamLinkNeighborGeneralStats</b> MIB table name: TIMETRA-OSPF-NG-MIB.tmnxOspfShamNbrStatsTable Monitored class: ospf.ShamLinkNeighbor			
events	long	tmnxOspfShamNbrEvents	The value of tmnxOspfShamNbrEvents indicates the number of times this sham link has changed its state, or an error has occurred.
retransmissionQueueLength	long	tmnxOspfShamNbrLsRetransQLen	The value of tmnxOspfShamNbrLsRetransQLen indicates the current length of the retransmission queue.
<b>ShamLinkNeighborStatusStats</b> MIB table name: TIMETRA-OSPF-NG-MIB.tmnxOspfShamNbrStatsTable Monitored class: ospf.ShamLinkNeighbor			
badMtus	long	tmnxOspfShamNbrBadMTUs	The value of tmnxOspfShamNbrBadMTUs indicates the total number of times when the MTU in a received database description packet was larger than the MTU of the receiving interface since tmnxOspfAdminState was last set to 'enabled'.
badPackets	long	tmnxOspfShamNbrBadPackets	The value of tmnxOspfShamNbrBadPackets indicates the total number of times when an LS update was received with an illegal LS type or an option mismatch since tmnxOspfAdminState was last set to 'enabled'.

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5620 SAM counter name	Type	MIB counter name	Description
badSequenceNumbers	long	tmnxOspfShamNbrBadSeqNums	The value of tmnxOspfShamNbrBadSeqNums indicates the total number of times when a database description packet was received with a sequence number mismatch since tmnxOspfAdminState was last set to 'enabled'.
badVirtualNeighborStates	long	tmnxOspfShamNbrBadNbrStates	The value of tmnxOspfShamNbrBadNbrStates indicates the total number of OSPF packets received when the sham link neighbor state was not expecting to receive this packet type since tmnxOspfAdminState was last set to 'enabled'.
duplicates	long	tmnxOspfShamNbrDuplicates	The value of tmnxOspfShamNbrDuplicates indicates the total number of times when a duplicate database description packet was received during the Exchange state since tmnxOspfAdminState was last set to 'enabled'.
lsaInstallFailed	long	tmnxOspfShamNbrLsaInstallFail	The value of tmnxOspfShamNbrLsaInstallFail indicates the total number of times when an LSA could not be installed into the LSDB due to a resource allocation issue since tmnxOspfAdminState was last set to 'enabled'.
lsaNotInLSDB	long	tmnxOspfShamNbrLsaNotInLsdb	The value of tmnxOspfShamNbrLsaNotInLsdb indicates the total number of times when an LS request was received for an LSA not installed in the LSDB of this router since tmnxOspfAdminState was last set to 'enabled'.
numberOfRestarts	long	tmnxOspfShamNbrNumRestarts	The value of tmnxOspfShamNbrNumRestarts indicates the number of times the sham link neighbor has attempted restart since tmnxOspfAdminState was last set to 'enabled'.
optionMismatches	long	tmnxOspfShamNbrOptionMismatch	The value of tmnxOspfShamNbrOptionMismatch indicates the total number of times when a LS update was received with an option mismatch since tmnxOspfAdminState was last set to 'enabled'.
<b>ShamLinkReceiveStats</b> MIB table name: TIMETRA-OSPF-NG-MIB.tmnxOspfShamIfStatsTable Monitored class: ospf.ShamLink			
databaseDescriptionPackets	long	tmnxOspfShamIfRxDBDs	The value of tmnxOspfShamIfRxDBDs indicates the total number of OSPF Database Description packets received on this sham link since tmnxOspfAdminState was last set to 'enabled'.

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5620 SAM counter name	Type	MIB counter name	Description
databaseDescriptionPackets	long	tmnxOspfShamIfTxDBDs	The value of tmnxOspfShamIfTxDBDs indicates the total number of OSPF Database Description packets transmitted on this sham link since tmnxOspfAdminState was last set to 'enabled'.
helloPackets	long	tmnxOspfShamIfRxHellos	The value of tmnxOspfShamIfRxHellos indicates the total number of OSPF Hello packets received on this sham link since tmnxOspfAdminState was last set to 'enabled'.
helloPackets	long	tmnxOspfShamIfTxHellos	The value of tmnxOspfShamIfTxHellos indicates the total number of OSPF Hello packets transmitted on this sham link since tmnxOspfAdminState was last set to 'enabled'.
linkStateAcknowledgements	long	tmnxOspfShamIfRxLSAcks	The value of tmnxOspfShamIfRxLSAcks indicates the total number of Link State Acknowledgements received on this sham link since tmnxOspfAdminState was last set to 'enabled'.
linkStateAcknowledgements	long	tmnxOspfShamIfTxLSAcks	The value of tmnxOspfShamIfTxLSAcks indicates the total number of OSPF Link State Acknowledgements transmitted on this sham link since tmnxOspfAdminState was last set to 'enabled'.
linkStateRequests	long	tmnxOspfShamIfRxLSRs	The value of tmnxOspfShamIfRxLSRs indicates the total number of Link State Requests (LSRs) received on this sham link since tmnxOspfAdminState was last set to 'enabled'.
linkStateRequests	long	tmnxOspfShamIfTxLSRs	The value of tmnxOspfShamIfTxLSRs indicates the total number of OSPF Link State Requests (LSRs) transmitted on this sham link since tmnxOspfAdminState was last set to 'enabled'.
linkStateUpdates	long	tmnxOspfShamIfRxLSUs	The value of tmnxOspfShamIfRxLSUs indicates the total number of Link State Updates (LSUs) received on this sham link since tmnxOspfAdminState was last set to 'enabled'.
linkStateUpdates	long	tmnxOspfShamIfTxLSUs	The value of tmnxOspfShamIfTxLSUs indicates the total number of OSPF Link State Updates (LSUs) transmitted on this sham link since tmnxOspfAdminState was last set to 'enabled'.
lsasWithBadChecksums	long	tmnxOspfShamIfRxBadChecksums	The value of tmnxOspfShamIfRxBadChecksums indicates the count of LSAs received with bad checksums.
totalPackets	long	tmnxOspfShamIfRxPackets	The value of tmnxOspfShamIfRxPackets indicates the total number of OSPF packets received on this sham link since tmnxOspfAdminState was last set to 'enabled'.

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5620 SAM counter name	Type	MIB counter name	Description
totalPackets	long	tmnxOspfShamIfTxPackets	The value of tmnxOspfShamIfTxPackets indicates the total number of OSPF packets transmitted on this sham link since tmnxOspfAdminState was last set to 'enabled'.
<b>ShamLinkStatusStats</b> MIB table name: TIMETRA-OSPF-NG-MIB.tmnxOspfShamIfStatsTable Monitored class: ospf.ShamLink			
authorizationFailures	long	tmnxOspfShamIfAuthFailures	The value of tmnxOspfShamIfAuthFailures indicates the total number of OSPF packets received with an invalid authorization key since tmnxOspfAdminState was last set to 'enabled'.
badAreas	long	tmnxOspfShamIfBadAreas	The value of tmnxOspfShamIfBadAreas indicates the total number of OSPF packets received with an area mismatch since tmnxOspfAdminState was last set to 'enabled'.
badAuthorizationTypes	long	tmnxOspfShamIfBadAuthTypes	The value of tmnxOspfShamIfBadAuthTypes indicates the total number of OSPF packets received with an invalid authorization type since tmnxOspfAdminState was last set to 'enabled'.
badDeadIntervals	long	tmnxOspfShamIfBadDeadIntervals	The value of tmnxOspfShamIfBadDeadIntervals indicates the total number of OSPF packets received where the dead interval given in the packet was not equal to that configured on this sham link since tmnxOspfAdminState was last set to 'enabled'.
badDestinationAddresses	long	tmnxOspfShamIfBadDstAddrs	The value of tmnxOspfShamIfBadDstAddrs indicates the total number of OSPF packets received with the incorrect IP destination address since tmnxOspfAdminState was last set to 'enabled'.
badHelloIntervals	long	tmnxOspfShamIfBadHelloIntervals	The value of tmnxOspfShamIfBadHelloIntervals indicates the total number of OSPF packets received where the hello interval given in packet was not equal to that configured on this sham link since tmnxOspfAdminState was last set to 'enabled'.
badLengths	long	tmnxOspfShamIfBadLengths	The value of tmnxOspfShamIfBadLengths indicates the total number of OSPF packets received on this sham link with a total length not equal to the length given in the packet itself since tmnxOspfAdminState was last set to 'enabled'.

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5620 SAM counter name	Type	MIB counter name	Description
badNeighbors	long	tmnxOspfShamIfBadNeighbors	The value of tmnxOspfShamIfBadNeighbors indicates the total number of OSPF packets received where the neighbor information does not match the information this router has for the neighbor since tmnxOspfAdminState was last set to 'enabled'.
badNetworks	long	tmnxOspfShamIfBadNetworks	The value of tmnxOspfShamIfBadNetworks indicates the total number of OSPF packets received with invalid network or mask since tmnxOspfAdminState was last set to 'enabled'.
badOptions	long	tmnxOspfShamIfBadOptions	The value of tmnxOspfShamIfBadOptions indicates the total number of OSPF packets received with an option that does not match those configured for this sham link or area since tmnxOspfAdminState was last set to 'enabled'.
badPacketTypes	long	tmnxOspfShamIfBadPacketTypes	The value of tmnxOspfShamIfBadPacketTypes indicates the total number of OSPF packets received with an invalid OSPF packet type since tmnxOspfAdminState was last set to 'enabled'.
badVersions	long	tmnxOspfShamIfBadVersions	The value of tmnxOspfShamIfBadVersions indicates the total number of OSPF packets received with bad OSPF version numbers since tmnxOspfAdminState was last set to 'enabled'.
discardPackets	long	tmnxOspfShamIfDiscardPackets	The value of tmnxOspfShamIfDiscardPackets indicates the total number of OSPF packets discarded on this sham link since tmnxOspfAdminState was last set to 'enabled'.
retransmitOuts	long	tmnxOspfShamIfRetransmitOuts	The value of tmnxOspfShamIfRetransmitOuts indicates the total number of OSPF Retransmits sent on this sham link since tmnxOspfAdminState was last set to 'enabled'.
<b>ShamLinkTransmitStats</b> MIB table name: TIMETRA-OSPF-NG-MIB.tmnxOspfShamIfStatsTable Monitored class: ospf.ShamLink			
databaseDescriptionPackets	long	tmnxOspfShamIfRxDBDs	The value of tmnxOspfShamIfRxDBDs indicates the total number of OSPF Database Description packets received on this sham link since tmnxOspfAdminState was last set to 'enabled'.
databaseDescriptionPackets	long	tmnxOspfShamIfTxDBDs	The value of tmnxOspfShamIfTxDBDs indicates the total number of OSPF Database Description packets transmitted on this sham link since tmnxOspfAdminState was last set to 'enabled'.

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5620 SAM counter name	Type	MIB counter name	Description
helloPackets	long	tmnxOspfShamIfRxHellos	The value of tmnxOspfShamIfRxHellos indicates the total number of OSPF Hello packets received on this sham link since tmnxOspfAdminState was last set to 'enabled'.
helloPackets	long	tmnxOspfShamIfTxHellos	The value of tmnxOspfShamIfTxHellos indicates the total number of OSPF Hello packets transmitted on this sham link since tmnxOspfAdminState was last set to 'enabled'.
linkStateAcknowledgements	long	tmnxOspfShamIfRxLSAcks	The value of tmnxOspfShamIfRxLSAcks indicates the total number of Link State Acknowledgements received on this sham link since tmnxOspfAdminState was last set to 'enabled'.
linkStateAcknowledgements	long	tmnxOspfShamIfTxLSAcks	The value of tmnxOspfShamIfTxLSAcks indicates the total number of OSPF Link State Acknowledgements transmitted on this sham link since tmnxOspfAdminState was last set to 'enabled'.
linkStateRequests	long	tmnxOspfShamIfRxLSRs	The value of tmnxOspfShamIfRxLSRs indicates the total number of Link State Requests (LSRs) received on this sham link since tmnxOspfAdminState was last set to 'enabled'.
linkStateRequests	long	tmnxOspfShamIfTxLSRs	The value of tmnxOspfShamIfTxLSRs indicates the total number of OSPF Link State Requests (LSRs) transmitted on this sham link since tmnxOspfAdminState was last set to 'enabled'.
linkStateUpdates	long	tmnxOspfShamIfRxLSUs	The value of tmnxOspfShamIfRxLSUs indicates the total number of Link State Updates (LSUs) received on this sham link since tmnxOspfAdminState was last set to 'enabled'.
linkStateUpdates	long	tmnxOspfShamIfTxLSUs	The value of tmnxOspfShamIfTxLSUs indicates the total number of OSPF Link State Updates (LSUs) transmitted on this sham link since tmnxOspfAdminState was last set to 'enabled'.
totalPackets	long	tmnxOspfShamIfRxPackets	The value of tmnxOspfShamIfRxPackets indicates the total number of OSPF packets received on this sham link since tmnxOspfAdminState was last set to 'enabled'.
totalPackets	long	tmnxOspfShamIfTxPackets	The value of tmnxOspfShamIfTxPackets indicates the total number of OSPF packets transmitted on this sham link since tmnxOspfAdminState was last set to 'enabled'.
<b>SiteStats</b> MIB table name: TIMETRA-OSPF-NG-MIB.tmnxOspfStatisticsTable Monitored class: ospf.Site			

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5620 SAM counter name	Type	MIB counter name	Description
addRouteFailed	long	tmnxOspfRoutesAddsFailed	The value of tmnxOspfRoutesAddsFailed indicates the number of times an attempt to add a route to the Route Table Manager (RTM) failed for this OSPF instance.
cspfDroppedRequests	long	tmnxOspfCSPFDroppedRequests	The value of tmnxOspfCSPFDroppedRequests indicates the number of dropped CSPF requests made by the OSPF protocol.
cspfPathsFound	long	tmnxOspfCSPFPathsFound	The value of tmnxOspfCSPFPathsFound indicates the number of paths found for the requests made to OSPF protocol.
cspfPathsNotFound	long	tmnxOspfCSPFPathsNotFound	The value of tmnxOspfCSPFPathsNotFound indicates the number of paths not found for the requests made to OSPF protocol.
cspfRequests	long	tmnxOspfCSPFRequests	The value of tmnxOspfCSPFRequests indicates the number of CSPF requests made to the OSPF protocol.
deleteRouteFailed	long	tmnxOspfRoutesDelsFailed	The value of tmnxOspfRoutesDelsFailed indicates the number of times an attempt to delete a route from the Route Table Manager (RTM) failed for this instance of OSPF.
inOverflowCount	long	tmnxOspfNumTimesInOverflow	The value of tmnxOspfNumTimesInOverflow indicates the count of the number of times the system was in the overflow state.
inOverloadCount	long	tmnxOspfNumTimesInOverload	The value of tmnxOspfNumTimesInOverload indicates the count of the number of times the system was overloaded.
modifyRouteFailed	long	tmnxOspfRoutesModsFailed	The value of tmnxOspfRoutesModsFailed indicates the number of times an attempt to modify a route in the Route Table Manager (RTM) failed for this instance of OSPF.
newLsasOriginated	long	tmnxOspfOriginateNewLsas	The value of tmnxOspfOriginateNewLsas indicates the number of new link-state advertisements that have been originated. This number is incremented each time the router originates a new LSA.
newLsasReceived	long	tmnxOspfRxNewLsas	The value of tmnxOspfRxNewLsas indicates the number of link-state advertisements received determined to be new instantiations. This number does not include newer instantiations of self-originated link-state advertisements.
spfAttemptsFailed	long	tmnxOspfSpfAttemptsFailed	The value of tmnxOspfSpfAttemptsFailed indicates the number of times an attempt to run SPF has failed because SPF runs have been stopped as a result of insufficient memory resources.

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5620 SAM counter name	Type	MIB counter name	Description
<b>VirtualLinkGeneralStats</b> MIB table name: TIMETRA-OSPF-NG-MIB.tmnxOspfVirtIfStatsTable Monitored class: ospf.VirtualLink			
events	long	tmnxOspfVirtIfEvents	The value of tmnxOspfVirtIfEvents indicates the number of state changes or error events on this Virtual Link.
<b>VirtualLinkReceiveStats</b> MIB table name: TIMETRA-OSPF-NG-MIB.tmnxOspfVirtIfStatsTable Monitored class: ospf.VirtualLink			
databaseDescriptionPackets	long	tmnxOspfVirtIfRxDBDs	The value of tmnxOspfVirtIfRxDBDs indicates the total number of OSPF Database Description packets received on this virtual interface.
databaseDescriptionPackets	long	tmnxOspfVirtIfTxDBDs	The value of tmnxOspfVirtIfTxDBDs indicates the total number of OSPF Database Description packets transmitted on this virtual interface.
helloPackets	long	tmnxOspfVirtIfRxHellos	The value of tmnxOspfVirtIfRxHellos indicates the total number of OSPF Hello packets received on this virtual interface.
helloPackets	long	tmnxOspfVirtIfTxHellos	The value of tmnxOspfVirtIfTxHellos indicates the total number of OSPF Hello packets transmitted on this virtual interface since it was created.
linkStateAcknowledgements	long	tmnxOspfVirtIfRxLSAcks	The value of tmnxOspfVirtIfRxLSAcks indicates the total number of Link State Acknowledgements received on this virtual interface.
linkStateAcknowledgements	long	tmnxOspfVirtIfTxLSAcks	The value of tmnxOspfVirtIfTxLSAcks indicates the total number of OSPF Link State Acknowledgements transmitted on this virtual interface.
linkStateRequests	long	tmnxOspfVirtIfRxLSRs	The value of tmnxOspfVirtIfRxLSRs indicates the total number of OSPF Link State Requests (LSRs) received on this virtual interface.
linkStateRequests	long	tmnxOspfVirtIfTxLSRs	The value of tmnxOspfVirtIfTxLSRs indicates the total number of OSPF Link State Requests (LSRs) transmitted on this virtual interface.
linkStateUpdates	long	tmnxOspfVirtIfRxLSUs	The value of tmnxOspfVirtIfRxLSUs indicates the total number of OSPF Link State Updates (LSUs) received on this virtual interface.
linkStateUpdates	long	tmnxOspfVirtIfTxLSUs	The value of tmnxOspfVirtIfTxLSUs indicates the total number of OSPF Link State Updates (LSUs) transmitted on this virtual interface.
lsasWithBadChecksums	long	tmnxOspfVirtIfRxBadChecksums	The value of tmnxOspfVirtIfRxBadChecksums indicates the count of LSAs received with bad checksums.

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5620 SAM counter name	Type	MIB counter name	Description
totalPackets	long	tmnxOspfVirtIfRxPackets	The value of tmnxOspfVirtIfRxPackets indicates the total number of OSPF packets received on this virtual interface since it was created.
totalPackets	long	tmnxOspfVirtIfTxPackets	The value of tmnxOspfVirtIfTxPackets indicates the total number of OSPF packets transmitted on this virtual interface since it was created.
<b>VirtualLinkStatusStats</b> MIB table name: TIMETRA-OSPF-NG-MIB.tmnxOspfVirtIfStatsTable Monitored class: ospf.VirtualLink			
authorizationFailures	long	tmnxOspfVirtIfAuthFailures	The value of tmnxOspfVirtIfAuthFailures indicates the total number of OSPF packets received on this virtual interface with invalid authentication keys.
badAreas	long	tmnxOspfVirtIfBadAreas	The value of tmnxOspfVirtIfBadAreas indicates the total number of OSPF packets received on this virtual interface with area mismatches.
badAuthorizationTypes	long	tmnxOspfVirtIfBadAuthTypes	The value of tmnxOspfVirtIfBadAuthTypes indicates the total number of OSPF packets received on this virtual interface with invalid authentication types.
badDeadIntervals	long	tmnxOspfVirtIfBadDeadIntervals	The value of tmnxOspfVirtIfBadDeadIntervals indicates the total number of OSPF packets received where the dead interval given in the packet was not equal to that configured on this virtual interface since tmnxOspfAdminState was last set to 'enabled'.
badDestinationAddresses	long	tmnxOspfVirtIfBadDstAddrs	The value of tmnxOspfVirtIfBadDstAddrs indicates the total number of OSPF packets received on this virtual interface with invalid destination IP address.
badHelloIntervals	long	tmnxOspfVirtIfBadHelloIntervals	The value of tmnxOspfVirtIfBadHelloIntervals indicates the total number of OSPF packets received where the hello interval given in packet was not equal to that configured on this virtual interface since tmnxOspfAdminState was last set to 'enabled'.
badLengths	long	tmnxOspfVirtIfBadLengths	The value of tmnxOspfVirtIfBadLengths indicates the total number of OSPF packets received on this virtual interface with a total length not equal to the length given in the packet itself since tmnxOspfAdminState was last set to 'enabled'.
badNeighbors	long	tmnxOspfVirtIfBadNeighbors	The value of tmnxOspfVirtIfBadNeighbors indicates the total number of OSPF packets received where the neighbor information does not match the configuration this router has for the neighbor.

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5620 SAM counter name	Type	MIB counter name	Description
badNetworks	long	tmnxOspfVirtIfBadNetworks	The value of tmnxOspfVirtIfBadNetworks indicates the total number of OSPF packets received on this virtual interface with invalid network or mask fields.
badOptions	long	tmnxOspfVirtIfBadOptions	The value of tmnxOspfVirtIfBadOptions indicates the total number of OSPF packets received with an option that does not match those configured for this virtual interface or transit-area since tmnxOspfAdminState was last set to 'enabled'.
badPacketTypes	long	tmnxOspfVirtIfBadPacketTypes	The value of tmnxOspfVirtIfBadPacketTypes indicates the total number of OSPF packets received on this virtual interface with invalid OSPF packet types.
badVersions	long	tmnxOspfVirtIfBadVersions	The value of tmnxOspfVirtIfBadVersions indicates the total number of OSPF packets received on this virtual interface with invalid OSPF version numbers.
discardPackets	long	tmnxOspfVirtIfDiscardPackets	The value of tmnxOspfVirtIfDiscardPackets indicates the total number of OSPF packets discarded on this virtual interface.
retransmitOuts	long	tmnxOspfVirtIfRetransmitOuts	The value of tmnxOspfVirtIfRetransmitOuts indicates the total number of OSPF packets retransmitted on this virtual interface.
<b>VirtualLinkTransmitStats</b> MIB table name: TIMETRA-OSPF-NG-MIB.tmnxOspfVirtIfStatsTable Monitored class: ospf.VirtualLink			
databaseDescriptionPackets	long	tmnxOspfVirtIfRxDBDs	The value of tmnxOspfVirtIfRxDBDs indicates the total number of OSPF Database Description packets received on this virtual interface.
databaseDescriptionPackets	long	tmnxOspfVirtIfTxDBDs	The value of tmnxOspfVirtIfTxDBDs indicates the total number of OSPF Database Description packets transmitted on this virtual interface.
helloPackets	long	tmnxOspfVirtIfRxHellos	The value of tmnxOspfVirtIfRxHellos indicates the total number of OSPF Hello packets received on this virtual interface.
helloPackets	long	tmnxOspfVirtIfTxHellos	The value of tmnxOspfVirtIfTxHellos indicates the total number of OSPF Hello packets transmitted on this virtual interface since it was created.
linkStateAcknowledgements	long	tmnxOspfVirtIfRxLSAcks	The value of tmnxOspfVirtIfRxLSAcks indicates the total number of Link State Acknowledgements received on this virtual interface.
linkStateAcknowledgements	long	tmnxOspfVirtIfTxLSAcks	The value of tmnxOspfVirtIfTxLSAcks indicates the total number of OSPF Link State Acknowledgements transmitted on this virtual interface.

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5620 SAM counter name	Type	MIB counter name	Description
linkStateRequests	long	tmnxOspfVirtIfRxLSRs	The value of tmnxOspfVirtIfRxLSRs indicates the total number of OSPF Link State Requests (LSRs) received on this virtual interface.
linkStateRequests	long	tmnxOspfVirtIfTxLSRs	The value of tmnxOspfVirtIfTxLSRs indicates the total number of OSPF Link State Requests (LSRs) transmitted on this virtual interface.
linkStateUpdates	long	tmnxOspfVirtIfRxLSUs	The value of tmnxOspfVirtIfRxLSUs indicates the total number of OSPF Link State Updates (LSUs) received on this virtual interface.
linkStateUpdates	long	tmnxOspfVirtIfTxLSUs	The value of tmnxOspfVirtIfTxLSUs indicates the total number of OSPF Link State Updates (LSUs) transmitted on this virtual interface.
totalPackets	long	tmnxOspfVirtIfRxPackets	The value of tmnxOspfVirtIfRxPackets indicates the total number of OSPF packets received on this virtual interface since it was created.
totalPackets	long	tmnxOspfVirtIfTxPackets	The value of tmnxOspfVirtIfTxPackets indicates the total number of OSPF packets transmitted on this virtual interface since it was created.
<b>VirtualNeighborGeneralStats</b> MIB table name: TIMETRA-OSPF-NG-MIB.tmnxOspfVirtNbrStatsTable Monitored class: ospf.VirtualNeighbor			
events	long	tmnxOspfVirtNbrEvents	The value of tmnxOspfVirtNbrEvents indicates the number of times this virtual link has changed its state, or an error has occurred.
retransmissionQueueLength	long	tmnxOspfVirtNbrLsRetransQLen	The value of tmnxOspfVirtNbrLsRetransQLen indicates the current length of the retransmission queue.
<b>VirtualNeighborStatusStats</b> MIB table name: TIMETRA-OSPF-NG-MIB.tmnxOspfVirtNbrStatsTable Monitored class: ospf.VirtualNeighbor			
badMtus	long	tmnxOspfVirtNbrBadMTUs	The value of tmnxOspfVirtNbrBadMTUs indicates the total number of times when the MTU in a received database description packet was larger than the MTU of the receiving interface since tmnxOspfAdminState was last set to 'enabled'.
badPackets	long	tmnxOspfVirtNbrBadPackets	The value of tmnxOspfVirtNbrBadPackets indicates the total number of times when an LS update was received with an illegal LS type or an option mismatch since tmnxOspfAdminState was last set to 'enabled'.

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5620 SAM counter name	Type	MIB counter name	Description
badSequenceNumbers	long	tmnxOspfVirtNbrBadSeqNums	The value of tmnxOspfVirtNbrBadSeqNums indicates the total number of times when a database description packet was received with a sequence number mismatch since tmnxOspfAdminState was last set to 'enabled'.
badVirtualNeighborStates	long	tmnxOspfVirtNbrBadNbrStates	The value of tmnxOspfVirtNbrBadNbrStates indicates the total number of OSPF packets received when the virtual neighbor state was not expecting to receive this packet type since tmnxOspfAdminState was last set to 'enabled'.
duplicates	long	tmnxOspfVirtNbrDuplicates	The value of tmnxOspfVirtNbrDuplicates indicates the total number of times when a duplicate database description packet was received during the Exchange state since tmnxOspfAdminState was last set to 'enabled'.
lsaInstallFailed	long	tmnxOspfVirtNbrLsaInstallFail	The value of tmnxOspfVirtNbrLsaInstallFail indicates the total number of times when an LSA could not be installed into the LSDB due to a resource allocation issue since tmnxOspfAdminState was last set to 'enabled'.
lsaNotInLSDB	long	tmnxOspfVirtNbrLsaNotInLsdb	The value of tmnxOspfVirtNbrLsaNotInLsdb indicates the total number of times when an LS request was received for an LSA not installed in the LSDB of this router since tmnxOspfAdminState was last set to 'enabled'.
numberOfRestarts	long	tmnxOspfVirtNbrNumRestarts	The value of tmnxOspfVirtNbrNumRestarts indicates the number of times the virtual neighbor has attempted restart since tmnxOspfAdminState was last set to 'enabled'.
optionMismatches	long	tmnxOspfVirtNbrOptionMismatch	The value of tmnxOspfVirtNbrOptionMismatch indicates the total number of times when a LS update was received with an option mismatch since tmnxOspfAdminState was last set to 'enabled'.

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5620 SAM counter name	Type	MIB counter name	Description
<b>PaePortAuthenticatorDiagStats</b> MIB table name: IEEE8021-PAE-MIB.dot1xAuthDiagTable Monitored classes: <ul style="list-style-type: none"> <li>equipment.PhysicalPort</li> <li>equipment.ManagementPort</li> </ul>			
dot1xAuthAuthEapLogoffWhileAuthenticated	long	dot1xAuthAuthEapLogoffWhileAuthenticated	Counts the number of times that the state machine transitions from AUTHENTICATED to DISCONNECTED, as a result of an EAPOL-Logoff message being received from the Supplicant. REFERENCE 9.4.2, 8.5.4.2.12.
dot1xAuthAuthEapLogoffWhileAuthenticating	long	dot1xAuthAuthEapLogoffWhileAuthenticating	Counts the number of times that the state machine transitions from AUTHENTICATING to ABORTING, as a result of an EAPOL-Logoff message being received from the Supplicant. REFERENCE 9.4.2, 8.5.4.2.9.
dot1xAuthAuthEapStartsWhileAuthenticated	long	dot1xAuthAuthEapStartsWhileAuthenticated	Counts the number of times that the state machine transitions from AUTHENTICATED to CONNECTING, as a result of an EAPOL-Start message being received from the Supplicant. REFERENCE 9.4.2, 8.5.4.2.11.
dot1xAuthAuthEapStartsWhileAuthenticating	long	dot1xAuthAuthEapStartsWhileAuthenticating	Counts the number of times that the state machine transitions from AUTHENTICATING to ABORTING, as a result of an EAPOL-Start message being received from the Supplicant. REFERENCE 9.4.2, 8.5.4.2.8.
dot1xAuthAuthFailWhileAuthenticating	long	dot1xAuthAuthFailWhileAuthenticating	Counts the number of times that the state machine transitions from AUTHENTICATING to HELD, as a result of the Backend Authentication state machine indicating authentication failure (authFail = TRUE). REFERENCE 9.4.2, 8.5.4.2.6.
dot1xAuthAuthReauthsWhileAuthenticated	long	dot1xAuthAuthReauthsWhileAuthenticated	Counts the number of times that the state machine transitions from AUTHENTICATED to CONNECTING, as a result of a reauthentication request (reAuthenticate = TRUE). REFERENCE 9.4.2, 8.5.4.2.10.
dot1xAuthAuthReauthsWhileAuthenticating	long	dot1xAuthAuthReauthsWhileAuthenticating	Counts the number of times that the state machine transitions from AUTHENTICATING to ABORTING, as a result of a reauthentication request (reAuthenticate = TRUE). REFERENCE 9.4.2, 8.5.4.2.7.

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5620 SAM counter name	Type	MIB counter name	Description
dot1xAuthAuthSuccessWhileAuthenticating	long	dot1xAuthAuthSuccessWhileAuthenticating	Counts the number of times that the state machine transitions from AUTHENTICATING to AUTHENTICATED, as a result of the Backend Authentication state machine indicating successful authentication of the Supplicant (authSuccess = TRUE). REFERENCE 9.4.2, 8.5.4.2.4.
dot1xAuthAuthTimeoutsWhileAuthenticating	long	dot1xAuthAuthTimeoutsWhileAuthenticating	Counts the number of times that the state machine transitions from AUTHENTICATING to ABORTING, as a result of the Backend Authentication state machine indicating authentication timeout (authTimeout = TRUE). REFERENCE 9.4.2, 8.5.4.2.5.
dot1xAuthBackendAccessChallenges	long	dot1xAuthBackendAccessChallenges	Counts the number of times that the state machine receives an initial Access-Challenge packet from the Authentication server (i.e., aReq becomes TRUE, causing exit from the RESPONSE state). Indicates that the Authentication Server has communication with the Authenticator. REFERENCE 9.4.2, 8.5.6.2.2.
dot1xAuthBackendAuthFails	long	dot1xAuthBackendAuthFails	Counts the number of times that the state machine receives an EAP-Failure message from the Authentication Server (i.e., aFail becomes TRUE, causing a transition from RESPONSE to FAIL). Indicates that the Supplicant has not authenticated to the Authentication Server. REFERENCE 9.4.2, 8.5.6.2.6.
dot1xAuthBackendAuthSuccesses	long	dot1xAuthBackendAuthSuccesses	Counts the number of times that the state machine receives an EAP-Success message from the Authentication Server (i.e., aSuccess becomes TRUE, causing a transition from RESPONSE to SUCCESS). Indicates that the Supplicant has successfully authenticated to the Authentication Server. REFERENCE 9.4.2, 8.5.6.2.5.
dot1xAuthBackendNonNakResponsesFromSupplicant	long	dot1xAuthBackendNonNakResponsesFromSupplicant	Counts the number of times that the state machine receives a response from the Supplicant to an initial EAP-Request, and the response is something other than EAP-NAK (i.e., rxResp becomes TRUE, causing the state machine to transition from REQUEST to RESPONSE, and the response is not an EAP-NAK). Indicates that the Supplicant can respond to the Authenticator's chosen EAP-method. REFERENCE 9.4.2, 8.5.6.2.4.
dot1xAuthBackendOtherRequestsToSupplicant	long	dot1xAuthBackendOtherRequestsToSupplicant	Counts the number of times that the state machine sends an EAP-Request packet (other than an Identity, Notification, Failure or Success message) to the Supplicant (i.e., executes txReq on entry to the REQUEST state). Indicates that the Authenticator chose an EAP-method. REFERENCE 9.4.2, 8.5.6.2.3.

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5620 SAM counter name	Type	MIB counter name	Description
dot1xAuthBackendResponses	long	dot1xAuthBackendResponses	Counts the number of times that the state machine sends an initial Access-Request packet to the Authentication server (i.e., executes sendRespToServer on entry to the RESPONSE state). Indicates that the Authenticator attempted communication with the Authentication Server. REFERENCE 9.4.2, 8.5.6.2.1.
dot1xAuthEapLogoffsWhileConnecting	long	dot1xAuthEapLogoffsWhileConnecting	Counts the number of times that the state machine transitions from CONNECTING to DISCONNECTED as a result of receiving an EAPOL-Logoff message. REFERENCE 9.4.2, 8.5.4.2.2.
dot1xAuthEntersAuthenticating	long	dot1xAuthEntersAuthenticating	Counts the number of times that the state machine transitions from CONNECTING to AUTHENTICATING, as a result of an EAP-Response/Identity message being received from the Supplicant. REFERENCE 9.4.2, 8.5.4.2.3.
dot1xAuthEntersConnecting	long	dot1xAuthEntersConnecting	Counts the number of times that the state machine transitions to the CONNECTING state from any other state. REFERENCE 9.4.2, 8.5.4.2.1.
<b>PaePortAuthenticatorSessionStats</b> MIB table name: IEEE8021-PAE-MIB.dot1xAuthSessionStatsTable Monitored classes: <ul style="list-style-type: none"> <li>• equipment.PhysicalPort</li> <li>• equipment.ManagementPort</li> </ul>			
dot1xAuthSessionAuthenticMethod	int	dot1xAuthSessionAuthenticMethod	The authentication method used to establish the session. REFERENCE 9.4.4, Session Authentication Method.
dot1xAuthSessionFramesRx	long	dot1xAuthSessionFramesRx	The number of user data frames received on this Port during the session. REFERENCE 9.4.4, Session Frames Received.
dot1xAuthSessionFramesTx	long	dot1xAuthSessionFramesTx	The number of user data frames transmitted on this Port during the session. REFERENCE 9.4.4, Session Frames Transmitted.
dot1xAuthSessionOctetsRx	UINT128	dot1xAuthSessionOctetsRx	The number of octets received in user data frames on this Port during the session. REFERENCE 9.4.4, Session Octets Received.
dot1xAuthSessionOctetsTx	UINT128	dot1xAuthSessionOctetsTx	The number of octets transmitted in user data frames on this Port during the session. REFERENCE 9.4.4, Session Octets Transmitted.
dot1xAuthSessionTerminateCause	int	dot1xAuthSessionTerminateCause	The reason for the session termination. REFERENCE 9.4.4, Session Terminate Cause.
dot1xAuthSessionTime	long	dot1xAuthSessionTime	The duration of the session in seconds. REFERENCE 9.4.4, Session Time.

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5620 SAM counter name	Type	MIB counter name	Description
<b>PaePortAuthenticatorStats</b> MIB table name: IEEE8021-PAE-MIB.dot1xAuthStatsTable Monitored classes: <ul style="list-style-type: none"> <li>• equipment.PhysicalPort</li> <li>• equipment.ManagementPort</li> </ul>			
dot1xAuthEapLengthErrorFramesRx	long	dot1xAuthEapLengthErrorFramesRx	The number of EAPOL frames that have been received by this Authenticator in which the Packet Body Length field is invalid. REFERENCE 9.4.2, EAP length error frames received.
dot1xAuthEapolFramesRx	long	dot1xAuthEapolFramesRx	The number of valid EAPOL frames of any type that have been received by this Authenticator. REFERENCE 9.4.2, EAPOL frames received.
dot1xAuthEapolFramesTx	long	dot1xAuthEapolFramesTx	The number of EAPOL frames of any type that have been transmitted by this Authenticator. REFERENCE 9.4.2, EAPOL frames transmitted.
dot1xAuthEapolLogoffFramesRx	long	dot1xAuthEapolLogoffFramesRx	The number of EAPOL Logoff frames that have been received by this Authenticator. REFERENCE 9.4.2, EAPOL Logoff frames received.
dot1xAuthEapolReqFramesTx	long	dot1xAuthEapolReqFramesTx	The number of EAP Request frames (other than Rq/Id frames) that have been transmitted by this Authenticator. REFERENCE 9.4.2, EAPOL Request frames transmitted.
dot1xAuthEapolReqIdFramesTx	long	dot1xAuthEapolReqIdFramesTx	The number of EAP Req/Id frames that have been transmitted by this Authenticator. REFERENCE 9.4.2, EAPOL Req/Id frames transmitted.
dot1xAuthEapolRespFramesRx	long	dot1xAuthEapolRespFramesRx	The number of valid EAP Response frames (other than Resp/Id frames) that have been received by this Authenticator. REFERENCE 9.4.2, EAPOL Response frames received.
dot1xAuthEapolRespIdFramesRx	long	dot1xAuthEapolRespIdFramesRx	The number of EAP Resp/Id frames that have been received by this Authenticator. REFERENCE 9.4.2, EAPOL Resp/Id frames received.
dot1xAuthEapolStartFramesRx	long	dot1xAuthEapolStartFramesRx	The number of EAPOL Start frames that have been received by this Authenticator. REFERENCE 9.4.2, EAPOL Start frames received.
dot1xAuthInvalidEapolFramesRx	long	dot1xAuthInvalidEapolFramesRx	The number of EAPOL frames that have been received by this Authenticator in which the frame type is not recognized. REFERENCE 9.4.2, Invalid EAPOL frames received.
dot1xAuthLastEapolFrameVersion	long	dot1xAuthLastEapolFrameVersion	The protocol version number carried in the most recently received EAPOL frame. REFERENCE 9.4.2, Last EAPOL frame version.

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Table A-39 pim statistics

5620 SAM counter name	Type	MIB counter name	Description
<b>InterfaceAdditionalStats</b> MIB table name: TIMETRA-PIM-NG-MIB.vRtrPimNgIfStatsTable Monitored class: pim.Interface			
bootstrapExpPolicyDrops	long	vRtrPimNgIfBtrExpPolicyDrops	The value of vRtrPimNgIfBtrExpPolicyDrops indicates the number of Bootstrap Messages that were not transmitted on this interface because of Bootstrap export policy. PIM Bootstrap export policies are configured using bootstrap export policy objects in vRtrPimNgGenPolicyTable.
bootstrapImpPolicyDrops	long	vRtrPimNgIfBtrImpPolicyDrops	The value of vRtrPimNgIfBtrImpPolicyDrops indicates the number of Bootstrap Messages received on this interface but were dropped because of Bootstrap import policy. PIM Bootstrap import policies are configured using bootstrap import policy objects in vRtrPimNgGenPolicyTable.
joinPolicyDrops	long	vRtrPimNgIfJoinPolicyDrops	The value of vRtrPimNgIfJoinPolicyDrops indicates the number of times the join policy match resulted in dropping PIM Join-Prune Message or one of the source group contained in the message. PIM Join policies are configured using join policy objects in vRtrPimNgGenPolicyTable.
registerPolicyDrops	long	vRtrPimNgIfRegisterPolicyDrops	The value of vRtrPimNgIfRegisterPolicyDrops indicates the number of times the register policy match resulted in dropping PIM Register Message. PIM Register policies are configured using the register policy objects in vRtrPimNgGenPolicyTable.
rxBSMNoRouterAlertDrops	long	vRtrPimNgIfRxBSMNoRouterAlertDrops	The value of vRtrPimNgIfRxBSMNoRouterAlertDrops indicates the number of BSM messages that were dropped because router alert option was not present.
rxBSMWrongIfDrops	long	vRtrPimNgIfRxBSMWrongIfDrops	The value of vRtrPimNgIfRxBSMWrongIfDrops indicates the number of BSM messages that were dropped either because they were not sent by the correct RPF neighbor or because they arrived on the wrong interface.
rxInvalidJoinPrunes	long	vRtrPimNgIfRxInvalidJoinPrunes	The value of vRtrPimNgIfRxInvalidJoinPrunes indicates the number of invalid PIM Join Prune messages received on this interface. A Join Prune message is invalid when the RP address in the message is not the RP for the group specified in the message. If such a message arrives, a vRtrPimNgInvalidJoinPrune notification is sent.

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5620 SAM counter name	Type	MIB counter name	Description
rxInvalidRegisters	long	vRtrPimNgIfRxInvalidRegisters	The value of vRtrPimNgIfRxInvalidRegisters indicates the number of invalid PIM Register messages received on this interface. A Register message is invalid when the RP address in the message is not the RP for the group specified in the message. If such a message arrives, a vRtrPimNgIfInvalidRegister notification is sent.
rxJoinPruneErrs	long	vRtrPimNgIfRxJoinPruneErrs	The value of vRtrPimNgIfRxJoinPruneErrs indicates the number of errors while processing Join-Prune messages received on this interface.
rxJoinPrunes	long	vRtrPimNgIfRxJoinPrunes	The value of vRtrPimNgIfRxJoinPrunes indicates the number of PIM Join Prune messages received on this interface.
txJoinPrunes	long	vRtrPimNgIfTxJoinPrunes	The value of vRtrPimNgIfTxJoinPrunes indicates the number of PIM Join Prune messages transmitted on this interface.
<b>InterfaceStats</b> MIB table name: TIMETRA-PIM-NG-MIB.vRtrPimNgIfStatsTable Monitored class: pim.Interface			
bsmErrs	long	vRtrPimNgIfTxBsmErrs	The value of vRtrPimNgIfTxBsmErrs indicates the number of errors while transmitting PIM Bootstrap Messages (BSM) on this interface.
bsmPdus	long	vRtrPimNgIfTxBsmPdus	The value of vRtrPimNgIfTxBsmPdus indicates the number of PIM Bootstrap Messages (BSM) transmitted on this interface.
mcacPolicyDrops	long	vRtrPimNgIfMcacPolicyDrops	The value of the object vRtrPimNgIfMcacPolicyDrops indicates the number times a PIM Group is dropped because of applying a multicast CAC policy on this interface.
registerStopErrs	long	vRtrPimNgIfTxRegisterStopErrs	The value of vRtrPimNgIfTxRegisterStopErrs indicates the number of PIM errors while transmitting PIM Register Stop messages on this interface.
registerStops	long	vRtrPimNgIfTxRegisterStops	The value of vRtrPimNgIfTxRegisterStops indicates the number of PIM Register Stop messages transmitted on this interface.
rxAssertErrs	long	vRtrPimNgIfRxAssertErrs	The value of vRtrPimNgIfRxAssertErrs indicates the number of errors while processing Assert messages received on this interface.
rxAsserts	long	vRtrPimNgIfRxAsserts	The value of vRtrPimNgIfRxAsserts indicates the number of PIM Assert messages received on this interface.

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5620 SAM counter name	Type	MIB counter name	Description
rxBadChecksumDiscards	long	vRtrPimNgIfRxBadChecksumDiscard	The value of vRtrPimNgIfRxBadChecksumDiscard indicates the number of PIM messages received on this interface which were discarded because of bad checksum.
rxBadEncodings	long	vRtrPimNgIfRxBadEncodings	The value of vRtrPimNgIfRxBadEncodings indicates the number of PIM messages with bad encodings received on this interface.
rxBadVersionDiscards	long	vRtrPimNgIfRxBadVersionDiscard	The value of vRtrPimNgIfRxBadVersionDiscard indicates the number of PIM messages with bad versions received on this interface.
rxBsmPduDrops	long	vRtrPimNgIfRxBsmPduDrops	The value of vRtrPimNgIfRxBsmPduDrops indicates the number of Bootstrap Messages received on this interface but were dropped.
rxBsmPdus	long	vRtrPimNgIfRxBsmPdus	The value of vRtrPimNgIfRxBsmPdus indicates the number of Bootstrap Messages received on this interface.
rxCRPAdvNoRouterAlert	long	vRtrPimNgIfRxCRPAdvNoRouterAlert	The value of vRtrPimNgIfRxCRPAdvNoRouterAlert indicates the number of Candidate-RP Advertisements(C-RP-Adv) received on this interface which had no router alert option set.
rxHellos	long	vRtrPimNgIfRxHellos	The value of vRtrPimNgIfRxHellos indicates the number of PIM hello messages received on this interface.
rxHellosDropped	long	vRtrPimNgIfRxHellosDropped	The value of vRtrPimNgIfRxHellosDropped indicates the number of PIM Hello messages which were received on this interface but were dropped.
rxNbrUnknown	long	vRtrPimNgIfRxNbrUnknown	The value of vRtrPimNgIfRxNbrUnknown indicates the number of PIM messages (other than Hello messages) which were received on this interface and were rejected because the adjacency with the neighbor router was not already established.
rxNullRegisters	long	vRtrPimNgIfRxNullRegisters	The value of vRtrPimNgIfRxNullRegisters indicates the number of PIM Null Register messages received on this interface.
rxPkts	long	vRtrPimNgIfRxPkts	The value of vRtrPimNgIfRxPkts indicates the number of multicast data packets received on this interface.
rxRegisterErrs	long	vRtrPimNgIfRxRegisterErrors	The value of vRtrPimNgIfRxRegisterErrors indicates the number of errors while processing Register messages received on this interface.
rxRegisters	long	vRtrPimNgIfRxRegisters	The value of vRtrPimNgIfRxRegisters indicates the number of PIM Register messages received on this interface.

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5620 SAM counter name	Type	MIB counter name	Description
rxRegisterStopErrs	long	vRtrPimNgIfRxRegisterStopErrs	The value of vRtrPimNgIfRxRegisterStopErrs indicates the number of errors while processing Register Stop messages received on this interface.
rxRegisterStops	long	vRtrPimNgIfRxRegisterStops	The value of vRtrPimNgIfRxRegisterStops indicates the number of PIM Register Stop messages received on this interface.
rxUnknownPdus	long	vRtrPimNgIfRxUnknownPdus	The value of vRtrPimNgIfRxUnknownPdus indicates the number of packets received with an unsupported PIM type.
sgTypes	long	vRtrPimNgIfSGTypes	The value of vRtrPimNgIfSGTypes indicates the number of entries in vRtrPimNgIfGrpSrcTable for which vRtrPimNgIfGrpSrcType is 'sg'.
starGTypes	long	vRtrPimNgIfStarGTypes	The value of vRtrPimNgIfStarGTypes indicates the number of entries in vRtrPimNgIfGrpSrcTable for which vRtrPimNgIfGrpSrcType is 'starG'.
starStarRPTypes	long	vRtrPimNgIfStarStarRPTypes	The value of vRtrPimNgIfStarStarRPTypes indicates the number of entries in vRtrPimNgIfGrpSrcTable for which vRtrPimNgIfGrpSrcType is 'starStarRP'.
txAsserts	long	vRtrPimNgIfTxAsserts	The value of vRtrPimNgIfTxAsserts indicates the number of PIM Assert messages transmitted on this interface.
txHellos	long	vRtrPimNgIfTxHellos	The value of vRtrPimNgIfTxHellos indicates the number of PIM Hello messages transmitted on this interface.
txPkts	long	vRtrPimNgIfTxPkts	The value of vRtrPimNgIfTxPkts indicates the number of multicast data packets transmitted on this interface.
<b>PimGenSiteStats</b> MIB table name: TIMETRA-PIM-NG-MIB.vRtrPimNgGenStatTable Monitored classes: <ul style="list-style-type: none"> <li>• pim.Site</li> <li>• pim.SiteExtension</li> </ul>			
forwardCrpaDrops	long	vRtrPimNgGenStatFwdCrpaDrops	The value of vRtrPimNgGenStatFwdCrpaDrops indicates the number of times the Candidate-RP Advertizements(C-RP-Adv) could not be forwarded by the router.
forwardCrpaPdus	long	vRtrPimNgGenStatForwardCrpaPdus	The value of vRtrPimNgGenStatForwardCrpaPdus indicates the number of Candidate-RP Advertizements(C-RP-Adv) that were forwarded by the router. C-RP-Adv's are forwarded when the received advertisement has a router alert set and the destination address is not the router's local address.

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5620 SAM counter name	Type	MIB counter name	Description
rxActiveMdts	long	vRtrPimNgGenStatRxActiveMdts	The value of vRtrPimNgGenStatRxActiveMdts indicates number of active Mdts on which the PE is receiving packets. This object is applicable to VPRNs only.
rxCrpaPduDrops	long	vRtrPimNgGenStatRxCrpaPduDrops	The value of vRtrPimNgGenStatRxCrpaPduDrops indicates the number of PIM Candidate-RP Advertizements (C-RP-Adv) received by this instance, but were dropped.
rxCrpaPdus	long	vRtrPimNgGenStatRxCrpaPdus	The value of vRtrPimNgGenStatRxCrpaPdus indicates the number of PIM Candidate-RP Advertizements (C-RP-Adv) received by this instance.
rxMdtJoinTlvErrs	long	vRtrPimNgGenStatRxMdtJnTlvErrs	The value of vRtrPimNgGenStatRxMdtJnTlvErrs indicates indicates number of times MDT Join TLVs were dropped due to errors in the received TLV.
rxMdtJoinTlvs	long	vRtrPimNgGenStatRxMdtJoinTlvs	The value of vRtrPimNgGenStatRxMdtJoinTlvs indicates the number of times MDT Join TLV were received.
sgTypes	long	vRtrPimNgGenStatSGTypes	The value of vRtrPimNgGenStatSGTypes indicates the number of entries in vRtrPimNgGrpSrcTable for which vRtrPimNgGrpSrcType is 'sg'.
starGTypes	long	vRtrPimNgGenStatStarGTypes	The value of vRtrPimNgGenStatStarGTypes indicates the number of entries in vRtrPimNgGrpSrcTable for which vRtrPimNgGrpSrcType is 'starG'.
starStarRPTypes	long	vRtrPimNgGenStatStarStarRPTypes	The value of vRtrPimNgGenStatStarStarRPTypes indicates the number of entries in vRtrPimNgGrpSrcTable for which vRtrPimNgGrpSrcType is 'starStarRP'.
txActiveMdts	long	vRtrPimNgGenStatTxActiveMdts	The value of vRtrPimNgGenStatTxActiveMdts indicates the number of active MDTs on which the PE is forwarding packets. This object is applicable to VPRNs only.
txCrpaPduErrs	long	vRtrPimNgGenStatTxCrpaPduErrs	The value of vRtrPimNgGenStatTxCrpaPduErrs indicates the number of errors while transmitting PIM Candidate-RP Advertizements (C-RP-Adv).
txCrpaPdus	long	vRtrPimNgGenStatTxCrpaPdus	The value of vRtrPimNgGenStatTxCrpaPdus indicates the number of PIM Candidate-RP Advertisements (C-RP-Adv) transmitted by this router instance.

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5620 SAM counter name	Type	MIB counter name	Description
txMdtJoinTlvErrs	long	vRtrPimNgGenStatTxMdtJnTlvErrs	The value of vRtrPimNgGenStatTxMdtJnTlvErrs indicates the number of times MDT Join TLV could not be transmitted.
txMdtJoinTlvs	long	vRtrPimNgGenStatTxMdtJoinTlvs	The value of vRtrPimNgGenStatTxMdtJoinTlvs indicates the number of times MDT Join TLV were transmitted.
txNullRegisters	long	vRtrPimNgGenStatTxNullRegisters	The value of vRtrPimNgGenStatTxNullRegisters indicates the number of PIM Null Register messages transmitted by this instance.
txRegisterErrs	long	vRtrPimNgGenStatTxRegisterErrs	The value of vRtrPimNgGenStatTxRegisterErrs indicates the number the times there was an error while transmitting PIM Register messages by this instance.
txRegisters	long	vRtrPimNgGenStatTxRegisters	The value of vRtrPimNgGenStatTxRegisters indicates the number of PIM Register messages transmitted by this instance.
txRegisterTTLDrops	long	vRtrPimNgGenStatTxRegTTLDrops	The value of vRtrPimNgGenStatTxRegTTLDrops indicates the number of multicast data packets which could not be encapsulated in Register messages because the Time To Live (TTL) was zero.
<b>PimGroupStats</b> MIB table name: TIMETRA-PIM-NG-MIB.vRtrPimNgGrpSrcStatTable Monitored class: pim.Groups			
discardedPkts	UINT128	vRtrPimNgGrpSrcStatDscr dPkts	The value of vRtrPimNgGrpSrcStatDscr dPkts indicates the number of multicast packets that matched this source group entry but were discarded. For (S,G) entries, if the traffic is getting forwarded on the SPT, the packets arriving from the RPT will be discarded.
forwardedOctets	UINT128	vRtrPimNgGrpSrcStatFrde dOct	The value of vRtrPimNgGrpSrcStatFrde dOct indicates the number of multicast octets that were forwarded to the interfaces in the outgoing interface list. vRtrPimNgGrpSrcIfTable lists all the interfaces in the outgoing interface list.
forwardedPkts	UINT128	vRtrPimNgGrpSrcStatFrw dedPkts	The value of vRtrPimNgGrpSrcStatFrw dedPkts indicates the number of multicast packets that were forwarded to the interfaces in the outgoing interface list. vRtrPimNgGrpSrcIfTable lists all the interfaces in the outgoing interface list.

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5620 SAM counter name	Type	MIB counter name	Description
rpfMismatches	UINT128	vRtrPimNgGrpSrcStatRPF Msmtch	The value of vRtrPimNgGrpSrcStatRPF Msmtch indicates the number of multicast packets that matched this source group entry but they did not arrive on the the interface indicated by vRtrPimNgGrpSrcRpfIfIndex.

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Table A-40 ppp statistics

5620 SAM counter name	Type	MIB counter name	Description
<b>PppStats</b> MIB table name: TIMETRA-PPP-MIB.tmnxPppTable Monitored class: ppp.Interface			
keepaliveEchoReplyPacketsReceived	long	tmnxPppKaInPktCount	The number of echo-reply packets received.
keepaliveEchoRequestPacketsSent	long	tmnxPppKaOutPktCount	The number of echo-request packets sent.
keepaliveThresholdExceedsCount	long	tmnxPppKaThresholdExceedsCount	The number of times that tmnxPppKaDropCount was reached.
lqmInRate	long	tmnxPppLqmInRate	The average of 'SaveInPackets'/'PeerOutPackets' in the last five consecutive LQRs received.
lqmLqrPacketsReceived	long	tmnxPppLqmInPktCount	The number of LQR packets received.
lqmLqrPacketsSent	long	tmnxPppLqmOutPktCount	The number of LQR packets sent.
lqmOutRate	long	tmnxPppLqmOutRate	The average of 'PeerInPackets'/'LastOutPackets' in the last five consecutive LQRs received.
lqmThresholdExceedsCount	long	tmnxPppLqmThresholdExceedsCount	The number of times that either tmnxPppLqmInRate or tmnxPppLqmOutRate falls below the specified quality percentage when PPP quality or LQM is enforced.

Table A-41 radiusaccounting statistics

5620 SAM counter name	Type	MIB counter name	Description
<b>PolicyStats</b> MIB table name: TIMETRA-SUBSCRIBER-MGMT-MIB.tmnxSubAcctPlcyStatsTable Monitored class: radiusaccounting.Policy			
receiveResponses	long	tmnxSubAcctPlcyRxResponses	The value of tmnxSubAcctPlcyRxResponses indicates the number of accounting responses received for this policy.

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5620 SAM counter name	Type	MIB counter name	Description
requestRetries	long	tmnxSubAcctPlcySendRetries	The value of tmnxSubAcctPlcySendRetries indicates the number of retries to a different server for a single accounting request for this policy.
requestsFail	long	tmnxSubAcctPlcySendFail	The value of tmnxSubAcctPlcySendFail indicates how many accounting requests failed because the packet could not be sent out.
requestTimeOut	long	tmnxSubAcctPlcyReqTimeouts	The value of tmnxSubAcctPlcyReqTimeouts indicates the number of accounting requests which have timed out for this policy.
transferRequests	long	tmnxSubAcctPlcyTxRequests	The value of tmnxSubAcctPlcyTxRequests indicates the number of accounting requests transmitted for this policy.
<b>RadiusEntryStats</b> MIB table name: TIMETRA-SUBSCRIBER-MGMT-MIB.tmnxSubAcctPlcyRadStatsTable Monitored class: radiusaccounting.RadiusEntry			
receiveResponses	long	tmnxSubAcctPlcyRadRxResponses	The value of tmnxSubAcctPlcyRadRxResponses indicates the number of accounting responses received for this server.
requestsFail	long	tmnxSubAcctPlcyRadReqSendFail	The value of tmnxSubAcctPlcyRadReqSendFail indicates the number of accounting requests failed because the packet could not be sent out.
requestTimeOut	long	tmnxSubAcctPlcyRadReqTimeouts	The value of tmnxSubAcctPlcyRadReqTimeouts indicates the number of accounting requests which have timed out for this server.
transferRequests	long	tmnxSubAcctPlcyRadTxRequests	The value of tmnxSubAcctPlcyRadTxRequests indicates the number of accounting requests transmitted for this server.

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Table A-42 ressubscr statistics

5620 SAM counter name	Type	MIB counter name	Description
<b>BsxSubCustRecAppGrpStats</b> MIB table name: TIMETRA-BSX-NG-MIB.tmnxBsxStatAaSubTable Monitored class: ressubscr.ResidentialSubscriberInstance			
activeFlowsFromSub	long	tmnxBsxStatAaSubActFlwsFmSb	The value of tmnxBsxStatAaSubActFlwsFmSb indicates the number of allowed flows in the subscriber to network direction that are active.

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5620 SAM counter name	Type	MIB counter name	Description
activeFlowsToSub	long	tmnxBsxStatAaSubActFlwsToSb	The value of tmnxBsxStatAaSubActFlwsToSb indicates the number of allowed flows in the network to subscriber direction that are active.
appGrpName	String	tmnxBsxStatAaName	The value of tmnxBsxStatAaName specifies either the ISA-AA protocol, application or app-group name for which statistics are requested. The tmnxBsxStatAaType is used to determine the statistics type.
durationFlowsLong	UINT128	tmnxBsxStatAaSubHCLngDurFlws	The value of tmnxBsxStatAaSubHCLngDurFlws indicates the total number of flows with a duration greater than 180 seconds, that have completed. This object is a 64-bit version of tmnxBsxStatAaSubLngDurFlws.
durationFlowsMedium	UINT128	tmnxBsxStatAaSubHCMedDurFlws	The value of tmnxBsxStatAaSubHCMedDurFlws indicates the total number of flows with a duration less than or equal to 180 seconds, but greater than 30 seconds, that have completed. This object is a 64-bit version of tmnxBsxStatAaSubMedDurFlws.
durationFlowsShort	UINT128	tmnxBsxStatAaSubHCShrtDurFlws	The value of tmnxBsxStatAaSubHCShrtDurFlws indicates the total number of flows with a duration less than or equal to 30 seconds, that have completed. This object is a 64-bit version of tmnxBsxStatAaSubShrtDurFlws.
flowsAdmitFromSub	UINT128	tmnxBsxStatAaSubHCFlwsAdmFmSb	The value of tmnxBsxStatAaSubHCFlwsAdmFmSb indicates the total number of flows permitted for the subscriber to network direction. This object is a 64-bit version of tmnxBsxStatAaSubFlwsAdmFmSb.
flowsAdmitToSub	UINT128	tmnxBsxStatAaSubHCFlwsAdmToSb	The value of tmnxBsxStatAaSubHCFlwsAdmToSb indicates the total number of flows permitted for the network to subscriber direction. This object is a 64-bit version of tmnxBsxStatAaSubFlwsAdmToSb.
flowsDenyFromSub	UINT128	tmnxBsxStatAaSubHCFlwsDnyFmSb	The value of tmnxBsxStatAaSubHCFlwsDnyFmSb indicates the total number of flows that dropped subsequent packets in the subscriber to network direction. This object is a 64-bit version of tmnxBsxStatAaSubFlwsDnyFmSb.
flowsDenyToSub	UINT128	tmnxBsxStatAaSubHCFlwsDnyToSb	The value of tmnxBsxStatAaSubHCFlwsDnyToSb indicates the total number of flows that dropped subsequent packets in the network to subscriber direction. This object is the 64-bit version of tmnxBsxStatAaSubFlwsDnyToSb.

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5620 SAM counter name	Type	MIB counter name	Description
octsAdmitFromSub	UINT128	tmnxBsxStatAaSubHCOctsAdmFmSb	The value of tmnxBsxStatAaSubHCOctsAdmFmSb indicates the total number of bytes permitted for the subscriber to network direction. This object is a 64-bit version of tmnxBsxStatAaSubOctsAdmFmSb.
octsAdmitToSub	UINT128	tmnxBsxStatAaSubHCOctsAdmToSb	The value of tmnxBsxStatAaSubHCOctsAdmToSb indicates the total number of bytes permitted for the network to subscriber direction. This object is a 64-bit version of tmnxBsxStatAaSubOctsAdmToSb.
octsDenyFromSub	UINT128	tmnxBsxStatAaSubHCOctsDnyFmSb	The value of tmnxBsxStatAaSubHCOctsDnyFmSb indicates the total number of bytes dropped for the subscriber to network direction. This object is a 64-bit version of tmnxBsxStatAaSubOctsDnyFmSb.
octsDenyToSub	UINT128	tmnxBsxStatAaSubHCOctsDnyToSb	The value of tmnxBsxStatAaSubHCOctsDnyToSb indicates the total number of bytes dropped for the network to subscriber direction. This object is a 64-bit version of tmnxBsxStatAaSubOctsDnyToSb.
pktsAdmitFromSub	UINT128	tmnxBsxStatAaSubHCPktsAdmFmSb	The value of tmnxBsxStatAaSubHCPktsAdmFmSb indicates the total number of packets permitted for the subscriber to network direction. This object is a 64-bit version of tmnxBsxStatAaSubPktsAdmFmSb.
pktsAdmitToSub	UINT128	tmnxBsxStatAaSubHCPktsAdmToSb	The value of tmnxBsxStatAaSubHCPktsAdmToSb indicates the total number of packets permitted for the network to subscriber direction. This object is a 64-bit version of tmnxBsxStatAaSubPktsAdmToSb.
pktsDenyFromSub	UINT128	tmnxBsxStatAaSubHCPktsDnyFmSb	The value of tmnxBsxStatAaSubHCPktsDnyFmSb indicates the total number of packets dropped for the subscriber to network direction. This object is a 64-bit version of tmnxBsxStatAaSubPktsDnyFmSb.
pktsDenyToSub	UINT128	tmnxBsxStatAaSubHCPktsDnyToSb	The value of tmnxBsxStatAaSubHCPktsDnyToSb indicates the total number of packets dropped for the network to subscriber direction. This object is a 64-bit version of tmnxBsxStatAaSubPktsDnyToSb.
statsInterval	int	tmnxBsxAaSubStatsInterval	The tmnxBsxAaSubStatsInterval specifies the interval for the retrieval of application assurance subscriber statistics.

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5620 SAM counter name	Type	MIB counter name	Description
termFlowDuration	UINT128	tmnxBsxStatAaSubHCTermFlwDur	The value of tmnxBsxStatAaSubHCTermFlwDur indicates the sum of all flow durations from first packet seen to last packet seen for flows that have terminated. This object is a 64-bit version of tmnxBsxStatAaSubTermFlwDur.
termFlows	UINT128	tmnxBsxStatAaSubHCTermFlws	The value of tmnxBsxStatAaSubHCTermFlws indicates the total number of allowed flows that have terminated. This object is a 64-bit version of tmnxBsxStatAaSubTermFlws.
<b>BsxSubCustRecAppStats</b> MIB table name: TIMETRA-BSX-NG-MIB.tmnxBsxStatAaSubTable Monitored class: ressubscr.ResidentialSubscriberInstance			
activeFlowsFromSub	long	tmnxBsxStatAaSubActFlwsFmSb	The value of tmnxBsxStatAaSubActFlwsFmSb indicates the number of allowed flows in the subscriber to network direction that are active.
activeFlowsToSub	long	tmnxBsxStatAaSubActFlwsToSb	The value of tmnxBsxStatAaSubActFlwsToSb indicates the number of allowed flows in the network to subscriber direction that are active.
durationFlowsLong	UINT128	tmnxBsxStatAaSubHCLngDurFlws	The value of tmnxBsxStatAaSubHCLngDurFlws indicates the total number of flows with a duration greater than 180 seconds, that have completed. This object is a 64-bit version of tmnxBsxStatAaSubLngDurFlws.
durationFlowsMedium	UINT128	tmnxBsxStatAaSubHCMedDurFlws	The value of tmnxBsxStatAaSubHCMedDurFlws indicates the total number of flows with a duration less than or equal to 180 seconds, but greater than 30 seconds, that have completed. This object is a 64-bit version of tmnxBsxStatAaSubMedDurFlws.
durationFlowsShort	UINT128	tmnxBsxStatAaSubHCShrtDurFlws	The value of tmnxBsxStatAaSubHCShrtDurFlws indicates the total number of flows with a duration less than or equal to 30 seconds, that have completed. This object is a 64-bit version of tmnxBsxStatAaSubShrtDurFlws.
flowsAdmitFromSub	UINT128	tmnxBsxStatAaSubHCFlwsAdmFmSb	The value of tmnxBsxStatAaSubHCFlwsAdmFmSb indicates the total number of flows permitted for the subscriber to network direction. This object is a 64-bit version of tmnxBsxStatAaSubFlwsAdmFmSb.

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5620 SAM counter name	Type	MIB counter name	Description
flowsAdmitToSub	UINT128	tmnxBsxStatAaSubHCFlwsAdmToSb	The value of tmnxBsxStatAaSubHCFlwsAdmToSb indicates the total number of flows permitted for the network to subscriber direction. This object is a 64-bit version of tmnxBsxStatAaSubFlwsAdmToSb.
flowsDenyFromSub	UINT128	tmnxBsxStatAaSubHCFlwsDnyFmSb	The value of tmnxBsxStatAaSubHCFlwsDnyFmSb indicates the total number of flows that dropped subsequent packets in the subscriber to network direction. This object is a 64-bit version of tmnxBsxStatAaSubFlwsDnyFmSb.
flowsDenyToSub	UINT128	tmnxBsxStatAaSubHCFlwsDnyToSb	The value of tmnxBsxStatAaSubHCFlwsDnyToSb indicates the total number of flows that dropped subsequent packets in the network to subscriber direction. This object is the 64-bit version of tmnxBsxStatAaSubFlwsDnyToSb.
octsAdmitFromSub	UINT128	tmnxBsxStatAaSubHCOctsAdmFmSb	The value of tmnxBsxStatAaSubHCOctsAdmFmSb indicates the total number of bytes permitted for the subscriber to network direction. This object is a 64-bit version of tmnxBsxStatAaSubOctsAdmFmSb.
octsAdmitToSub	UINT128	tmnxBsxStatAaSubHCOctsAdmToSb	The value of tmnxBsxStatAaSubHCOctsAdmToSb indicates the total number of bytes permitted for the network to subscriber direction. This object is a 64-bit version of tmnxBsxStatAaSubOctsAdmToSb.
octsDenyFromSub	UINT128	tmnxBsxStatAaSubHCOctsDnyFmSb	The value of tmnxBsxStatAaSubHCOctsDnyFmSb indicates the total number of bytes dropped for the subscriber to network direction. This object is a 64-bit version of tmnxBsxStatAaSubOctsDnyFmSb.
octsDenyToSub	UINT128	tmnxBsxStatAaSubHCOctsDnyToSb	The value of tmnxBsxStatAaSubHCOctsDnyToSb indicates the total number of bytes dropped for the network to subscriber direction. This object is a 64-bit version of tmnxBsxStatAaSubOctsDnyToSb.
pktsAdmitFromSub	UINT128	tmnxBsxStatAaSubHCPktsAdmFmSb	The value of tmnxBsxStatAaSubHCPktsAdmFmSb indicates the total number of packets permitted for the subscriber to network direction. This object is a 64-bit version of tmnxBsxStatAaSubPktsAdmFmSb.
pktsAdmitToSub	UINT128	tmnxBsxStatAaSubHCPktsAdmToSb	The value of tmnxBsxStatAaSubHCPktsAdmToSb indicates the total number of packets permitted for the network to subscriber direction. This object is a 64-bit version of tmnxBsxStatAaSubPktsAdmToSb.

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5620 SAM counter name	Type	MIB counter name	Description
pktsDenyFromSub	UINT128	tmnxBsxStatAaSubHCPktsDnyFmSb	The value of tmnxBsxStatAaSubHCPktsDnyFmSb indicates the total number of packets dropped for the subscriber to network direction. This object is a 64-bit version of tmnxBsxStatAaSubPktsDnyFmSb.
pktsDenyToSub	UINT128	tmnxBsxStatAaSubHCPktsDnyToSb	The value of tmnxBsxStatAaSubHCPktsDnyToSb indicates the total number of packets dropped for the network to subscriber direction. This object is a 64-bit version of tmnxBsxStatAaSubPktsDnyToSb.
statsInterval	int	tmnxBsxAaSubStatsInterval	The tmnxBsxAaSubStatsInterval specifies the interval for the retrieval of application assurance subscriber statistics.
termFlowDuration	UINT128	tmnxBsxStatAaSubHCTermFlwDur	The value of tmnxBsxStatAaSubHCTermFlwDur indicates the sum of all flow durations from first packet seen to last packet seen for flows that have terminated. This object is a 64-bit version of tmnxBsxStatAaSubTermFlwDur.
termFlows	UINT128	tmnxBsxStatAaSubHCTermFlws	The value of tmnxBsxStatAaSubHCTermFlws indicates the total number of allowed flows that have terminated. This object is a 64-bit version of tmnxBsxStatAaSubTermFlws.
<b>BsxSubCustRecProtStats</b> MIB table name: TIMETRA-BSX-NG-MIB.tmnxBsxStatAaSubTable Monitored class: ressubscr.ResidentialSubscriberInstance			
activeFlowsFromSub	long	tmnxBsxStatAaSubActFlwsFmSb	The value of tmnxBsxStatAaSubActFlwsFmSb indicates the number of allowed flows in the subscriber to network direction that are active.
activeFlowsToSub	long	tmnxBsxStatAaSubActFlwsToSb	The value of tmnxBsxStatAaSubActFlwsToSb indicates the number of allowed flows in the network to subscriber direction that are active.
durationFlowsLong	UINT128	tmnxBsxStatAaSubHCLngDurFlws	The value of tmnxBsxStatAaSubHCLngDurFlws indicates the total number of flows with a duration greater than 180 seconds, that have completed. This object is a 64-bit version of tmnxBsxStatAaSubLngDurFlws.
durationFlowsMedium	UINT128	tmnxBsxStatAaSubHCMedDurFlws	The value of tmnxBsxStatAaSubHCMedDurFlws indicates the total number of flows with a duration less than or equal to 180 seconds, but greater than 30 seconds, that have completed. This object is a 64-bit version of tmnxBsxStatAaSubMedDurFlws.

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5620 SAM counter name	Type	MIB counter name	Description
durationFlowsShort	UINT128	tmnxBsxStatAaSubHCShrtDurFlws	The value of tmnxBsxStatAaSubHCShrtDurFlws indicates the total number of flows with a duration less than or equal to 30 seconds, that have completed. This object is a 64-bit version of tmnxBsxStatAaSubShrtDurFlws.
flowsAdmitFromSub	UINT128	tmnxBsxStatAaSubHCFlwsAdmFmSb	The value of tmnxBsxStatAaSubHCFlwsAdmFmSb indicates the total number of flows permitted for the subscriber to network direction. This object is a 64-bit version of tmnxBsxStatAaSubFlwsAdmFmSb.
flowsAdmitToSub	UINT128	tmnxBsxStatAaSubHCFlwsAdmToSb	The value of tmnxBsxStatAaSubHCFlwsAdmToSb indicates the total number of flows permitted for the network to subscriber direction. This object is a 64-bit version of tmnxBsxStatAaSubFlwsAdmToSb.
flowsDenyFromSub	UINT128	tmnxBsxStatAaSubHCFlwsDnyFmSb	The value of tmnxBsxStatAaSubHCFlwsDnyFmSb indicates the total number of flows that dropped subsequent packets in the subscriber to network direction. This object is a 64-bit version of tmnxBsxStatAaSubFlwsDnyFmSb.
flowsDenyToSub	UINT128	tmnxBsxStatAaSubHCFlwsDnyToSb	The value of tmnxBsxStatAaSubHCFlwsDnyToSb indicates the total number of flows that dropped subsequent packets in the network to subscriber direction. This object is the 64-bit version of tmnxBsxStatAaSubFlwsDnyToSb.
octsAdmitFromSub	UINT128	tmnxBsxStatAaSubHCOctsAdmFmSb	The value of tmnxBsxStatAaSubHCOctsAdmFmSb indicates the total number of bytes permitted for the subscriber to network direction. This object is a 64-bit version of tmnxBsxStatAaSubOctsAdmFmSb.
octsAdmitToSub	UINT128	tmnxBsxStatAaSubHCOctsAdmToSb	The value of tmnxBsxStatAaSubHCOctsAdmToSb indicates the total number of bytes permitted for the network to subscriber direction. This object is a 64-bit version of tmnxBsxStatAaSubOctsAdmToSb.
octsDenyFromSub	UINT128	tmnxBsxStatAaSubHCOctsDnyFmSb	The value of tmnxBsxStatAaSubHCOctsDnyFmSb indicates the total number of bytes dropped for the subscriber to network direction. This object is a 64-bit version of tmnxBsxStatAaSubOctsDnyFmSb.
octsDenyToSub	UINT128	tmnxBsxStatAaSubHCOctsDnyToSb	The value of tmnxBsxStatAaSubHCOctsDnyToSb indicates the total number of bytes dropped for the network to subscriber direction. This object is a 64-bit version of tmnxBsxStatAaSubOctsDnyToSb.

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5620 SAM counter name	Type	MIB counter name	Description
pktsAdmitFromSub	UINT128	tmnxBsxStatAaSubHCPktsAdmFmSb	The value of tmnxBsxStatAaSubHCPktsAdmFmSb indicates the total number of packets permitted for the subscriber to network direction. This object is a 64-bit version of tmnxBsxStatAaSubPktsAdmFmSb.
pktsAdmitToSub	UINT128	tmnxBsxStatAaSubHCPktsAdmToSb	The value of tmnxBsxStatAaSubHCPktsAdmToSb indicates the total number of packets permitted for the network to subscriber direction. This object is a 64-bit version of tmnxBsxStatAaSubPktsAdmToSb.
pktsDenyFromSub	UINT128	tmnxBsxStatAaSubHCPktsDnyFmSb	The value of tmnxBsxStatAaSubHCPktsDnyFmSb indicates the total number of packets dropped for the subscriber to network direction. This object is a 64-bit version of tmnxBsxStatAaSubPktsDnyFmSb.
pktsDenyToSub	UINT128	tmnxBsxStatAaSubHCPktsDnyToSb	The value of tmnxBsxStatAaSubHCPktsDnyToSb indicates the total number of packets dropped for the network to subscriber direction. This object is a 64-bit version of tmnxBsxStatAaSubPktsDnyToSb.
statsInterval	int	tmnxBsxAaSubStatsInterval	The tmnxBsxAaSubStatsInterval specifies the interval for the retrieval of application assurance subscriber statistics.
termFlowDuration	UINT128	tmnxBsxStatAaSubHCTermFlwDur	The value of tmnxBsxStatAaSubHCTermFlwDur indicates the sum of all flow durations from first packet seen to last packet seen for flows that have terminated. This object is a 64-bit version of tmnxBsxStatAaSubTermFlwDur.
termFlows	UINT128	tmnxBsxStatAaSubHCTermFlws	The value of tmnxBsxStatAaSubHCTermFlws indicates the total number of allowed flows that have terminated. This object is a 64-bit version of tmnxBsxStatAaSubTermFlws.
<b>BsxSubStudyAppStats</b> MIB table name: TIMETRA-BSX-NG-MIB.tmnxBsxStatAaSubSdyTable Monitored class: ressubscr.ResidentialSubscriberInstance			
activeFlowsFromSub	long	tmnxBsxStatAaSubSdyActFlwsFmSb	The value of tmnxBsxStatAaSubSdyActFlwsFmSb indicates the number of allowed flows in the subscriber to network direction that are active.
activeFlowsToSub	long	tmnxBsxStatAaSubSdyActFlwsToSb	The value of tmnxBsxStatAaSubSdyActFlwsToSb indicates the number of allowed flows in the network to subscriber direction that are active.

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5620 SAM counter name	Type	MIB counter name	Description
durationFlowsLong	UINT128	tmnxBsxStatAaSubSdyHCLngDurFlws	The value of tmnxBsxStatAaSubSdyHCLngDurFlws indicates the total number of flows with a duration greater than 180 seconds, that have completed. This object is a 64-bit version of tmnxBsxStatAaSubSdyLngDurFlws.
durationFlowsMedium	UINT128	tmnxBsxStatAaSubSdyHCMedDurFlws	The value of tmnxBsxStatAaSubSdyHCMedDurFlws indicates the total number of flows with a duration less than or equal to 180 seconds, but greater than 30 seconds, that have completed. This object is a 64-bit version of tmnxBsxStatAaSubSdyMedDurFlws.
durationFlowsShort	UINT128	tmnxBsxStatAaSubSdyHCSHrtDurFlws	The value of tmnxBsxStatAaSubSdyHCSHrtDurFlws indicates the total number of flows with a duration less than or equal to 30 seconds, that have completed. This object is a 64-bit version of tmnxBsxStatAaSubSdySHrtDurFlws.
flowsAdmitFromSub	UINT128	tmnxBsxStatAaSubSdyHCFIwsAdmFmSb	The value of tmnxBsxStatAaSubSdyHCFIwsAdmFmSb indicates the total number of flows permitted for the subscriber to network direction. This object is a 64-bit version of tmnxBsxStatAaSubSdyFlwsAdmFmSb.
flowsAdmitToSub	UINT128	tmnxBsxStatAaSubSdyHCFIwsAdmToSb	The value of tmnxBsxStatAaSubSdyHCFIwsAdmToSb indicates the total number of flows permitted for the network to subscriber direction. This object is a 64-bit version of tmnxBsxStatAaSubSdyFlwsAdmToSb.
flowsDenyFromSub	UINT128	tmnxBsxStatAaSubSdyHCFIwsDnyFmSb	The value of tmnxBsxStatAaSubSdyHCFIwsDnyFmSb indicates the total number of flows that dropped subsequent packets in the subscriber to network direction. This object is a 64-bit version of tmnxBsxStatAaSubSdyFlwsDnyFmSb.
flowsDenyToSub	UINT128	tmnxBsxStatAaSubSdyHCFIwsDnyToSb	The value of tmnxBsxStatAaSubSdyHCFIwsDnyToSb indicates the total number of flows that dropped subsequent packets in the network to subscriber direction. This object is a 64-bit version of tmnxBsxStatAaSubSdyFlwsDnyToSb.
octsAdmitFromSub	UINT128	tmnxBsxStatAaSubSdyHCOctsAdmFmSb	The value of tmnxBsxStatAaSubSdyHCOctsAdmFmSb indicates the total number of bytes permitted for the subscriber to network direction. This object is a 64-bit version of tmnxBsxStatAaSubSdyOctsAdmFmSb.
octsAdmitFromSub	UINT128	tmnxBsxStatAaSubSdyOctsAdmFmSb	The value of tmnxBsxStatAaSubSdyOctsAdmFmSb indicates the total number of bytes permitted for the subscriber to network direction.

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5620 SAM counter name	Type	MIB counter name	Description
octsAdmitToSub	UINT128	tmnxBsxStatAaSubSdyHC OctsAdmToSb	The value of tmnxBsxStatAaSubSdyHCOctsAdmToSb indicates the total number of bytes permitted for the network to subscriber direction. This object is a 64-bit version of tmnxBsxStatAaSubSdyOctsAdmToSb.
octsDenyFromSub	UINT128	tmnxBsxStatAaSubSdyHC OctsDnyFmSb	The value of tmnxBsxStatAaSubSdyHCOctsDnyFmSb indicates the total number of bytes dropped for the subscriber to network direction. This object is a 64-bit version of tmnxBsxStatAaSubSdyOctsDnyFmSb.
octsDenyToSub	UINT128	tmnxBsxStatAaSubSdyHC OctsDnyToSb	The value of tmnxBsxStatAaSubSdyHCOctsDnyToSb indicates the total number of bytes dropped for the network to subscriber direction. This object is a 64-bit version of tmnxBsxStatAaSubSdyOctsDnyToSb.
pktsAdmitFromSub	UINT128	tmnxBsxStatAaSubSdyHC PktsAdmFmSb	The value of tmnxBsxStatAaSubSdyHCPktsAdmFmSb indicates the total number of packets permitted for the subscriber to network direction. This object is a 64-bit version of tmnxBsxStatAaSubSdyPktsAdmFmSb.
pktsAdmitToSub	UINT128	tmnxBsxStatAaSubSdyHC PktsAdmToSb	The value of tmnxBsxStatAaSubSdyHCPktsAdmToSb indicates the total number of packets permitted for the network to subscriber direction. This object is a 64-bit version of tmnxBsxStatAaSubSdyPktsAdmToSb.
pktsDenyFromSub	UINT128	tmnxBsxStatAaSubSdyHC PktsDnyFmSb	The value of tmnxBsxStatAaSubSdyHCPktsDnyFmSb indicates the total number of packets dropped for the subscriber to network direction. This object is a 64-bit version of tmnxBsxStatAaSubSdyPktsDnyFmSb.
pktsDenyToSub	UINT128	tmnxBsxStatAaSubSdyHC PktsDnyToSb	The value of tmnxBsxStatAaSubSdyHCPktsDnyToSb indicates the total number of packets dropped for the network to subscriber direction. This object is a 64-bit version of tmnxBsxStatAaSubSdyPktsDnyToSb.
termFlowDuration	UINT128	tmnxBsxStatAaSubSdyHC TermFlwDur	The value of tmnxBsxStatAaSubSdyHCTermFlwDur indicates the sum of all flow durations from first packet seen to last packet seen for flows that have terminated. This object is a 64-bit version of tmnxBsxStatAaSubSdyTermFlwDur.
termFlows	UINT128	tmnxBsxStatAaSubSdyHC TermFlws	The value of tmnxBsxStatAaSubSdyHCTermFlws indicates the total number of allowed flows that have terminated. This object is a 64-bit version of tmnxBsxStatAaSubSdyTermFlws.

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5620 SAM counter name	Type	MIB counter name	Description
<b>BsxSubStudyProtStats</b> MIB table name: TIMETRA-BSX-NG-MIB.tmnxBsxStatAaSubSdyTable Monitored class: ressubscr.ResidentialSubscriberInstance			
activeFlowsFromSub	long	tmnxBsxStatAaSubSdyActFlwsFmSb	The value of tmnxBsxStatAaSubSdyActFlwsFmSb indicates the number of allowed flows in the subscriber to network direction that are active.
activeFlowsToSub	long	tmnxBsxStatAaSubSdyActFlwsToSb	The value of tmnxBsxStatAaSubSdyActFlwsToSb indicates the number of allowed flows in the network to subscriber direction that are active.
durationFlowsLong	UINT128	tmnxBsxStatAaSubSdyHCLngDurFlws	The value of tmnxBsxStatAaSubSdyHCLngDurFlws indicates the total number of flows with a duration greater than 180 seconds, that have completed. This object is a 64-bit version of tmnxBsxStatAaSubSdyLngDurFlws.
durationFlowsMedium	UINT128	tmnxBsxStatAaSubSdyHCMedDurFlws	The value of tmnxBsxStatAaSubSdyHCMedDurFlws indicates the total number of flows with a duration less than or equal to 180 seconds, but greater than 30 seconds, that have completed. This object is a 64-bit version of tmnxBsxStatAaSubSdyMedDurFlws.
durationFlowsShort	UINT128	tmnxBsxStatAaSubSdyHCShtDurFlws	The value of tmnxBsxStatAaSubSdyHCShtDurFlws indicates the total number of flows with a duration less than or equal to 30 seconds, that have completed. This object is a 64-bit version of tmnxBsxStatAaSubSdyShtDurFlws.
flowsAdmitFromSub	UINT128	tmnxBsxStatAaSubSdyHCFFlwsAdmFmSb	The value of tmnxBsxStatAaSubSdyHCFFlwsAdmFmSb indicates the total number of flows permitted for the subscriber to network direction. This object is a 64-bit version of tmnxBsxStatAaSubSdyFlwsAdmFmSb.
flowsAdmitToSub	UINT128	tmnxBsxStatAaSubSdyHCFFlwsAdmToSb	The value of tmnxBsxStatAaSubSdyHCFFlwsAdmToSb indicates the total number of flows permitted for the network to subscriber direction. This object is a 64-bit version of tmnxBsxStatAaSubSdyFlwsAdmToSb.
flowsDenyFromSub	UINT128	tmnxBsxStatAaSubSdyHCFFlwsDnyFmSb	The value of tmnxBsxStatAaSubSdyHCFFlwsDnyFmSb indicates the total number of flows that dropped subsequent packets in the subscriber to network direction. This object is a 64-bit version of tmnxBsxStatAaSubSdyFlwsDnyFmSb.

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5620 SAM counter name	Type	MIB counter name	Description
flowsDenyToSub	UINT128	tmnxBsxStatAaSubSdyHCF lwsDnyToSb	The value of tmnxBsxStatAaSubSdyHCFlwsDnyToSb indicates the total number of flows that dropped subsequent packets in the network to subscriber direction. This object is a 64-bit version of tmnxBsxStatAaSubSdyFlwsDnyToSb.
octsAdmitFromSub	UINT128	tmnxBsxStatAaSubSdyHC OctsAdmFmSb	The value of tmnxBsxStatAaSubSdyHCOctsAdmFmSb indicates the total number of bytes permitted for the subscriber to network direction. This object is a 64-bit version of tmnxBsxStatAaSubSdyOctsAdmFmSb.
octsAdmitFromSub	UINT128	tmnxBsxStatAaSubSdyOct sAdmFmSb	The value of tmnxBsxStatAaSubSdyOctsAdmFmSb indicates the total number of bytes permitted for the subscriber to network direction.
octsAdmitToSub	UINT128	tmnxBsxStatAaSubSdyHC OctsAdmToSb	The value of tmnxBsxStatAaSubSdyHCOctsAdmToSb indicates the total number of bytes permitted for the network to subscriber direction. This object is a 64-bit version of tmnxBsxStatAaSubSdyOctsAdmToSb.
octsDenyFromSub	UINT128	tmnxBsxStatAaSubSdyHC OctsDnyFmSb	The value of tmnxBsxStatAaSubSdyHCOctsDnyFmSb indicates the total number of bytes dropped for the subscriber to network direction. This object is a 64-bit version of tmnxBsxStatAaSubSdyOctsDnyFmSb.
octsDenyToSub	UINT128	tmnxBsxStatAaSubSdyHC OctsDnyToSb	The value of tmnxBsxStatAaSubSdyHCOctsDnyToSb indicates the total number of bytes dropped for the network to subscriber direction. This object is a 64-bit version of tmnxBsxStatAaSubSdyOctsDnyToSb.
pktsAdmitFromSub	UINT128	tmnxBsxStatAaSubSdyHC PktsAdmFmSb	The value of tmnxBsxStatAaSubSdyHCPktsAdmFmSb indicates the total number of packets permitted for the subscriber to network direction. This object is a 64-bit version of tmnxBsxStatAaSubSdyPktsAdmFmSb.
pktsAdmitToSub	UINT128	tmnxBsxStatAaSubSdyHC PktsAdmToSb	The value of tmnxBsxStatAaSubSdyHCPktsAdmToSb indicates the total number of packets permitted for the network to subscriber direction. This object is a 64-bit version of tmnxBsxStatAaSubSdyPktsAdmToSb.
pktsDenyFromSub	UINT128	tmnxBsxStatAaSubSdyHC PktsDnyFmSb	The value of tmnxBsxStatAaSubSdyHCPktsDnyFmSb indicates the total number of packets dropped for the subscriber to network direction. This object is a 64-bit version of tmnxBsxStatAaSubSdyPktsDnyFmSb.

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5620 SAM counter name	Type	MIB counter name	Description
pktsDenyToSub	UINT128	tmnxBsxStatAaSubSdyHCPktsDnyToSb	The value of tmnxBsxStatAaSubSdyHCPktsDnyToSb indicates the total number of packets dropped for the network to subscriber direction. This object is a 64-bit version of tmnxBsxStatAaSubSdyPktsDnyToSb.
protName	String	tmnxBsxStatAaName	The value of tmnxBsxStatAaName specifies either the ISA-AA protocol, application or app-group name for which statistics are requested. The tmnxBsxStatAaType is used to determine the statistics type.
termFlowDuration	UINT128	tmnxBsxStatAaSubSdyHCTermFlwDur	The value of tmnxBsxStatAaSubSdyHCTermFlwDur indicates the sum of all flow durations from first packet seen to last packet seen for flows that have terminated. This object is a 64-bit version of tmnxBsxStatAaSubSdyTermFlwDur.
termFlows	UINT128	tmnxBsxStatAaSubSdyHCTermFlws	The value of tmnxBsxStatAaSubSdyHCTermFlws indicates the total number of allowed flows that have terminated. This object is a 64-bit version of tmnxBsxStatAaSubSdyTermFlws.
<b>HostTrackStats</b> MIB table name: TIMETRA-SUBSCRIBER-MGMT-MIB.tmnxSubHostTrkStatsTable Monitored class: ressubscr.ResidentialSubscriberInstance			
sapInnerEncapValue	long	sapEncapValue	—
sapPortId	String	sapPortId	The ID of the access port where this SAP is defined.
serviceld	long	svclId	—
statsType	int	tmnxSubHostTrkStatsType	The value of tmnxSubHostTrkStatsType indicates the type of host tracking statistics contained in tmnxSubHostTrkStatsVal.
statsValue	long	tmnxSubHostTrkStatsVal	The value of tmnxSubHostTrkStatsType indicates the value of the host tracking statistics of the type indicated by tmnxSubHostTrkStatsType, for this subscriber host.
subscriberHostAddress	String	tmnxSubHostInfoV2IpAddress	The value of tmnxSubHostInfoV2IpAddress specifies the IP address of this subscriber host.
subscriberHostAddressType	int	tmnxSubHostInfoV2IpAddressType	The value of tmnxSubHostInfoV2IpAddressType specifies the type of address stored in tmnxSubHostInfoV2IpAddress.
subscrIdent	String	tmnxSubInfoSubIdent	The value of tmnxSubInfoSubIdent specifies the subscriber identification of this subscriber.

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5620 SAM counter name	Type	MIB counter name	Description
<b>HostTrackStatsOnSap</b> MIB table name: TIMETRA-SUBSCRIBER-MGMT-MIB.tmnxSubHostSapTrkStatsTable Monitored classes: <ul style="list-style-type: none"> <li>vpls.AbstractL2AccessInterface</li> <li>vprn.ServiceAccessPoint</li> <li>ies.ServiceAccessPoint</li> </ul>			
statsType	int	tmnxSubHostSapTrkStatsType	The value of tmnxSubHostSapTrkStatsType indicates the type of host tracking statistics contained in tmnxSubHostSapTrkStatsVal.
statsValue	long	tmnxSubHostSapTrkStatsVal	The value of tmnxSubHostSapTrkStatsType indicates the value of the host tracking statistics of the type indicated by tmnxSubHostSapTrkStatsType, for this host.
subscriberHostAddress	String	tmnxSubHostSapTrkHostAddr	The value of tmnxSubHostSapTrkHostAddr indicates the address of the host.
subscriberHostAddressType	int	tmnxSubHostSapTrkHostAddrType	The value of tmnxSubHostSapTrkHostAddrType indicates the address type of tmnxSubHostSapTrkHostAddr.
<b>SLAProfInstEgrQStats</b> MIB table name: TIMETRA-SUBSCRIBER-MGMT-MIB.tmnxSLAProfInstEgrQStatsTable Monitored class: ressubscr.ResidentialSubscriberInstance			
egrQStatsDropInProfileOctets	UINT128	tmnxSPIEgrQStatsDropInProfOctets	The value of tmnxSPIEgrQStatsDropInProfOctets indicates the number of in-profile octets discarded by the egress Qchip.
egrQStatsDropInProfilePackets	UINT128	tmnxSPIEgrQStatsDropInProfPkts	The value of tmnxSPIEgrQStatsDropInProfPkts indicates the number of in-profile packets discarded by the egress Qchip.
egrQStatsDropOutProfileOctets	UINT128	tmnxSPIEgrQStatsDropOutProfOctets	The value of tmnxSPIEgrQStatsDropOutProfOctets indicates the number of out-of-profile octets discarded by the egress Qchip.
egrQStatsDropOutProfilePackets	UINT128	tmnxSPIEgrQStatsDropOutProfPkts	The value of tmnxSPIEgrQStatsDropOutProfPkts indicates the number of out-of-profile packets discarded by the egress Qchip.
egrQStatsFwdInProfileOctets	UINT128	tmnxSPIEgrQStatsFwdInProfOctets	The value of tmnxSPIEgrQStatsFwdInProfOctets indicates the number of in-profile octets (rate below CIR) forwarded by the egress Qchip.
egrQStatsFwdInProfilePackets	UINT128	tmnxSPIEgrQStatsFwdInProfPkts	The value of tmnxSPIEgrQStatsFwdInProfPkts indicates the number of in-profile packets (rate below CIR) forwarded by the egress Qchip.

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5620 SAM counter name	Type	MIB counter name	Description
egrQStatsFwdOutProfileOctets	UINT128	tmnxSPIEgrQStatsFwdOutProfOctets	The value of tmnxSPIEgrQStatsFwdOutProfOctets indicates the number of out-of-profile octets (rate above CIR) forwarded by the egress Qchip.
egrQStatsFwdOutProfilePackets	UINT128	tmnxSPIEgrQStatsFwdOutProfPkts	The value of tmnxSPIEgrQStatsFwdOutProfPkts indicates the number of out-of-profile packets (rate above CIR) forwarded by the egress Qchip.
egrQStatsQueueId	long	tmnxSPIEgrQStatsQueueId	The value of tmnxSPIEgrQStatsQueueId specifies the index of the egress QoS queue of this SLA profile instance.
encapValue	long	sapEncapValue	—
portId	long	sapPortId	The ID of the access port where this SAP is defined.
slaProfileName	String	tmnxSLAProfName	The value of tmnxSLAProfName specifies the name of the SLA profile.
<b>SLAProfInstIngQStats</b> MIB table name: TIMETRA-SUBSCRIBER-MGMT-MIB.tmnxSLAProfInstIngQStatsTable Monitored class: ressubscr.ResidentialSubscriberInstance			
encapValue	long	sapEncapValue	—
ingQStatsDropHiPriorityOctets	UINT128	tmnxSPIIngQStatsDropHiPriorityOctets	The value of tmnxSPIIngQStatsDropHiPriorityOctets indicates the number of high priority octets, as determined by the SLA profile ingress QoS policy, dropped by the Qchip.
ingQStatsDropHiPriorityPackets	UINT128	tmnxSPIIngQStatsDropHiPriorityPkts	The value of tmnxSPIIngQStatsDropHiPriorityPkts indicates the number of high priority packets, as determined by the SLA profile ingress QoS policy, dropped by the Qchip.
ingQStatsDropLoPriorityOctets	UINT128	tmnxSPIIngQStatsDropLoPriorityOctets	The value of tmnxSPIIngQStatsDropLoPriorityOctets indicates the number of low priority octets, as determined by the SLA profile ingress QoS policy, dropped by the Qchip.
ingQStatsDropLoPriorityPackets	UINT128	tmnxSPIIngQStatsDropLoPriorityPkts	The value of tmnxSPIIngQStatsDropLoPriorityPkts indicates the number of low priority packets, as determined by the SLA profile ingress QoS policy, dropped by the Qchip.
ingQStatsFwdInProfileOctets	UINT128	tmnxSPIIngQStatsFwdInProfileOctets	The value of tmnxSPIIngQStatsFwdInProfileOctets indicates the number of in-profile octets (rate below CIR) forwarded by the ingress Qchip.
ingQStatsFwdInProfilePackets	UINT128	tmnxSPIIngQStatsFwdInProfilePkts	The value of tmnxSPIIngQStatsFwdInProfilePkts indicates the number of in-profile packets (rate below CIR) forwarded by the ingress Qchip.

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5620 SAM counter name	Type	MIB counter name	Description
ingQStatsFwdOutProfileOctets	UINT128	tmnxSPInQStatsFwdOutProfOctets	The value of tmnxSPInQStatsFwdOutProfOctets indicates the number of out-of-profile octets (rate above CIR) forwarded by the ingress Qchip.
ingQStatsFwdOutProfilePackets	UINT128	tmnxSPInQStatsFwdOutProfPkts	The value of tmnxSPInQStatsFwdOutProfPkts indicates the number of out-of-profile packets (rate above CIR) forwarded by the ingress Qchip.
ingQStatsOffHiPriorityOctets	UINT128	tmnxSPInQStatsOffHiPriOctets	The value of tmnxSPInQStatsOffHiPriOctets indicates the number of high priority octets, as determined by the SLA profile ingress QoS policy, offered by the Pchip to the Qchip.
ingQStatsOffHiPriorityPackets	UINT128	tmnxSPInQStatsOffHiPriPkts	The value of tmnxSPInQStatsOffHiPriPkts indicates the number of high priority packets, as determined by the SLA profile ingress QoS policy, offered by the Pchip to the Qchip.
ingQStatsOffLoPriorityOctets	UINT128	tmnxSPInQStatsOffLoPriOctets	The value of tmnxSPInQStatsOffLoPriOctets indicates the number of low priority octets, as determined by the SLA profile ingress QoS policy, offered by the Pchip to the Qchip.
ingQStatsOffLoPriorityPackets	UINT128	tmnxSPInQStatsOffLoPriPkts	The value of tmnxSPInQStatsOffLoPriPkts indicates the number of low priority packets, as determined by the SLA profile ingress QoS policy, offered by the Pchip to the Qchip.
ingQStatsOffUncoloredOctets	UINT128	tmnxSPInQStatsOffUncoOctets	The value of tmnxSPInQStatsOffUncoOctets indicates the number of uncolored octets offered to the ingress Qchip.
ingQStatsOffUncoloredPackets	UINT128	tmnxSPInQStatsOffUncoPkts	The value of tmnxSPInQStatsOffUncoPkts indicates the number of uncolored packets offered to the ingress Qchip.
ingQStatsQueueId	long	tmnxSPInQStatsQueueId	The value of tmnxSPInQStatsQueueId specifies the index of the ingress QoS queue of this SLA profile instance.
portId	long	sapPortId	The ID of the access port where this SAP is defined.
slaProfileName	String	tmnxSLAProfName	The value of tmnxSLAProfName specifies the name of the SLA profile.
<b>SLAProfInstStats</b> MIB table name: TIMETRA-SUBSCRIBER-MGMT-MIB.tmnxSLAProfInstStatsTable Monitored class: ressubscr.ResidentialSubscriberInstance			
egrQchipDropInProfileOctets	UINT128	tmnxSPInstStatsEgrQchipDropInProfOctets	The value of tmnxSPInstStatsEgrQchipDropInProfOctets indicates the number of in-profile octets dropped by the egress Qchip.

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5620 SAM counter name	Type	MIB counter name	Description
egrQchipDropInProfilePackets	UINT128	tmnxSPISStatsEgrQchipDropInProfPkts	The value of tmnxSPISStatsEgrQchipDropInProfPkts indicates the number of in-profile packets dropped by the egress Qchip.
egrQchipDropOutProfileOctets	UINT128	tmnxSPISStatsEgrQchipDropOutProfOctets	The value of tmnxSPISStatsEgrQchipDropOutProfOctets indicates the number of out-of-profile octets dropped by the egress Qchip.
egrQchipDropOutProfilePackets	UINT128	tmnxSPISStatsEgrQchipDropOutProfPkts	The value of tmnxSPISStatsEgrQchipDropOutProfPkts indicates the number of out-of-profile packets dropped by the egress Qchip.
egrQchipFwdInProfileOctets	UINT128	tmnxSPISStatsEgrQchipFwdInProfOctets	The value of tmnxSPISStatsEgrQchipFwdInProfOctets indicates the number of in-profile octets (rate below CIR) forwarded by the egress Qchip.
egrQchipFwdInProfilePackets	UINT128	tmnxSPISStatsEgrQchipFwdInProfPkts	The value of tmnxSPISStatsEgrQchipFwdInProfPkts indicates the number of in-profile packets (rate below CIR) forwarded by the egress Qchip.
egrQchipFwdOutProfileOctets	UINT128	tmnxSPISStatsEgrQchipFwdOutProfOctets	The value of tmnxSPISStatsEgrQchipFwdOutProfOctets indicates the number of out-of-profile octets (rate above CIR) forwarded by the egress Qchip.
egrQchipFwdOutProfilePackets	UINT128	tmnxSPISStatsEgrQchipFwdOutProfPkts	The value of tmnxSPISStatsEgrQchipFwdOutProfPkts indicates the number of out-of-profile packets (rate above CIR) forwarded by the egress Qchip.
encapValue	long	sapEncapValue	—
ingPchipOffHiPriorityOctets	UINT128	tmnxSPISStatsIngPchipOffHiPrioOctets	The value of tmnxSPISStatsIngPchipOffHiPrioOctets indicates the number of high priority octets as determined by the SLA profile ingress QoS policy, offered by the Pchip to the Qchip.
ingPchipOffHiPriorityPackets	UINT128	tmnxSPISStatsIngPchipOffHiPrioPkts	The value of tmnxSPISStatsIngPchipOffHiPrioPkts indicates the number of high priority packets as determined by the SLA profile ingress QoS policy, offered by the Pchip to the Qchip.
ingPchipOffLoPriorityOctets	UINT128	tmnxSPISStatsIngPchipOffLoPrioOctets	The value of tmnxSPISStatsIngPchipOffLoPrioOctets indicates the number of low priority octets as determined by the SLA profile ingress QoS policy, offered by the Pchip to the Qchip.

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5620 SAM counter name	Type	MIB counter name	Description
ingPchipOffLoPriorityPackets	UINT128	tmnxSPISatsIngPchipOffLoPrioPkts	The value of tmnxSPISatsIngPchipOffLoPrioPkts indicates the number of low priority packets as determined by the SLA profile ingress QoS policy, offered by the Pchip to the Qchip.
ingPchipOffUncoloredOctets	UINT128	tmnxSPISatsIngPchipOffUncolOctets	The value of tmnxSPISatsIngPchipOffUncolOctets indicates the number of uncolored octets as determined by the SLA profile ingress QoS policy, offered by the Pchip to the Qchip.
ingPchipOffUncoloredPackets	UINT128	tmnxSPISatsIngPchipOffUncolPkts	The value of tmnxSPISatsIngPchipOffUncolPkts indicates the number of uncolored packets as determined by the SLA profile ingress QoS policy, offered by the Pchip to the Qchip.
ingQchipDropHiPriorityOctets	UINT128	tmnxSPISatsIngQchipDropHiPrioOctets	The value of tmnxSPISatsIngQchipDropHiPrioOctets indicates the number of high priority octets as determined by the SLA profile ingress QoS policy, dropped by the Qchip.
ingQchipDropHiPriorityPackets	UINT128	tmnxSPISatsIngQchipDropHiPrioPkts	The value of tmnxSPISatsIngQchipDropHiPrioPkts indicates the number of high priority packets as determined by the SLA profile ingress QoS policy, dropped by the Qchip.
ingQchipDropLoPriorityOctets	UINT128	tmnxSPISatsIngQchipDropLoPrioOctets	The value of tmnxSPISatsIngQchipDropLoPrioOctets indicates the number of low priority octets as determined by the SLA profile ingress QoS policy, dropped by the Qchip.
ingQchipDropLoPriorityPackets	UINT128	tmnxSPISatsIngQchipDropLoPrioPkts	The value of tmnxSPISatsIngQchipDropLoPrioPkts indicates the number of low priority packets as determined by the SLA profile ingress QoS policy, dropped by the Qchip.
ingQchipFwdInProfileOctets	UINT128	tmnxSPISatsIngQchipFwdInProfOctets	The value of tmnxSPISatsIngQchipFwdInProfOctets indicates the number of in-profile octets (rate below CIR) forwarded by the ingress Qchip.
ingQchipFwdInProfilePackets	UINT128	tmnxSPISatsIngQchipFwdInProfPkts	The value of tmnxSPISatsIngQchipFwdInProfPkts indicates the number of in-profile packets (rate below CIR) forwarded by the ingress Qchip.
ingQchipFwdOutProfileOctets	UINT128	tmnxSPISatsIngQchipFwdOutProfOctets	The value of tmnxSPISatsIngQchipFwdOutProfOctets indicates the number of out-of-profile octets (rate above CIR) forwarded by the ingress Qchip.

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5620 SAM counter name	Type	MIB counter name	Description
ingQchipFwdOutProfilePackets	UINT128	tmnxSPIStatsIngQchipFwdOutProfPkts	The value of tmnxSPIStatsIngQchipFwdOutProfPkts indicates the number of out-of-profile packets (rate above CIR) forwarded by the ingress Qchip.
portId	long	sapPortId	The ID of the access port where this SAP is defined.
slaProfileName	String	tmnxSLAProfName	The value of tmnxSLAProfName specifies the name of the SLA profile.
<b>SubEgrQosSchedStats</b> MIB table name: TIMETRA-SUBSCRIBER-MGMT-MIB.tmnxSubEgrQosSchedStatsTable Monitored class: ressubscr.ResidentialSubscriberInstance			
egrQosSchedName	String	tmnxSubEgrQosSchedStatsName	The value of tmnxSubEgrQosSchedStatsName specifies the egress QoS scheduler of this subscriber.
forwardedOctets	UINT128	tmnxSubEgrQosSchedStatsFwdOctets	The value of tmnxSubEgrQosSchedStatsFwdOctets indicates the number of forwarded octets by the egress Qchip, as determined by the subscriber egress scheduler policy.
forwardedPackets	UINT128	tmnxSubEgrQosSchedStatsFwdPkts	The value of tmnxSubEgrQosSchedStatsFwdPkts indicates the number of forwarded packets by the egress Qchip, as determined by the subscriber egress scheduler policy.
<b>SubIngQosSchedStats</b> MIB table name: TIMETRA-SUBSCRIBER-MGMT-MIB.tmnxSubIngQosSchedStatsTable Monitored class: ressubscr.ResidentialSubscriberInstance			
forwardedOctets	UINT128	tmnxSubIngQosSchedStatsFwdOctets	The value of tmnxSubIngQosSchedStatsFwdOctets indicates the number of forwarded octets, as determined by the subscriber ingress scheduler policy, offered by the Pchip to the Qchip.
forwardedPackets	UINT128	tmnxSubIngQosSchedStatsFwdPkts	The value of tmnxSubIngQosSchedStatsFwdPkts indicates the number of forwarded packets, as determined by the subscriber ingress scheduler policy, offered by the Pchip to the Qchip.
ingQosSchedName	String	tmnxSubIngQosSchedStatsName	The value of tmnxSubIngQosSchedStatsName specifies the ingress QoS scheduler of this subscriber.

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Table A-43 rip statistics

5620 SAM counter name	Type	MIB counter name	Description
<b>InterfaceReceiveStats</b> MIB table name: TIMETRA-RIP-MIB.vRtrRipIfStatTable Monitored class: rip.Interface			
badPackets	long	vRtrRipIfStatAllRcvBadPackets	vRtrRipIfStatAllRcvBadPackets is the number of RIP updates received on this interface that were discarded as invalid.
v1BadRoutes	long	vRtrRipIfStatV1BadRoutes	vRtrRipIfStatV1BadRoutes is the number of routes, in valid RIPV1 packets, which were ignored for any reason (e.g. unknown address family, or invalid metric).
v1Requests	long	vRtrRipIfStatV1RcvRequests	vRtrRipIfStatV1RcvRequests is the number of RIPV1 request packets received by the RIP process.
v1RequestsIgnored	long	vRtrRipIfStatV1BadRequests	vRtrRipIfStatV1BadRequests is the number of RIPV1 request packets received by the RIP process that were subsequently discarded for any reason.
v1Updates	long	vRtrRipIfStatV1RcvUpdates	vRtrRipIfStatV1RcvUpdates is the number of RIPV1 response packets received by the RIP process.
v1UpdatesIgnored	long	vRtrRipIfStatV1BadUpdates	vRtrRipIfStatV1BadUpdates is the number of RIPV1 response packets received by the RIP process which were subsequently discarded for any reason.
v2AuthenticationErrors	long	vRtrRipIfStatAuthErrors	vRtrRipIfStatAuthErrors is the number of RIPV2 packets received by the RIP process which were subsequently discarded because of an error authenticating the packet.
v2BadRoutes	long	vRtrRipIfStatV2BadRoutes	vRtrRipIfStatV2BadRoutes is the number of routes, in valid RIPV2 packets, which were ignored for any reason (e.g. unknown address family, or invalid metric).
v2Requests	long	vRtrRipIfStatV2RcvRequests	vRtrRipIfStatV2RcvRequests is the number of RIPV2 request packets received by the RIP process.
v2RequestsIgnored	long	vRtrRipIfStatV2BadRequests	vRtrRipIfStatV2BadRequests is the number of RIPV2 request packets received by the RIP process that were subsequently discarded for any reason.
v2Updates	long	vRtrRipIfStatV2RcvUpdates	vRtrRipIfStatV2RcvUpdates is the number of RIPV2 response packets received by the RIP process.
v2UpdatesIgnored	long	vRtrRipIfStatV2BadUpdates	vRtrRipIfStatV2BadUpdates is the number of RIPV2 response packets received by the RIP process which were subsequently discarded for any reason.

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5620 SAM counter name	Type	MIB counter name	Description
<b>InterfaceTransmitStats</b> MIB table name: TIMETRA-RIP-MIB.vRtrRipIfStatTable Monitored class: rip.Interface			
totalUpdates	long	vRtrRipIfStatAllSentUpdates	vRtrRipIfStatAllSentUpdates is the number of all RIP updates actually sent on this interface. This explicitly does include full updates sent containing new information.
triggeredUpdates	long	vRtrRipIfStatAllTriggeredUpdates	vRtrRipIfStatAllTriggeredUpdates is the number of triggered RIP updates actually sent on this interface. This explicitly does include full updates sent containing new information.

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Table A-44 rsvp statistics

5620 SAM counter name	Type	MIB counter name	Description
<b>AuthenticationKeyStats</b> MIB table name: TIMETRA-RSVP-MIB.vRtrRsvpIfStatTable Monitored class: rsvp.AuthenticationKey			
errorPacketsReceived	UINT128	vRtrRsvpIfStatRxAuthErrors	The total number of RSVP packets with MD5 errors received on this RSVP interface.
errorPacketsTransmitted	UINT128	vRtrRsvpIfStatTxAuthErrors	The total number of RSVP packets with MD5 errors sent by this RSVP interface.
<b>RsvpInterfaceReceiveStats</b> MIB table name: TIMETRA-RSVP-MIB.vRtrRsvpIfStatTable Monitored class: rsvp.Interface			
acks	UINT128	vRtrRsvpIfStatRxAcks	The total number of RSVP ACK messages received when refresh reduction is enabled on this RSVP interface.
acks	UINT128	vRtrRsvpIfStatTxAcks	The total number of RSVP ACK messages that have been transmitted on this RSVP interface when refresh reduction is enabled.
bundles	UINT128	vRtrRsvpIfStatRxBundles	The total number of RSVP bundled packets received on this RSVP interface. Bundled packets are sent when refresh reduction is enabled.
bundles	UINT128	vRtrRsvpIfStatTxBundles	The total number of RSVP bundled packets that have been transmitted on this RSVP interface.
errorPackets	UINT128	vRtrRsvpIfStatRxErrorPkts	The total number of RSVP packets with errors received on this RSVP interface.
errorPackets	UINT128	vRtrRsvpIfStatTxErrorPkts	The total number of RSVP packets with errors that have been transmitted on this RSVP interface.
hellos	UINT128	vRtrRsvpIfStatRxHelloReqs	The total number of RSVP HELLO REQ messages received on this RSVP interface.

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5620 SAM counter name	Type	MIB counter name	Description
hellos	UINT128	vRtrRsvplfStatTxHelloReqs	The total number of RSVP HELLO REQ packets that have been transmitted on this RSVP interface.
helloTimeout	long	vRtrRsvplfStatHelloTimeout	The total number of hello messages that timed out on this RSVP interface.
packets	UINT128	vRtrRsvplfStatRxPkts	The total number of error free RSVP packets received on this RSVP interface.
packets	UINT128	vRtrRsvplfStatTxPkts	The total number of error free RSVP packets that have been transmitted on this RSVP interface.
pathErrors	UINT128	vRtrRsvplfStatRxPathErrors	The total number of RSVP PATH ERROR messages that have been transmitted on this RSVP interface.
pathErrors	UINT128	vRtrRsvplfStatTxPathErrors	The total number of RSVP PATH ERROR messages that have been transmitted from this RSVP interface.
paths	UINT128	vRtrRsvplfStatRxPaths	The total number of RSVP PATH messages that have been received on this RSVP interface.
paths	UINT128	vRtrRsvplfStatTxPaths	The total number of RSVP PATH messages that have been transmitted from this RSVP interface.
pathTears	UINT128	vRtrRsvplfStatRxPathTears	The total number of RSVP PATH TEAR messages that have been received on this RSVP interface.
pathTears	UINT128	vRtrRsvplfStatTxPathTears	The total number of RSVP PATH TEAR messages that have been transmitted from this RSVP interface.
refreshes	UINT128	vRtrRsvplfStatRxSRefreshes	The total number of RSVP summary refresh, SREFRESH, messages received on this RSVP interface.
refreshes	UINT128	vRtrRsvplfStatTxSRefreshes	The total number of summary refresh, SREFRESH, messages that have been transmitted on this RSVP interface when refresh reduction is enabled.
reserveConfirms	UINT128	vRtrRsvplfStatRxResvConfirms	The total number of RSVP RESV CONFIRM messages that have been received on this RSVP interface.
reserveConfirms	UINT128	vRtrRsvplfStatTxResvConfirms	The total number of RSVP RESV CONFIRM messages that have been transmitted from this RSVP interface.
reserveErrors	UINT128	vRtrRsvplfStatRxResvErrors	The total number of RSVP RESV ERROR messages that have been received on this RSVP interface.
reserveErrors	UINT128	vRtrRsvplfStatTxResvErrors	The total number of RSVP RESV ERROR messages that have been transmitted from this RSVP interface.
reserves	UINT128	vRtrRsvplfStatRxResvs	The total number of RSVP RESV messages that have been received on this RSVP interface.

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5620 SAM counter name	Type	MIB counter name	Description
reserves	UINT128	vRtrRsvplfStatTxResvs	The total number of RSVP RESV messages that have been transmitted from this RSVP interface.
reserveTears	UINT128	vRtrRsvplfStatRxResvTear s	The total number of RSVP RESV TEAR messages that have been received on this RSVP interface.
reserveTears	UINT128	vRtrRsvplfStatTxResvTear s	The total number of RSVP RESV TEAR messages that have been transmitted from this RSVP interface.
totalPackets	UINT128	vRtrRsvplfStatRxTotalPkt s	The total number of RSVP packets, including errors, received on this RSVP interface.
totalPackets	UINT128	vRtrRsvplfStatTxTotalPkt s	The total number of RSVP packets, including error packets, that have been transmitted on this RSVP interface.
<b>RsvplInterfaceStats</b> MIB table name: TIMETRA-RSVP-MIB.vRtrRsvplfTable Monitored class: rsvp.Interface			
activeReservations	long	vRtrRsvplfActiveReservati onCount	The total number of active RSVP sessions that have reserved bandwidth.
activeSessions	long	vRtrRsvplfActiveSessionC ount	The total number of active RSVP sessions on this interface. This count includes sessions that have requested bandwidth as well as sessions that have not requested any bandwidth.
bandwidth	long	vRtrRsvplfBandwidth	The value of vRtrRsvplfBandwidth specifies the amount of bandwidth in mega-bits per second (Mbps) available to be reserved for the RSVP protocol on this interface. This is typically the (port Speed * subscription Percentage).
reservedBandwidth	long	vRtrRsvplfReservedBandw idth	The value of vRtrRsvplfReservedBandwidth specifies the amount of bandwidth in mega-bits per second (Mbps) to reserved by the RSVP sessions on this interface. A value of zero (0) indicates that no bandwidth is reserved.
totalSessions	long	vRtrRsvplfTotalSessionCo unt	The total number of RSVP sessions on this interface. This count includes sessions that are active as well as sessions that have been signalled but a response has not yet been received.
<b>RsvplInterfaceTransmitStats</b> MIB table name: TIMETRA-RSVP-MIB.vRtrRsvplfStatTable Monitored class: rsvp.Interface			
acks	UINT128	vRtrRsvplfStatRxAcks	The total number of RSVP ACK messages received when refresh reduction is enabled on this RSVP interface.
acks	UINT128	vRtrRsvplfStatTxAcks	The total number of RSVP ACK messages that have been transmitted on this RSVP interface when refresh reduction is enabled.

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5620 SAM counter name	Type	MIB counter name	Description
bundles	UINT128	vRtrRsvplfStatRxBundles	The total number of RSVP bundled packets received on this RSVP interface. Bundled packets are sent when refresh reduction is enabled.
bundles	UINT128	vRtrRsvplfStatTxBundles	The total number of RSVP bundled packets that have been transmitted on this RSVP interface.
errorPackets	UINT128	vRtrRsvplfStatRxErrorPkts	The total number of RSVP packets with errors received on this RSVP interface.
errorPackets	UINT128	vRtrRsvplfStatTxErrorPkts	The total number of RSVP packets with errors that have been transmitted on this RSVP interface.
hellos	UINT128	vRtrRsvplfStatRxHelloReq s	The total number of RSVP HELLO REQ messages received on this RSVP interface.
hellos	UINT128	vRtrRsvplfStatTxHelloReq s	The total number of RSVP HELLO REQ packets that have been transmitted on this RSVP interface.
packets	UINT128	vRtrRsvplfStatRxPkts	The total number of error free RSVP packets received on this RSVP interface.
packets	UINT128	vRtrRsvplfStatTxPkts	The total number of error free RSVP packets that have been transmitted on this RSVP interface.
pathErrors	UINT128	vRtrRsvplfStatRxPathErro rs	The total number of RSVP PATH ERROR messages that have been transmitted on this RSVP interface.
pathErrors	UINT128	vRtrRsvplfStatTxPathErro rs	The total number of RSVP PATH ERROR messages that have been transmitted from this RSVP interface.
paths	UINT128	vRtrRsvplfStatRxPaths	The total number of RSVP PATH messages that have been received on this RSVP interface.
paths	UINT128	vRtrRsvplfStatTxPaths	The total number of RSVP PATH messages that have been transmitted from this RSVP interface.
pathTears	UINT128	vRtrRsvplfStatRxPathTear s	The total number of RSVP PATH TEAR messages that have been received on this RSVP interface.
pathTears	UINT128	vRtrRsvplfStatTxPathTear s	The total number of RSVP PATH TEAR messages that have been transmitted from this RSVP interface.
refreshes	UINT128	vRtrRsvplfStatRxSRefresh es	The total number of RSVP summary refresh, SREFRESH, messages received on this RSVP interface.
refreshes	UINT128	vRtrRsvplfStatTxSRefresh es	The total number of summary refresh, SREFRESH, messages that have been transmitted on this RSVP interface when refresh reduction is enabled.
reserveConfirms	UINT128	vRtrRsvplfStatRxResvConf irms	The total number of RSVP RESV CONFIRM messages that have been received on this RSVP interface.

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5620 SAM counter name	Type	MIB counter name	Description
reserveConfirms	UINT128	vRtrRsvplfStatTxResvConfirms	The total number of RSVP RESV CONFIRM messages that have been transmitted from this RSVP interface.
reserveErrors	UINT128	vRtrRsvplfStatRxResvErrors	The total number of RSVP RESV ERROR messages that have been received on this RSVP interface.
reserveErrors	UINT128	vRtrRsvplfStatTxResvErrors	The total number of RSVP RESV ERROR messages that have been transmitted from this RSVP interface.
reserves	UINT128	vRtrRsvplfStatRxResvs	The total number of RSVP RESV messages that have been received on this RSVP interface.
reserves	UINT128	vRtrRsvplfStatTxResvs	The total number of RSVP RESV messages that have been transmitted from this RSVP interface.
reserveTears	UINT128	vRtrRsvplfStatRxResvTears	The total number of RSVP RESV TEAR messages that have been received on this RSVP interface.
reserveTears	UINT128	vRtrRsvplfStatTxResvTears	The total number of RSVP RESV TEAR messages that have been transmitted from this RSVP interface.
totalPackets	UINT128	vRtrRsvplfStatRxTotalPackets	The total number of RSVP packets, including errors, received on this RSVP interface.
totalPackets	UINT128	vRtrRsvplfStatTxTotalPackets	The total number of RSVP packets, including error packets, that have been transmitted on this RSVP interface.
<b>RsvpSessionStats</b> MIB table name: TIMETRA-RSVP-MIB.vRtrRsvpSessionStatTable Monitored class: rsvp.Session			
detourAge	long	vRtrRsvpSessionDetourAge	vRtrRsvpSessionDetourAge is the age (i.e., time from creation till now) of this detour LSP in 10-millisecond periods.
detourTimeUp	long	vRtrRsvpSessionDetourTimeUp	vRtrRsvpSessionDetourTimeUp is the total time in 10-millisecond units that the detour LSP has been operational.
pathsReceived	UINT128	vRtrRsvpSessionRxPaths	The total number of RSVP PATH messages received for this RSVP session.
pathsTransmitted	UINT128	vRtrRsvpSessionTxPaths	The total number of RSVP PATH messages transmitted for this RSVP session.
refreshPathsReceived	UINT128	vRtrRsvpSessionRxSrefreshPaths	The value of vRtrRsvpSessionRxSrefreshPaths indicates the number of times PATH was refreshed using message ID from full PATH refresh or Srefresh message for this RSVP session.
refreshPathsTransmitted	UINT128	vRtrRsvpSessionTxSrefreshPaths	The value of vRtrRsvpSessionTxSrefreshPaths indicates the number of times PATH refresh for the session was sent as a part of a Srefresh message.

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5620 SAM counter name	Type	MIB counter name	Description
refreshReservesReceived	UINT128	vRtrRsvpSessionRxSrefreshResvs	The value of vRtrRsvpSessionRxSrefreshResvs indicates the number of times RESV was refreshed using message ID from full RESV refresh or Srefresh message for this RSVP session.
refreshReservesTransmitted	UINT128	vRtrRsvpSessionTxSrefreshResvs	The value of vRtrRsvpSessionTxSrefreshResvs indicates the number of times RESV refresh for the session was sent as a part of a Srefresh message.
reservesReceived	UINT128	vRtrRsvpSessionRxResvs	The total number of RSVP RESV messages received for this RSVP session.
reservesTransmitted	UINT128	vRtrRsvpSessionTxResvs	The total number of RSVP RESV messages transmitted for this RSVP session.

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5620 SAM counter name	Type	MIB counter name	Description
<b>CpeCheckStats</b> MIB table name: TIMETRA-VRTR-MIB.vRtrInetStatRteCpeChkStatsTable Monitored class: rtr.StaticRoute			
downTransitions	long	vRtrInetStatRteCpeChkDownTrans	The value of vRtrInetStatRteCpeChkDownTrans indicates the number of times the CPE has transitioned to the unavailable state.
echoReplyPacketsReceived	long	vRtrInetStatRteCpeChkInPktCnt	The value of vRtrInetStatRteCpeChkInPktCnt indicates the number of echo-reply packets received.
echoRequestPacketsSent	long	vRtrInetStatRteCpeChkOutPktCnt	The value of vRtrInetStatRteCpeChkOutPktCnt indicates the number of echo-request packets sent.
hostUpDownTime	long	vRtrInetStatRteCpeChkUpTime	The value of vRtrInetStatRteCpeChkUpTime indicates how long (in hundredths of a second) that the CPE has been available.
ttl	long	vRtrInetStatRteCpeChkTTL	The value of vRtrInetStatRteCpeChkTTL indicates the time, in seconds, before the CPE will be declared down. Upon receipt of an echo reply, it has the value of vRtrInetStaticRouteCpeInterval * vRtrInetStaticRouteCpeDropCnt and is decremented by 1 every second.
upTransitions	long	vRtrInetStatRteCpeChkUpTrans	The value of vRtrInetStatRteCpeChkUpTrans indicates the number of times the CPE has transitioned to the available state.

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5620 SAM counter name	Type	MIB counter name	Description
<b>DhcpRelayStats</b> MIB table name: TIMETRA-VRTR-MIB.vRtrIfDHCPRelayStatsTable Monitored classes: <ul style="list-style-type: none"> <li>• rtr.DhcpRelayConfiguration</li> <li>• rtr.SubIfDhcpRelayCfg</li> <li>• rtr.GrplIfDhcpRelayCfg</li> </ul>			
authPktsDiscarded	long	vRtrIfDHCPRelayAuthPktsDiscarded	vRtrIfDHCPRelayAuthPktsDiscarded indicates the total number of packets discarded because authentication was not successful.
authPktsSuccess	long	vRtrIfDHCPRelayAuthPktsSuccess	vRtrIfDHCPRelayAuthPktsSuccess indicates the total number of packets for which authentication was successful.
clientPacketsDiscarded	long	vRtrIfDHCPRelayClientPktsDiscarded	vRtrIfDHCPRelayClientPktsDiscarded indicates the total number of client packets discarded by the DHCP relay agent.
clientPacketsRelayed	long	vRtrIfDHCPRelayClientPktsRelayed	vRtrIfDHCPRelayClientPktsRelayed indicates the total number of client packets relayed by the DHCP relay agent.
clientPktsProxLS	long	vRtrIfDHCPRelayClientPktsProxLS	vRtrIfDHCPRelayClientPktsProxLS indicates the total number of client packets proxied by the DHCP relay agent based on a lease state. The lease itself can have been obtained from a DHCP or RADIUS server. This is the so called lease split functionality.
clientPktsProxRad	long	vRtrIfDHCPRelayClientPktsProxRad	vRtrIfDHCPRelayClientPktsProxRad indicates the total number of client packets proxied by the DHCP relay agent based on data received from a RADIUS server.
clientPktsProxRad	long	vRtrIfDHCPRelayClientPktsSnooped	vRtrIfDHCPRelayClientPktsSnooped indicates the total number of client packets snooped by the DHCP relay agent.
pktsGenRelease	long	vRtrIfDHCPRelayPktsGenRelease	vRtrIfDHCPRelayPktsGenRelease indicates the total number of DHCP RELEASE messages spoofed by the DHCP relay agent to the DHCP server.
receivedMalformedPackets	long	vRtrIfDHCPRelayRxMalformedPkts	vRtrIfDHCPRelayRxMalformedPkts indicates the total number of malformed packets received by the DHCP relay agent.
receivedPackets	long	vRtrIfDHCPRelayRxPkts	vRtrIfDHCPRelayRxPkts indicates the total number of packets received by the DHCP relay agent.
receivedUntrustedPackets	long	vRtrIfDHCPRelayRxUntrustedPkts	vRtrIfDHCPRelayRxUntrustedPkts indicates the total number of untrusted packets received by the DHCP relay agent.
serverPacketsDiscarded	long	vRtrIfDHCPRelayServerPktsDiscarded	vRtrIfDHCPRelayServerPktsDiscarded indicates the total number of server packets discarded by the DHCP relay agent.

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5620 SAM counter name	Type	MIB counter name	Description
serverPacketsRelayed	long	vRtrIfDHCPRelayServerPktsRelayed	vRtrIfDHCPRelayServerPktsRelayed indicates the total number of server packets relayed by the DHCP relay agent.
serverPktsSnooped	long	vRtrIfDHCPRelayPktsGenForceRenew	vRtrIfDHCPRelayPktsGenForceRenew indicates the total number of DHCP FORCERENEW messages spoofed by the DHCP relay agent to the DHCP clients.
serverPktsSnooped	long	vRtrIfDHCPRelayServerPktsSnooped	vRtrIfDHCPRelayServerPktsSnooped indicates the total number of server packets snooped by the DHCP relay agent.
transmittedPackets	long	vRtrIfDHCPRelayTxPkts	vRtrIfDHCPRelayTxPkts indicates the total number of packets transmitted by the DHCP relay agent.
<b>DhcpRelayV6Stats</b> MIB table name: TIMETRA-SERV-MIB.svcIfDHCP6MsgStatTable Monitored classes: <ul style="list-style-type: none"> <li>rtr.DhcpRelayV6Configuration</li> <li>rtr.DhcpRelayV6ProxyServer</li> </ul>			
droppedPackets	long	svcIfDHCP6MsgStatsDropped	The value of svcIfDHCP6MsgStatsDropped indicates the number of DHCP6 packets were dropped on this service interface.
receivedPackets	long	svcIfDHCP6MsgStatsRcvd	The value of svcIfDHCP6MsgStatsRcvd indicates the number of DHCP6 packets were received on this service interface.
transmittedPackets	long	svcIfDHCP6MsgStatsSent	The value of svcIfDHCP6MsgStatsSent indicates the number of DHCP6 packets were sent on this service interface.
<b>NetworkInterfaceReasStats</b> MIB table name: TIMETRA-VRTR-MIB.vRtrIfStatsTable Monitored classes: <ul style="list-style-type: none"> <li>rtr.NetworkInterface</li> <li>vpn.L3AccessInterface</li> </ul>			
ipReasBytesRx	UINT128	vRtrIfIpReasBytesRx	The value of vRtrIfIpReasBytesRx indicates the number of total bytes received on this interface. The value of the object is '0' if the MDA type is not 'isa-ip-reas'.
ipReasBytesRxHigh32	long	vRtrIfIpReasBytesRxHigh32	The value of vRtrIfIpReasBytesRxHigh32 indicates the high 32 bits of the value of vRtrIfIpReasBytesRx.
ipReasBytesRxLow32	long	vRtrIfIpReasBytesRxLow32	The value of vRtrIfIpReasBytesRxLow32 indicates the lower 32 bits of the value of vRtrIfIpReasBytesRx.
ipReasBytesTx	UINT128	vRtrIfIpReasBytesTx	The value of vRtrIfIpReasBytesTx indicates the number of total bytes sent from this interface. The value of the object is '0' if the MDA type is not 'isa-ip-reas'.
ipReasBytesTxHigh32	long	vRtrIfIpReasBytesTxHigh32	The value of vRtrIfIpReasBytesTxHigh32 indicates the high 32 bits of the value of vRtrIfIpReasBytesTx.

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5620 SAM counter name	Type	MIB counter name	Description
ipReasBytesTxLow32	long	vRtrIfIpReasBytesTxLow32	The value of vRtrIfIpReasBytesTxLow32 indicates the lower 32 bits of the value of vRtrIfIpReasBytesTx.
ipReasFragBytesRcvd	UINT128	vRtrIfIpReasFragBytesRcvd	The value of vRtrIfIpReasFragBytesRcvd indicates the number of fragmented bytes received on this interface. The value of the object is '0' if the MDA type is not 'isa-ip-reas'.
ipReasFragBytesRcvdHigh32	long	vRtrIfIpReasFragBytesRcvdHigh32	The value of vRtrIfIpReasFragBytesRcvdHigh32 indicates the high 32 bits of the value of vRtrIfIpReasFragBytesRcvd.
ipReasFragBytesRcvdLow32	long	vRtrIfIpReasFragBytesRcvdLow32	The value of vRtrIfIpReasFragBytesRcvdLow32 indicates the lower 32 bits of the value of vRtrIfIpReasFragBytesRcvd.
ipReasFragBytesReas	UINT128	vRtrIfIpReasFragBytesReas	The value of vRtrIfIpReasFragBytesReas indicates the number of fragmented bytes reassembled on this interface. The value of the object is '0' if the MDA type is not 'isa-ip-reas'.
ipReasFragBytesReasHigh32	long	vRtrIfIpReasFragBytesReasHigh32	The value of vRtrIfIpReasFragBytesReasHigh32 indicates the high 32 bits of the value of vRtrIfIpReasFragBytesReas.
ipReasFragBytesReasLow32	long	vRtrIfIpReasFragBytesReasLow32	The value of vRtrIfIpReasFragBytesReasLow32 indicates the lower 32 bits of the value of vRtrIfIpReasFragBytesReas.
ipReasFragDisc	UINT128	vRtrIfIpReasFragDisc	The value of vRtrIfIpReasFragDisc indicates the number of packets reassembly discarded due to the timeout on this interface. The value of the object is '0' if the MDA type is not 'isa-ip-reas'.
ipReasFragDiscHigh32	long	vRtrIfIpReasFragDiscHigh32	The value of vRtrIfIpReasFragDiscHigh32 indicates the high 32 bits of the value of vRtrIfIpReasFragDisc.
ipReasFragDiscLow32	long	vRtrIfIpReasFragDiscLow32	The value of vRtrIfIpReasFragDiscLow32 indicates the lower 32 bits of the value of vRtrIfIpReasFragDisc.
ipReasFragPktsRcvd	UINT128	vRtrIfIpReasFragPktsRcvd	The value of vRtrIfIpReasFragPktsRcvd indicates the number of fragmented packets received on this interface. The value of the object is '0' if the MDA type is not 'isa-ip-reas'.
ipReasFragPktsRcvdHigh32	long	vRtrIfIpReasFragPktsRcvdHigh32	The value of vRtrIfIpReasFragPktsRcvdHigh32 indicates the high 32 bits of the value of vRtrIfIpReasFragPktsRcvd.
ipReasFragPktsRcvdLow32	long	vRtrIfIpReasFragPktsRcvdLow32	The value of vRtrIfIpReasFragPktsRcvdLow32 indicates the lower 32 bits of the value of vRtrIfIpReasFragPktsRcvd.

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5620 SAM counter name	Type	MIB counter name	Description
ipReasFragPktsReas	UINT128	vRtrIfIpReasFragPktsReas	The value of vRtrIfIpReasFragPktsReas indicates the number of fragmented packets reassembled on this interface. The value of the object is '0' if the MDA type is not 'isa-ip-reas'.
ipReasFragPktsReasHigh32	long	vRtrIfIpReasFragPktsReasHigh32	The value of vRtrIfIpReasFragPktsReasHigh32 indicates the high 32 bits of the value of vRtrIfIpReasFragPktsRcvd.
ipReasFragPktsReasLow32	long	vRtrIfIpReasFragPktsReasLow32	The value of vRtrIfIpReasFragPktsReasLow32 indicates the lower 32 bits of the value of vRtrIfIpReasFragPktsReas.
ipReasFragReasErrors	UINT128	vRtrIfIpReasFragReasErrors	The value of vRtrIfIpReasFragReasErrors indicates the number of reassembly errors occurred on this interface. The value of the object is '0' if the MDA type is not 'isa-ip-reas'.
ipReasFragReasErrorsHigh32	long	vRtrIfIpReasFragReasErrorsHigh32	The value of vRtrIfIpReasFragReasErrorsHigh32 indicates the high 32 bits of the value of vRtrIfIpReasFragReasErrors.
ipReasFragReasErrorsLow32	long	vRtrIfIpReasFragReasErrorsLow32	The value of vRtrIfIpReasFragReasErrorsLow32 indicates the lower 32 bits of the value of vRtrIfIpReasFragReasErrors.
ipReasOutBufRes	UINT128	vRtrIfIpReasOutBufRes	The value of vRtrIfIpReasOutBufRes indicates the number of times out of buffer resources happened while reassembly on this interface. The value of the object is '0' if the MDA type is not 'isa-ip-reas'.
ipReasOutBufResHigh32	long	vRtrIfIpReasOutBufResHigh32	The value of vRtrIfIpReasOutBufResHigh32 indicates the high 32 bits of the value of vRtrIfIpReasOutBufRes.
ipReasOutBufResLow32	long	vRtrIfIpReasOutBufResLow32	The value of vRtrIfIpReasOutBufResLow32 indicates the lower 32 bits of the value of vRtrIfIpReasOutBufRes.
ipReasPktsRx	UINT128	vRtrIfIpReasPktsRx	The value of vRtrIfIpReasPktsRx indicates the number of total packets received on this interface. The value of the object is '0' if the MDA type is not 'isa-ip-reas'.
ipReasPktsRxHigh32	long	vRtrIfIpReasPktsRxHigh32	The value of vRtrIfIpReasPktsRxHigh32 indicates the high 32 bits of the value of vRtrIfIpReasPktsRx.
ipReasPktsRxLow32	long	vRtrIfIpReasPktsRxLow32	The value of vRtrIfIpReasPktsRxLow32 indicates the lower 32 bits of the value of vRtrIfIpReasPktsRx.
ipReasPktsTx	UINT128	vRtrIfIpReasPktsTx	The value of vRtrIfIpReasPktsTx indicates the number of total packets sent from this interface. The value of the object is '0' if the MDA type is not 'isa-ip-reas'.

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5620 SAM counter name	Type	MIB counter name	Description
ipReasPktsTxHigh32	long	vRtrIfIpReasPktsTxHigh32	The value of vRtrIfIpReasPktsTxHigh32 indicates the high 32 bits of the value of vRtrIfIpReasPktsTx.
ipReasPktsTxLow32	long	vRtrIfIpReasPktsTxLow32	The value of vRtrIfIpReasPktsTxLow32 indicates the lower 32 bits of the value of vRtrIfIpReasPktsTx.
ipReasV6BytesRx	UINT128	vRtrIfIpReasV6BytesRx	The value of vRtrIfIpReasV6BytesRx indicates the number of total IPv6 bytes received on this interface. The value of the object is '0' if the MDA type is not 'isa-ip-reas'.
ipReasV6BytesRxHigh32	long	vRtrIfIpReasV6BytesRxHigh32	The value of vRtrIfIpReasV6BytesRxHigh32 indicates the high 32 bits of the value of vRtrIfIpReasV6BytesRx.
ipReasV6BytesRxLow32	long	vRtrIfIpReasV6BytesRxLow32	The value of vRtrIfIpReasV6BytesRxLow32 indicates the lower 32 bits of the value of vRtrIfIpReasV6BytesRx.
ipReasV6BytesTx	UINT128	vRtrIfIpReasV6BytesTx	The value of vRtrIfIpReasV6BytesTx indicates the number of total IPv6 bytes sent from this interface. The value of the object is '0' if the MDA type is not 'isa-ip-reas'.
ipReasV6BytesTxHigh32	long	vRtrIfIpReasV6BytesTxHigh32	The value of vRtrIfIpReasV6BytesTxHigh32 indicates the high 32 bits of the value of vRtrIfIpReasV6BytesTx.
ipReasV6BytesTxLow32	long	vRtrIfIpReasV6BytesTxLow32	The value of vRtrIfIpReasV6BytesTxLow32 indicates the lower 32 bits of the value of vRtrIfIpReasV6BytesTx.
ipReasV6FragBytesRcvd	UINT128	vRtrIfIpReasV6FragBytesRcvd	The value of vRtrIfIpReasV6FragBytesRcvd indicates the number of IPv6 fragmented bytes received on this interface. The value of the object is '0' if the MDA type is not 'isa-ip-reas'.
ipReasV6FragBytesRcvdH32	long	vRtrIfIpReasV6FragBytesRcvdH32	The value of vRtrIfIpReasV6FragBytesRcvdH32 indicates the high 32 bits of the value of vRtrIfIpReasV6FragBytesRcvd.
ipReasV6FragBytesRcvdL32	long	vRtrIfIpReasV6FragBytesRcvdL32	The value of vRtrIfIpReasV6FragBytesRcvdL32 indicates the lower 32 bits of the value of vRtrIfIpReasV6FragBytesRcvd.
ipReasV6FragBytesReas	UINT128	vRtrIfIpReasV6FragBytesReas	The value of vRtrIfIpReasV6FragBytesReas indicates the number of IPv6 fragmented bytes reassembled on this interface. The value of the object is '0' if the MDA type is not 'isa-ip-reas'.
ipReasV6FragBytesReasH32	long	vRtrIfIpReasV6FragBytesReasH32	The value of vRtrIfIpReasV6FragBytesReasH32 indicates the high 32 bits of the value of vRtrIfIpReasV6FragBytesReas.

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5620 SAM counter name	Type	MIB counter name	Description
ipReasV6FragBytesReasL32	long	vRtrIfIpReasV6FragBytesReasL32	The value of vRtrIfIpReasV6FragBytesReasL32 indicates the lower 32 bits of the value of vRtrIfIpReasV6FragBytesReas.
ipReasV6FragDisc	UINT128	vRtrIfIpReasV6FragDisc	The value of vRtrIfIpReasV6FragDisc indicates the number of IPv6 packets reassembly discarded due to the timeout on this interface. The value of the object is '0' if the MDA type is not 'isa-ip-reas'.
ipReasV6FragDiscHigh32	long	vRtrIfIpReasV6FragDiscHigh32	The value of vRtrIfIpReasV6FragDiscHigh32 indicates the high 32 bits of the value of vRtrIfIpReasV6FragDisc.
ipReasV6FragDiscLow32	long	vRtrIfIpReasV6FragDiscLow32	The value of vRtrIfIpReasV6FragDiscLow32 indicates the lower 32 bits of the value of vRtrIfIpReasV6FragDisc.
ipReasV6FragPktsRcvd	UINT128	vRtrIfIpReasV6FragPktsRcvd	The value of vRtrIfIpReasV6FragPktsRcvd indicates the number of IPv6 fragmented packets received on this interface. The value of the object is '0' if the MDA type is not 'isa-ip-reas'.
ipReasV6FragPktsRcvdHigh32	long	vRtrIfIpReasV6FragPktsRcvdHigh32	The value of vRtrIfIpReasV6FragPktsRcvdHigh32 indicates the high 32 bits of the value of vRtrIfIpReasV6FragPktsRcvd.
ipReasV6FragPktsRcvdLow32	long	vRtrIfIpReasV6FragPktsRcvdLow32	The value of vRtrIfIpReasV6FragPktsRcvdLow32 indicates the lower 32 bits of the value of vRtrIfIpReasV6FragPktsRcvd.
ipReasV6FragPktsReas	UINT128	vRtrIfIpReasV6FragPktsReas	The value of vRtrIfIpReasV6FragPktsReas indicates the number of IPv6 fragmented packets reassembled on this interface. The value of the object is '0' if the MDA type is not 'isa-ip-reas'.
ipReasV6FragPktsReasHigh32	long	vRtrIfIpReasV6FragPktsReasHigh32	The value of vRtrIfIpReasV6FragPktsReasHigh32 indicates the high 32 bits of the value of vRtrIfIpReasV6FragPktsRcvd.
ipReasV6FragPktsReasLow32	long	vRtrIfIpReasV6FragPktsReasLow32	The value of vRtrIfIpReasV6FragPktsReasLow32 indicates the lower 32 bits of the value of vRtrIfIpReasV6FragPktsReas.
ipReasV6FragReasErrors	UINT128	vRtrIfIpReasV6FragReasErrors	The value of vRtrIfIpReasV6FragReasErrors indicates the number of IPv6 reassembly errors occurred on this interface. The value of the object is '0' if the MDA type is not 'isa-ip-reas'.
ipReasV6FragReasErrorsH32	long	vRtrIfIpReasV6FragReasErrorsH32	The value of vRtrIfIpReasV6FragReasErrorsH32 indicates the high 32 bits of the value of vRtrIfIpReasV6FragReasErrors.

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5620 SAM counter name	Type	MIB counter name	Description
ipReasV6FragReasErrorsL32	long	vRtrIfIpReasV6FragReasErrorsL32	The value of vRtrIfIpReasV6FragReasErrorsL32 indicates the lower 32 bits of the value of vRtrIfIpReasV6FragReasErrors.
ipReasV6OutBufRes	UINT128	vRtrIfIpReasV6OutBufRes	The value of vRtrIfIpReasV6OutBufRes indicates the number of times out of buffer resources happend while IPv6 reassembly on this interface. The value of the object is '0' if the MDA type is not 'isa-ip-reas'.
ipReasV6OutBufResHigh32	long	vRtrIfIpReasV6OutBufResHigh32	The value of vRtrIfIpReasV6OutBufResHigh32 indicates the high 32 bits of the value of vRtrIfIpReasV6OutBufRes.
ipReasV6OutBufResLow32	long	vRtrIfIpReasV6OutBufResLow32	The value of vRtrIfIpReasV6OutBufResLow32 indicates the lower 32 bits of the value of vRtrIfIpReasV6OutBufRes.
ipReasV6PktsRx	UINT128	vRtrIfIpReasV6PktsRx	The value of vRtrIfIpReasV6PktsRx indicates the number of total IPv6 packets received on this interface. The value of the object is '0' if the MDA type is not 'isa-ip-reas'.
ipReasV6PktsRxHigh32	long	vRtrIfIpReasV6PktsRxHigh32	The value of vRtrIfIpReasV6PktsRxHigh32 indicates the high 32 bits of the value of vRtrIfIpReasV6PktsRx.
ipReasV6PktsRxLow32	long	vRtrIfIpReasV6PktsRxLow32	The value of vRtrIfIpReasV6PktsRxLow32 indicates the lower 32 bits of the value of vRtrIfIpReasV6PktsRx.
ipReasV6PktsTx	UINT128	vRtrIfIpReasV6PktsTx	The value of vRtrIfIpReasV6PktsTx indicates the number of total IPv6 packets sent from this interface. The value of the object is '0' if the MDA type is not 'isa-ip-reas'.
ipReasV6PktsTxHigh32	long	vRtrIfIpReasV6PktsTxHigh32	The value of vRtrIfIpReasV6PktsTxHigh32 indicates the high 32 bits of the value of vRtrIfIpReasV6PktsTx.
ipReasV6PktsTxLow32	long	vRtrIfIpReasV6PktsTxLow32	The value of vRtrIfIpReasV6PktsTxLow32 indicates the lower 32 bits of the value of vRtrIfIpReasV6PktsTx.
<b>NetworkInterfaceURPFStats</b> MIB table name: TIMETRA-VRTR-MIB.vRtrIfStatsTable Monitored classes: <ul style="list-style-type: none"> <li>rtr.NetworkInterface</li> <li>vprn.NetworkInterface</li> </ul>			
uRPFCheckFailPkts	UINT128	vRtrIfuRPFCheckFailPkts	The value of vRtrIfuRPFCheckFailPkts indicates the number of packets that fail uRPF check on this interface.
uRPFCheckFailPktsHigh32	long	vRtrIfuRPFCheckFailPktsHigh32	The value of vRtrIfuRPFCheckFailPktsHigh32 indicates the high 32 bits of the value of vRtrIfuRPFCheckFailPkts.

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5620 SAM counter name	Type	MIB counter name	Description
uRPFCheckFailPktsLow32	long	vRtrIfuRPFCheckFailPktsLow32	The value of vRtrIfuRPFCheckFailPktsLow32 indicates the lower 32 bits of the value of vRtrIfuRPFCheckFailPkts.
<b>RouteStats</b> MIB table name: TIMETRA-VRTR-MIB.vRtrStatTable Monitored classes: <ul style="list-style-type: none"> <li>• rtr.VirtualRouter</li> <li>• vprn.Site</li> </ul>			
activeARPEntries	long	vRtrStatActiveARPEntries	vRtrStatActiveARPEntries indicates the number of active ARP entries for the specified virtual router in the system.
activeBgpTunnels	long	vRtrStatActiveBgpTunnels	—
aggregateActiveRoutes	long	vRtrAggregateActiveRoutes	vRtrAggregateActiveRoutes indicates the current number of active aggregate routes for this instance of the route table.
aggregateRoutes	long	vRtrAggregateRoutes	vRtrAggregateRoutes indicates the current number of aggregate routes for this instance of the route table.
bgpActiveRoutes	long	vRtrBGPAciveRoutes	vRtrBGPAciveRoutes indicates the current number of active bgp routes for this instance of the route table.
bgpRoutes	long	vRtrBGPRoutes	vRtrBGPRoutes indicates the current number of bgp routes for this instance of the route table.
bgpVpnActiveRoutes	long	vRtrStatBGPVpnActiveRoutes	vRtrStatBGPVpnActiveRoutes indicates the current number of active VPN-IPV4 routes learned by MP-BGP for this virtual router.
bgpVpnRoutes	long	vRtrStatBGPVpnRoutes	vRtrStatBGPVpnRoutes indicates the current number of VPN-IPV4 routes learned by MP-BGP for this virtual router.
directActiveRoutes	long	vRtrDirectActiveRoutes	vRtrDirectActiveRoutes indicates the current number of active direct routes for this instance of the route table.
directRoutes	long	vRtrDirectRoutes	vRtrDirectRoutes indicates the current number of direct routes for this instance of the route table.
illegalLabelsReceived	long	vRtrStatIllegalLabels	vRtrStatIllegalLabels indicates the number of illegally received labels on this virtual router.
isisActiveRoutes	long	vRtrISISActiveRoutes	vRtrISISActiveRoutes indicates the current number of active isis routes for this instance of the route table.
isisRoutes	long	vRtrISISRoutess	vRtrISISRoutess indicates the current number of isis routes for this instance of the route table.
ldpActiveTunnels	long	vRtrStatActiveLdpTunnels	vRtrStatActiveLdpTunnels indicates the current number of rows in the vRtrTunnelTable where vRtrTunnelType has a value of 'ldp'.

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5620 SAM counter name	Type	MIB counter name	Description
ldpTunnels	long	vRtrStatTotalLdpTunnels	vRtrStatTotalLdpTunnels indicates the current number of both active and inactive LDP tunnels.
multicastRoutes	long	vRtrMulticastRoutes	vRtrMulticastRoutes indicates the current number of rows in the vRtrPimNgGrpSrcTable.
ospfActiveRoutes	long	vRtrOSPFActiveRoutes	vRtrOSPFActiveRoutes indicates the current number of active ospf routes for this instance of the route table.
ospfRoutes	long	vRtrOSPFRoutes	vRtrOSPFRoutes indicates the current number of ospf routes for this instance of the route table.
ripActiveRoutes	long	vRtrRIPActiveRoutes	vRtrRIPActiveRoutes indicates the current number of active rip routes for this instance of the route table.
ripRoutes	long	vRtrRIPRoutes	vRtrRIPRoutes indicates the current number of rip routes for this instance of the route table.
routerInterfacesActive	long	vRtrStatActiveIfs	vRtrStatActiveIfs indicates the current number of router interfaces with vRtrIfAdminState equal 'inService' on this virtual router.
routerInterfacesConfigured	long	vRtrStatConfiguredIfs	vRtrStatConfiguredIfs indicates the current number of router interfaces configured on this virtual router.
routesInVrf	long	vRtrStatCurrNumRoutes	vRtrStatCurrNumRoutes indicates the current number of routes in the VRF for this virtual router.
sdpActiveTunnels	long	vRtrStatActiveSdpTunnels	vRtrStatActiveSdpTunnels indicates the current number of rows in the vRtrTunnelTable where vRtrTunnelType has a value of 'sdp'.
sdpTunnels	long	vRtrStatTotalSdpTunnels	vRtrStatTotalSdpTunnels indicates the current number of both active and inactive SDP tunnels.
staticActiveRoutes	long	vRtrStaticActiveRoutes	vRtrStaticActiveRoutes indicates the current number of active static routes for this instance of the route table.
staticRoutes	long	vRtrStaticRoutes	vRtrStaticRoutes indicates the current number of static routes for this instance of the route table.
totalARPEntries	long	vRtrStatTotalARPEntries	vRtrStatTotalARPEntries indicates the total number of active and inactive ARP entries for the specified virtual router in the system.
totalBgpTunnels	long	vRtrStatTotalBgpTunnels	—
<b>VirtualInterfaceIcmp6InStats</b> MIB table name: TIMETRA-VRTR-MIB.vRtrIfIcmp6Table Monitored class: rtr.VirtualInterfaceIcmp6Configuration			

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5620 SAM counter name	Type	MIB counter name	Description
inDestinationUnreachable	long	vRtrIfIcmp6InDestUnreac hs	The value of vRtrIfIcmp6InDestUnreac hs indicates the number of ICMP Destination Unreachable messages received by this interface.
inEchoReplies	long	vRtrIfIcmp6InEchoReplies	The value of vRtrIfIcmp6InEchoReplies indicates the number of ICMP Echo Reply messages received by this interface.
inEchoRequests	long	vRtrIfIcmp6InEchos	The value of vRtrIfIcmp6InEchos indicates the number of ICMP Echo (request) messages received by this interface.
inErrors	long	vRtrIfIcmp6InErrors	The value of vRtrIfIcmp6InErrors indicates the number of ICMP messages which this interface received but determined as having ICMP-specific errors (bad ICMP checksums, bad length , etc.).
inNeighborAdvertisements	long	vRtrIfIcmp6InNbrAdvertis ements	The value of vRtrIfIcmp6InNbrAdvertisements indicates the number of ICMP Neighbor Advertisement messages received by this interface.
inNeighborSolicits	long	vRtrIfIcmp6InNbrSolicits	The value of vRtrIfIcmp6InNbrSolicits indicates the number of ICMP Neighbor Solicit messages received by this interface.
inPacketTooBig	long	vRtrIfIcmp6InPktTooBig	The value of vRtrIfIcmp6InPktTooBig indicates the number of ICMP Packet Too Big messages received by this interface.
inRedirects	long	vRtrIfIcmp6InRedirects	The value of vRtrIfIcmp6InRedirects indicates number of ICMP Redirect messages received by this interface.
inRouterAdvertisements	long	vRtrIfIcmp6InRtrAdvertis ements	The value of vRtrIfIcmp6InRtrAdvertisements indicates the number of ICMP Router Advertisement messages received by this interface.
inRouterSolicits	long	vRtrIfIcmp6InRtrSolicits	The value of vRtrIfIcmp6InRtrSolicits indicates the number of ICMP Router Solicit messages received by this interface.
inTimeExceeded	long	vRtrIfIcmp6InTimeExcds	The value of vRtrIfIcmp6InTimeExcds indicates the number of ICMP Time Exceeded messages received by this interface.
inTotalMessages	long	vRtrIfIcmp6InMsgs	The value of vRtrIfIcmp6InMsgs indicates the total number of ICMP messages received by this interface which includes all those counted by vRtrIfIcmp6InErrors. Note that this interface is the interface to which the ICMP messages were addressed which may not be necessarily the input interface for the messages.

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5620 SAM counter name	Type	MIB counter name	Description
<b>VirtualRouterIcmp6InStats</b> MIB table name: TIMETRA-VRTR-MIB.vRtrIcmp6Table Monitored classes: <ul style="list-style-type: none"> <li>• rtr.VirtualRouter</li> <li>• vprn.Site</li> </ul>			
inDestinationUnreachable	long	vRtrIcmp6InDestUnreachs	The value of vRtrIcmp6InDestUnreachs indicates the number of ICMP Destination Unreachable messages received by this router instance.
inEchoReplies	long	vRtrIcmp6InEchoReplies	The value of vRtrIcmp6InEchoReplies indicates the number of ICMP Echo Reply messages received by this router instance.
inEchoRequests	long	vRtrIcmp6InEchos	The value of vRtrIcmp6InEchos indicates the number of ICMP Echo (request) messages received by this router instance.
inErrors	long	vRtrIcmp6InErrors	The value of vRtrIcmp6InErrors indicates the number of ICMP messages which this router instance received but determined as having ICMP-specific errors (bad ICMP checksums, bad length , etc.).
inNeighborAdvertisements	long	vRtrIcmp6InNbrAdvertisements	The value of vRtrIcmp6InNbrAdvertisements indicates the number of ICMP Neighbor Advertisement messages received by this router instance.
inNeighborSolicits	long	vRtrIcmp6InNbrSolicits	The value of vRtrIcmp6InNbrSolicits indicates the number of ICMP Neighbor Solicit messages received by this router instance.
inPacketTooBig	long	vRtrIcmp6InPktTooBigs	The value of vRtrIcmp6InPktTooBigs indicates the number of ICMP Packet Too Big messages received by this router instance.
inRedirects	long	vRtrIcmp6InRedirects	The value of vRtrIcmp6InRedirects indicates number of ICMP Redirect messages received by this router instance.
inRouterAdvertisements	long	vRtrIcmp6InRtrAdvertisements	The value of vRtrIcmp6InRtrAdvertisements indicates the number of ICMP Router Advertisement messages received by this router instance.
inRouterSolicits	long	vRtrIcmp6InRtrSolicits	The value of vRtrIcmp6InRtrSolicits indicates the number of ICMP Router Solicit messages received by this router instance.
inTimeExceeded	long	vRtrIcmp6InTimeExcds	The value of vRtrIcmp6InTimeExcds indicates the number of ICMP Time Exceeded messages received by this router instance.

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5620 SAM counter name	Type	MIB counter name	Description
inTotalMessages	long	vRtrIcmp6InMsgs	The value of vRtrIcmp6InMsgs indicates the total number of ICMP messages received by this router instance which includes all those counted by vRtrIcmp6InErrors.

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Table A-46 service statistics

5620 SAM counter name	Type	MIB counter name	Description
<b>CemSapStats</b> MIB table name: TIMETRA-SAP-MIB.sapCemStatsTable Monitored class: service.L2AccessInterface			
cemStatsEgressDroppedPkts	long	sapCemStatsEgressDroppedPkts	The value of sapCemStatsEgressDroppedPkts indicates the total number of packets that were dropped due to errors.
cemStatsEgressESs	long	sapCemStatsEgressESs	The value of sapCemStatsEgressESs indicates the number of Error Seconds (ESs) encountered. Any malformed packet, seq. error, LOPS and similar are considered as error seconds.
cemStatsEgressFailureCounts	long	sapCemStatsEgressFailureCounts	The value of sapCemStatsEgressFailureCounts indicates the number failure events. A failure event begins when the LOPS failure is declared, and ends when the failure is cleared.
cemStatsEgressForwardedPkts	long	sapCemStatsEgressForwardedPkts	The value of sapCemStatsEgressForwardedPkts indicates the number of packets that were successfully forwarded.
cemStatsEgressJtrBfrDepth	long	sapCemStatsEgressJtrBfrDepth	The value of sapCemStatsEgressJtrBfrDepth indicates the current packet depth of the jitter buffer.
cemStatsEgressJtrBfrOverruns	long	sapCemStatsEgressJtrBfrOverruns	The value of sapCemStatsEgressJtrBfrOverruns indicates the number of times a packet was dropped because it could not fit in the jitter buffer.
cemStatsEgressJtrBfrUnderruns	long	sapCemStatsEgressJtrBfrUnderruns	The value of sapCemStatsEgressJtrBfrUnderruns indicates the number of times a packet needed to be played out and the jitter buffer was empty.
cemStatsEgressLBitDropped	long	sapCemStatsEgressLBitDropped	The value of sapCemStatsEgressLBitDropped indicates the number of packets dropped due to the L bit set by the far end.

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5620 SAM counter name	Type	MIB counter name	Description
cemStatsEgressMalformedPkts	long	sapCemStatsEgressMalformedPkts	The value of sapCemStatsEgressMalformedPkts indicates the number of packets detected with unexpected size, or bad headers' stack.
cemStatsEgressMisOrderDropped	long	sapCemStatsEgressMisOrderDropped	The value of sapCemStatsEgressMisOrderDropped indicates the number of packets detected out of order (via control word sequence numbers), and could not be re-ordered, or could not be placed in the jitter buffer because it was out of the current window.
cemStatsEgressMissingPkts	long	sapCemStatsEgressMissingPkts	The value of sapCemStatsEgressMissingPkts indicates the number of missing packets (as detected via control word sequence number gaps).
cemStatsEgressMultipleDropped	long	sapCemStatsEgressMultipleDropped	The value of sapCemStatsEgressMultipleDropped indicates the number of packets dropped due to multiple sequence numbers.
cemStatsEgressOverrunCounts	long	sapCemStatsEgressOverrunCounts	The value of sapCemStatsEgressOverrunCounts indicates the number of times the jitter buffer went into an overrun state.
cemStatsEgressPktsReOrder	long	sapCemStatsEgressPktsReOrder	The value of sapCemStatsEgressPktsReOrder indicates the number of packets detected out of sequence (via control word sequence number), but successfully re-ordered.
cemStatsEgressSEss	long	sapCemStatsEgressSEss	The value of sapCemStatsEgressSEss indicates the number of Severely Error Seconds (SEss) encountered. This is when more than 30 percent of the packets within a one second window are missing.
cemStatsEgressUAss	long	sapCemStatsEgressUAss	The value of sapCemStatsEgressUAss indicates the number of Unavailable Seconds (UAss) encountered. Any consecutive ten seconds of SEss are counted as one UAS.
cemStatsEgressUnderrunCounts	long	sapCemStatsEgressUnderrunCounts	The value of sapCemStatsEgressUnderrunCounts indicates the number of times the jitter buffer went into an underrun state.
cemStatsIngressDroppedPkts	long	sapCemStatsIngressDroppedPkts	The value of sapCemStatsIngressDroppedPkts indicates the total number of packets that were dropped due to errors.
cemStatsIngressForwardedPkts	long	sapCemStatsIngressForwardedPkts	The value of sapCemStatsIngressForwardedPkts indicates the number of packets that were successfully forwarded.
<b>L3AccessInterfaceURPFStats</b> MIB table name: TIMETRA-VRTR-MIB.vRtrIfStatsTable Monitored class: service.L3AccessInterface			

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5620 SAM counter name	Type	MIB counter name	Description
uRPFCheckFailPkts	UINT128	vRtrIfuRPFCheckFailPkts	The value of vRtrIfuRPFCheckFailPkts indicates the number of packets that fail uRPF check on this interface.
uRPFCheckFailPktsHigh32	long	vRtrIfuRPFCheckFailPktsHigh32	The value of vRtrIfuRPFCheckFailPktsHigh32 indicates the high 32 bits of the value of vRtrIfuRPFCheckFailPkts.
uRPFCheckFailPktsLow32	long	vRtrIfuRPFCheckFailPktsLow32	The value of vRtrIfuRPFCheckFailPktsLow32 indicates the lower 32 bits of the value of vRtrIfuRPFCheckFailPkts.
<b>PppoeSapStats</b> MIB table name: TIMETRA-PPPOE-MIB.tmnxPppoeSapStatsTable Monitored classes: <ul style="list-style-type: none"> <li>ies.ServiceAccessPoint</li> <li>vprn.ServiceAccessPoint</li> <li>vpls.L2AccessInterface</li> </ul>			
pppoeSapReceivedDropped	long	tmnxPppoeSapRxDropped	The value of tmnxPppoeSapRxDropped indicates the number of dropped PPPoE packets.
pppoeSapReceivedInvalidAcCookie	long	tmnxPppoeSapRxInvalidAcCookie	The value of tmnxPppoeSapRxInvalidAcCookie indicates the number of PPPoE Active Discovery packets received with an invalid AC-Cookie tag.
pppoeSapReceivedInvalidCode	long	tmnxPppoeSapRxInvalidCode	The value of tmnxPppoeSapRxInvalidCode indicates the number of PPPoE packets received with an invalid code field.
pppoeSapReceivedInvalidLen	long	tmnxPppoeSapRxInvalidLen	The value of tmnxPppoeSapRxInvalidLen indicates the number of PPPoE packets received with an invalid length field.
pppoeSapReceivedInvalidSession	long	tmnxPppoeSapRxInvalidSession	The value of tmnxPppoeSapRxInvalidSession indicates the number of PPPoE packets received with an invalid session-id field.
pppoeSapReceivedInvalidTags	long	tmnxPppoeSapRxInvalidTags	The value of tmnxPppoeSapRxInvalidTags indicates the number of PPPoE Active Discovery packets received with invalid tags.
pppoeSapReceivedInvalidType	long	tmnxPppoeSapRxInvalidType	The value of tmnxPppoeSapRxInvalidType indicates the number of PPPoE packets received with an invalid type field.
pppoeSapReceivedInvalidVersion	long	tmnxPppoeSapRxInvalidVersion	The value of tmnxPppoeSapRxInvalidVersion indicates the number of PPPoE packets received with an invalid version field.
pppoeSapReceivedPADI	long	tmnxPppoeSapRxPadi	The value of tmnxPppoeSapRxPadi indicates the number of PADI (PPPoE Active Discovery Initiation) packets received on this SAP.

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5620 SAM counter name	Type	MIB counter name	Description
pppoeSapReceivedPADR	long	tmnxPppoeSapRxPadr	The value of tmnxPppoeSapRxPadr indicates the number of PADR (PPPoE Active Discovery Request) packets received on this SAP.
pppoeSapReceivedPADT	long	tmnxPppoeSapRxPadt	The value of tmnxPppoeSapRxPadt indicates the number of PADT (PPPoE Active Discovery Terminate) packets received on this SAP.
pppoeSapReceivedSession	long	tmnxPppoeSapRxSession	The value of tmnxPppoeSapRxSession indicates the number packets received during the PPP session stage on this SAP.
pppoeSapTransmittedPADO	long	tmnxPppoeSapTxPado	The value of tmnxPppoeSapTxPado indicates the number of PADO (PPPoE Active Discovery Offer) packets transmitted on this SAP.
pppoeSapTransmittedPADS	long	tmnxPppoeSapTxPads	The value of tmnxPppoeSapTxPads indicates the number of PADS (PPPoE Active Discovery Session) packets transmitted on this SAP.
pppoeSapTransmittedPADT	long	tmnxPppoeSapTxPadt	The value of tmnxPppoeSapTxPadt indicates the number of PADT (PPPoE Active Discovery Terminate) packets transmitted on this SAP.
pppoeSapTransmittedSession	long	tmnxPppoeSapTxSession	The value of tmnxPppoeSapTxSession indicates the number packets transmitted during the PPP session stage on this SAP.
<b>SapBaseStats</b> MIB table name: TIMETRA-SAP-MIB.sapBaseStatsTable Monitored classes: <ul style="list-style-type: none"> <li>• service.L2AccessInterface</li> <li>• service.L3AccessInterface</li> <li>• service.IPsecInterface</li> </ul>			
authenticationPacketsDiscarded	long	sapBaseStatsAuthenticationPktsDiscarded	The number of DHCP packets discarded as result of authentication.
authenticationPacketsSuccessful	long	sapBaseStatsAuthenticationPktsSuccess	The number of DHCP packets successfully authenticated.
customerId	long	sapBaseStatsCustId	The Customer ID for the associated service.
egressQchipDroppedInProfOctets	UINT128	sapBaseStatsEgressQchipDroppedInProfOctets	The number of in-profile octets discarded by the egress Qchip due to: MBS exceeded, buffer pool limit exceeded, etc.
egressQchipDroppedInProfPackets	UINT128	sapBaseStatsEgressQchipDroppedInProfPackets	The number of in-profile packets discarded by the egress Qchip due to: MBS exceeded, buffer pool limit exceeded, etc.
egressQchipDroppedOutProfOctets	UINT128	sapBaseStatsEgressQchipDroppedOutProfOctets	The number of out-of-profile packets discarded by the egress Qchip due to: MBS exceeded, buffer pool limit exceeded, etc.

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5620 SAM counter name	Type	MIB counter name	Description
egressQChipDroppedOutProfPackets	UINT128	sapBaseStatsEgressQchipDroppedOutProfPackets	The number of out-of-profile packets discarded by the egress Qchip due to: MBS exceeded, buffer pool limit exceeded, etc.
egressQChipForwardedInProfOctets	UINT128	sapBaseStatsEgressQchipForwardedInProfOctets	The number of in-profile octets (rate below CIR) forwarded by the egress Qchip.
egressQChipForwardedInProfPackets	UINT128	sapBaseStatsEgressQchipForwardedInProfPackets	The number of in-profile packets (rate below CIR) forwarded by the egress Qchip.
egressQChipForwardedOutProfOctets	UINT128	sapBaseStatsEgressQchipForwardedOutProfOctets	The number of out-of-profile octets (rate above CIR) forwarded by the egress Qchip.
egressQChipForwardedOutProfPackets	UINT128	sapBaseStatsEgressQchipForwardedOutProfPackets	The number of out-of-profile packets (rate above CIR) forwarded by the egress Qchip.
ingressPChipDroppedOctets	UINT128	sapBaseStatsIngressPchipDroppedOctets	The number of octets dropped by the ingress Pchip due to: SAP state, ingress MAC, IP or IPv6 filter, same segment discard, bad checksum, etc.
ingressPChipDroppedPackets	UINT128	sapBaseStatsIngressPchipDroppedPackets	The number of packets dropped by the ingress Pchip due to: SAP state, ingress MAC, IP or IPv6 filter, same segment discard, bad checksum, etc.
ingressPChipOfferedHiPrioOctets	UINT128	sapBaseStatsIngressPchipOfferedHiPrioOctets	The number of high priority octets, as determined by the SAP ingress QoS policy, offered by the Pchip to the Qchip.
ingressPChipOfferedHiPrioPackets	UINT128	sapBaseStatsIngressPchipOfferedHiPrioPackets	The number of high priority packets, as determined by the SAP ingress QoS policy, offered by the Pchip to the Qchip.
ingressPChipOfferedLoPrioOctets	UINT128	sapBaseStatsIngressPchipOfferedLoPrioOctets	The number of low priority octets, as determined by the SAP ingress QoS policy, offered by the Pchip to the Qchip.
ingressPChipOfferedLoPrioPackets	UINT128	sapBaseStatsIngressPchipOfferedLoPrioPackets	The number of low priority packets, as determined by the SAP ingress QoS policy, offered by the Pchip to the Qchip.
ingressPChipOfferedUncoloredOctets	UINT128	sapBaseStatsIngressPchipOfferedUncoloredOctets	The number of uncolored octets, as determined by the SAP ingress QoS policy, offered by the Pchip to the Qchip.
ingressPChipOfferedUncoloredPackets	UINT128	sapBaseStatsIngressPchipOfferedUncoloredPackets	The number of uncolored packets, as determined by the SAP ingress QoS policy, offered by the Pchip to the Qchip.
ingressQChipDroppedHiPrioOctets	UINT128	sapBaseStatsIngressQchipDroppedHiPrioOctets	The number of high priority octets, as determined by the SAP ingress QoS policy, dropped by the Qchip due to: MBS exceeded, buffer pool limit exceeded, etc.
ingressQChipDroppedHiPrioPackets	UINT128	sapBaseStatsIngressQchipDroppedHiPrioPackets	The number of high priority packets, as determined by the SAP ingress QoS policy, dropped by the Qchip due to: MBS exceeded, buffer pool limit exceeded, etc.

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5620 SAM counter name	Type	MIB counter name	Description
ingressQChipDroppedLoPrioOctets	UINT128	sapBaseStatsIngressQchipDroppedLoPrioOctets	The number of low priority octets, as determined by the SAP ingress QoS policy, dropped by the Qchip due to: MBS exceeded, buffer pool limit exceeded, etc.
ingressQChipDroppedLoPrioPackets	UINT128	sapBaseStatsIngressQchipDroppedLoPrioPackets	The number of low priority packets, as determined by the SAP ingress QoS policy, dropped by the Qchip due to: MBS exceeded, buffer pool limit exceeded, etc.
ingressQChipForwardedInProfOctets	UINT128	sapBaseStatsIngressQchipForwardedInProfOctets	The number of in-profile octets (rate below CIR) forwarded by the ingress Qchip.
ingressQChipForwardedInProfPackets	UINT128	sapBaseStatsIngressQchipForwardedInProfPackets	The number of in-profile packets (rate below CIR) forwarded by the ingress Qchip.
ingressQChipForwardedOutProfOctets	UINT128	sapBaseStatsIngressQchipForwardedOutProfOctets	The number of out-of-profile octets (rate above CIR) forwarded by the ingress Qchip.
ingressQChipForwardedOutProfPackets	UINT128	sapBaseStatsIngressQchipForwardedOutProfPackets	The number of out-of-profile packets (rate above CIR) forwarded by the ingress Qchip.
<b>SapEgrQosHsmdaCntrStats</b> MIB table name: TIMETRA-SAP-MIB.sapEgrQosHsmdaCntrStatsTable Monitored classes: <ul style="list-style-type: none"> <li>• service.L2AccessInterface</li> <li>• service.L3AccessInterface</li> <li>• service.ServiceAccessPoint</li> <li>• service.IPsecInterface</li> </ul>			
sapEgrHsmdaCntrStCounterId	long	sapEgrHsmdaCntrStCntrId	The value of sapEgrHsmdaCntrStCntrId indicates the counter ID for the statistics.
sapEgrHsmdaCntrStCustomerId	long	sapEgrHsmdaCntrStCustId	The value of sapEgrHsmdaCntrStCustId indicates the customer ID for the statistics.
sapEgrHsmdaCntrStInProfileOctetsFwd	UINT128	sapEgrHsmdaCntrStInProfOctFwd	The value of sapEgrHsmdaCntrStInProfOctFwd indicates the number of out-of-profile packets forwarded for the egress counter, specified by the index sapInHsmdaCntrStCntrId, on this SAP.
sapEgrHsmdaCntrStInProfilePacketsDropped	UINT128	sapEgrHsmdaCntrStInProfPktDrop	The value of sapEgrHsmdaCntrStInProfPktDrop indicates the number of in-profile packets dropped for the egress counter, specified by the index sapInHsmdaCntrStCntrId, on this SAP.
sapEgrHsmdaCntrStInProfilePacketsFwd	UINT128	sapEgrHsmdaCntrStInProfPktFwd	The value of sapEgrHsmdaCntrStInProfPktFwd indicates the number of in-profile packets forwarded for the egress counter, specified by the index sapInHsmdaCntrStCntrId, on this SAP.

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5620 SAM counter name	Type	MIB counter name	Description
sapEgrHsmdaCntrStInProfOctetsDropped	UINT128	sapEgrHsmdaCntrStInProfOctDrop	The value of sapEgrHsmdaCntrStInProfOctDrop indicates the number of out-of-profile packets dropped for the egress counter, specified by the index sapInHsmdaCntrStCntrlId, on this SAP.
sapEgrHsmdaCntrStOutProfileOctetsDropped	UINT128	sapEgrHsmdaCntrStOutProfOctDrop	The value of sapEgrHsmdaCntrStOutProfOctDrop indicates the number of out-of-profile packets dropped for the egress counter, specified by the index sapInHsmdaCntrStCntrlId, on this SAP.
sapEgrHsmdaCntrStOutProfileOctetsFwd	UINT128	sapEgrHsmdaCntrStOutProfOctFwd	The value of sapEgrHsmdaCntrStOutProfOctFwd indicates the number of out-of-profile packets forwarded for the egress counter, specified by the index sapInHsmdaCntrStCntrlId, on this SAP.
sapEgrHsmdaCntrStOutProfilePacketsDropped	UINT128	sapEgrHsmdaCntrStOutProfPktDrop	The value of sapEgrHsmdaCntrStOutProfPktDrop indicates the number of out-of-profile packets dropped for the egress counter, specified by the index sapInHsmdaCntrStCntrlId, on this SAP.
sapEgrHsmdaCntrStOutProfilePacketsFwd	UINT128	sapEgrHsmdaCntrStOutProfPktFwd	The value of sapEgrHsmdaCntrStOutProfPktFwd indicates the number of out-of-profile packets forwarded for the egress counter, specified by the index sapInHsmdaCntrStCntrlId, on this SAP.
<b>SapEgrQosHsmdaQueueStats</b> MIB table name: TIMETRA-SAP-MIB.sapEgrQosHsmdaQueueStatsTable Monitored classes: <ul style="list-style-type: none"> <li>• service.L2AccessInterface</li> <li>• service.L3AccessInterface</li> <li>• service.ServiceAccessPoint</li> <li>• service.IPsecInterface</li> </ul>			
sapEgrHsmdaQStatCustomerId	long	sapEgrHsmdaQStatCustId	The value of sapEgrHsmdaQStatCustId indicates the customer ID for the statistics.
sapEgrHsmdaQStatInProfileOctetsDropped	UINT128	sapEgrHsmdaQStatInProfOctDrop	The value of sapEgrHsmdaQStatInProfOctDrop indicates the number of out-of-profile packets dropped on egress on this SAP.
sapEgrHsmdaQStatInProfileOctetsFwd	UINT128	sapEgrHsmdaQStatInProfOctFwd	The value of sapEgrHsmdaQStatInProfOctFwd indicates the number of out-of-profile packets forwarded on egress on this SAP.
sapEgrHsmdaQStatInProfilePacketsDropped	UINT128	sapEgrHsmdaQStatInProfPktDrop	The value of sapEgrHsmdaQStatInProfPktDrop indicates the number of in-profile packets dropped on egress on this SAP.

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5620 SAM counter name	Type	MIB counter name	Description
sapEgrHsmdaQStatInProfilePacketsFwd	UINT128	sapEgrHsmdaQStatInProfPktFwd	The value of sapEgrHsmdaQStatInProfPktFwd indicates the number of in-profile packets forwarded on egress on this SAP.
sapEgrHsmdaQStatOutProfileOctetsDropped	UINT128	sapEgrHsmdaQStatOutProfOctDropd	The value of sapEgrHsmdaQStatOutProfOctDropd indicates the number of out-of-profile packets dropped on egress on this SAP.
sapEgrHsmdaQStatOutProfileOctetsFwd	UINT128	sapEgrHsmdaQStatOutProfOctFwd	The value of sapEgrHsmdaQStatOutProfOctFwd indicates the number of out-of-profile packets forwarded on egress on this SAP.
sapEgrHsmdaQStatOutProfilePacketsDropped	UINT128	sapEgrHsmdaQStatOutProfPktDropd	The value of sapEgrHsmdaQStatOutProfPktDropd indicates the number of out-of-profile packets dropped on egress on this SAP.
sapEgrHsmdaQStatOutProfilePacketsFwd	UINT128	sapEgrHsmdaQStatOutProfPktFwd	The value of sapEgrHsmdaQStatOutProfPktFwd indicates the number of out-of-profile packets forwarded on egress on this SAP.
<b>SapEgrQosPlcyQueueStats</b> MIB table name: TIMETRA-SAP-MIB.sapEgrQosPlcyQueueStatsTable Monitored classes: <ul style="list-style-type: none"> <li>• service.L2AccessInterface</li> <li>• service.L3AccessInterface</li> <li>• service.IPsecInterface</li> </ul>			
droppedInProfOctets	UINT128	sapEgQosPlcyQueueStatsDroppedInProfOctets	The value of sapEgQosPlcyQueueStatsDroppedInProfOctets indicates the number in-profile octets discarded by the egress Qchip due to: MBS exceeded, buffer pool limit exceeded, etc.
droppedInProfPackets	UINT128	sapEgQosPlcyQueueStatsDroppedInProfPackets	The value of sapEgQosPlcyQueueStatsDroppedInProfPackets indicates the number of in-profile packets discarded by the egress Qchip due to: MBS exceeded, buffer pool limit exceeded, etc.
droppedOutProfOctets	UINT128	sapEgQosPlcyQueueStatsDroppedOutProfOctets	The value of sapEgQosPlcyQueueStatsDroppedOutProfOctets indicates the number out-of-profile octets discarded by the egress Qchip due to: MBS exceeded, buffer pool limit exceeded, etc.
droppedOutProfPackets	UINT128	sapEgQosPlcyQueueStatsDroppedOutProfPackets	The value of sapEgQosPlcyQueueStatsDroppedOutProfPackets indicates the number out-of-profile packets discarded by the egress Qchip due to: MBS exceeded, buffer pool limit exceeded, etc.
forwardedInProfOctets	UINT128	sapEgQosPlcyQueueStatsForwardedInProfOctets	The value of sapEgQosPlcyQueueStatsForwardedInProfOctets indicates the number of in-profile octets (rate below CIR) forwarded by the egress Qchip.

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5620 SAM counter name	Type	MIB counter name	Description
forwardedInProfPackets	UINT128	sapEgQosPlcyQueueStatsForwardedInProfPackets	The value of sapEgQosPlcyQueueStatsForwardedInProfPackets indicates the number of in-profile packets (rate below CIR) forwarded by the egress Qchip.
forwardedOutProfOctets	UINT128	sapEgQosPlcyQueueStatsForwardedOutProfOctets	The value of sapEgQosPlcyQueueStatsForwardedOutProfOctets indicates the number of out-of-profile octets (rate above CIR) forwarded by the egress Qchip.
forwardedOutProfPackets	UINT128	sapEgQosPlcyQueueStatsForwardedOutProfPackets	The value of sapEgQosPlcyQueueStatsForwardedOutProfPackets indicates the number of out-of-profile packets (rate above CIR) forwarded by the egress Qchip.
policyId	long	sapEgQosPlcyQueuePlcyId	The row index in the tSapEgressTable corresponding to this egress QoS policy.
queueId	long	sapEgQosPlcyQueueId	The value of sapEgQosPlcyQueueId indicates index of the egress QoS queue of this SAP.
<b>SapEgrQosPlcyStats</b> MIB table name: TIMETRA-SAP-MIB.sapEgrQosPlcyStatsTable Monitored classes: <ul style="list-style-type: none"> <li>• service.L2AccessInterface</li> <li>• service.L3AccessInterface</li> <li>• service.IPsecInterface</li> </ul>			
droppedInProfOctets	UINT128	sapEgQosPlcyDroppedInProfOctets	The value of the object sapEgQosPlcyDroppedInProfOctets indicates the number of in-profile octets, as determined by the SAP egress QoS policy, dropped by the Qchip due to: MBS exceeded, buffer pool limit exceeded, etc.
droppedInProfPackets	UINT128	sapEgQosPlcyDroppedInProfPackets	The value of the object sapEgQosPlcyDroppedInProfPackets indicates the number of in-profile packets, as determined by the SAP egress QoS policy, dropped by the Qchip due to: MBS exceeded, buffer pool limit exceeded, etc.
droppedOutProfOctets	UINT128	sapEgQosPlcyDroppedOutProfOctets	The value of the object sapEgQosPlcyDroppedOutProfOctets indicates the number of out-profile octets, as determined by the SAP egress QoS policy, dropped by the Qchip due to: MBS exceeded, buffer pool limit exceeded, etc.
droppedOutProfPackets	UINT128	sapEgQosPlcyDroppedOutProfPackets	The value of the object sapEgQosPlcyDroppedOutProfPackets indicates the number of out-profile packets, as determined by the SAP egress QoS policy, dropped by the Qchip due to: MBS exceeded, buffer pool limit exceeded, etc.

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5620 SAM counter name	Type	MIB counter name	Description
forwardedInProfOctets	UINT128	sapEgQosPlcyForwardedInProfOctets	The value of the object sapEgQosPlcyForwardedInProfOctets indicates the number of in-profile octets (rate below CIR) forwarded by the egress Qchip.
forwardedInProfPackets	UINT128	sapEgQosPlcyForwardedInProfPackets	The value of the object sapEgQosPlcyForwardedInProfPackets indicates the number of in-profile packets (rate below CIR) forwarded by the egress Qchip.
forwardedOutProfOctets	UINT128	sapEgQosPlcyForwardedOutProfOctets	The value of the object sapEgQosPlcyForwardedOutProfOctets indicates the number of out-of-profile octets (rate above CIR) forwarded by the egress Qchip.
forwardedOutProfPackets	UINT128	sapEgQosPlcyForwardedOutProfPackets	The value of the object sapEgQosPlcyForwardedOutProfPackets indicates the number of out-of-profile packets (rate above CIR) forwarded by the egress Qchip.
policyId	long	sapEgQosPlcyId	The value of the object sapEgQosPlcyId indicates the row index in the tSapEgressTable corresponding to this egress QoS policy, or one if no policy is specified.
<b>SapEgrQosQueueStats</b> MIB table name: TIMETRA-SAP-MIB.sapEgrQosQueueStatsTable Monitored classes: <ul style="list-style-type: none"> <li>• service.L2AccessInterface</li> <li>• service.L3AccessInterface</li> <li>• service.IPsecInterface</li> </ul>			
customerId	long	sapEgrQosCustId	The Customer ID for the associated service.
droppedInProfOctets	UINT128	sapEgrQosQueueStatsDroppedInProfOctets	The number of in-profile octets discarded by the egress Qchip due to: MBS exceeded, buffer pool limit exceeded, etc.
droppedInProfPackets	UINT128	sapEgrQosQueueStatsDroppedInProfPackets	The number of in-profile packets discarded by the egress Qchip due to: MBS exceeded, buffer pool limit exceeded, etc.
droppedOutProfOctets	UINT128	sapEgrQosQueueStatsDroppedOutProfOctets	The number of out-of-profile octets discarded by the egress Qchip due to: MBS exceeded, buffer pool limit exceeded, etc.
droppedOutProfPackets	UINT128	sapEgrQosQueueStatsDroppedOutProfPackets	The number of out-of-profile packets discarded by the egress Qchip due to: MBS exceeded, buffer pool limit exceeded, etc.
forwardedInProfOctets	UINT128	sapEgrQosQueueStatsForwardedInProfOctets	The number of in-profile octets (rate below CIR) forwarded by the egress Qchip.

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5620 SAM counter name	Type	MIB counter name	Description
forwardedInProfPackets	UINT128	sapEgrQosQueueStatsFor wardedInProfPackets	The number of in-profile packets (rate below CIR) forwarded by the egress Qchip.
forwardedOutProfOctets	UINT128	sapEgrQosQueueStatsFor wardedOutProfOctets	The number of out-of-profile octets (rate above CIR) forwarded by the egress Qchip.
forwardedOutProfPackets	UINT128	sapEgrQosQueueStatsFor wardedOutProfPackets	The number of out-of-profile packets (rate above CIR) forwarded by the egress Qchip.
queueId	long	sapEgrQosQueueId	The index of the egress QoS queue of this SAP.
<b>SapEgrQosSchedStats</b> MIB table name: TIMETRA-SAP-MIB.sapEgrQosSchedStatsTable Monitored classes: <ul style="list-style-type: none"> <li>• service.L2AccessInterface</li> <li>• service.L3AccessInterface</li> <li>• service.IPsecInterface</li> </ul>			
customerId	long	sapEgrQosSchedCustId	The Customer ID for the associated service.
forwardedOctets	UINT128	sapEgrQosSchedStatsForw ardedOctets	The number of forwarded octets by the egress Qchip, as determined by the SAP egress scheduler policy.
forwardedPackets	UINT128	sapEgrQosSchedStatsForw ardedPackets	The number of forwarded packets by the egress Qchip, as determined by the SAP egress scheduler policy.
qosSchedName	String	sapEgrQosSchedName	The index of the egress QoS scheduler of this SAP.
<b>SapEgrSchedPlcyPortStats</b> MIB table name: TIMETRA-SAP-MIB.sapEgrSchedPlcyPortStatsTable Monitored classes: <ul style="list-style-type: none"> <li>• service.L2AccessInterface</li> <li>• service.L3AccessInterface</li> <li>• service.IPsecInterface</li> </ul>			
forwardedOctets	UINT128	sapEgrSchedPlcyPortStats FwdOct	The value of sapEgrSchedPlcyPortStatsFwdOct indicates the number of forwarded octets, as determined by the SAP egress scheduler policy, offered by the Pchip to the Qchip.
forwardedPackets	UINT128	sapEgrSchedPlcyPortStats FwdPkt	The value of sapEgrSchedPlcyPortStatsFwdPkt indicates the number of forwarded packets, as determined by the SAP egress scheduler policy, offered by the Pchip to the Qchip.
portId	long	sapPortId	The ID of the access port where this SAP is defined.

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5620 SAM counter name	Type	MIB counter name	Description
<b>SapEgrSchedPlcyStats</b> MIB table name: TIMETRA-SAP-MIB.sapEgrSchedPlcyStatsTable Monitored classes: <ul style="list-style-type: none"> <li>• service.L2AccessInterface</li> <li>• service.L3AccessInterface</li> <li>• service.IPsecInterface</li> </ul>			
forwardedOctets	UINT128	sapEgrSchedPlcyStatsFwdOct	The number of octets forwarded by the egress Qchip, as determined by the SAP egress scheduler policy.
forwardedPackets	UINT128	sapEgrSchedPlcyStatsFwdPkt	The number of packets forwarded by the egress Qchip, as determined by the SAP egress scheduler policy.
<b>SapIngQosHsmdaCntrStats</b> MIB table name: TIMETRA-SAP-MIB.sapIngQosHsmdaCntrStatsTable Monitored classes: <ul style="list-style-type: none"> <li>• service.L2AccessInterface</li> <li>• service.L3AccessInterface</li> <li>• service.ServiceAccessPoint</li> <li>• service.IPsecInterface</li> </ul>			
sapIngHsmdaCntrStAllOctetsOffered	UINT128	sapIngHsmdaCntrStAllOctOffered	The value of sapIngHsmdaCntrStAllOctOffered indicates the total number of octets offered on ingress on this SAP.
sapIngHsmdaCntrStAllPacketsOffered	UINT128	sapIngHsmdaCntrStAllPktOffered	The value of sapIngHsmdaCntrStAllPktOffered indicates the total number of packets offered on ingress on this SAP.
sapIngHsmdaCntrStCounterId	long	sapIngHsmdaCntrStCntrlId	The value of sapIngHsmdaCntrStCntrlId indicates the counter ID for the statistics.
sapIngHsmdaCntrStCusomerId	long	sapIngHsmdaCntrStCustId	The value of sapIngHsmdaCntrStCustId indicates the customer ID for the statistics.
sapIngHsmdaCntrStHiOctetsDropped	UINT128	sapIngHsmdaCntrStHiOctDrop	The value of sapIngHsmdaCntrStHiOctDrop indicates the number of high-priority octets dropped for the ingress counter, specified by the index sapIngHsmdaCntrStCntrlId, on this SAP.
sapIngHsmdaCntrStHiPacketsDropped	UINT128	sapIngHsmdaCntrStHiPktDrop	The value of sapIngHsmdaCntrStHiPktDrop indicates the number of high-priority packets dropped for the ingress counter, specified by the index sapIngHsmdaCntrStCntrlId, on this SAP.
sapIngHsmdaCntrStInProfileOctetsFwd	UINT128	sapIngHsmdaCntrStInProfOctFwd	The value of sapIngHsmdaCntrStInProfOctFwd indicates the number of out-of-profile packets forwarded for the ingress counter, specified by the index sapIngHsmdaCntrStCntrlId, on this SAP.

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5620 SAM counter name	Type	MIB counter name	Description
sapIngHsmdaCntrStInProfilePacketsFwd	UINT128	sapIngHsmdaCntrStInProfPktFwd	The value of sapIngHsmdaCntrStInProfPktFwd indicates the number of in-profile packets forwarded for the ingress counter, specified by the index sapIngHsmdaCntrStCntrlId, on this SAP.
sapIngHsmdaCntrStLoOctetsDropped	UINT128	sapIngHsmdaCntrStLoOctDrop	The value of sapIngHsmdaCntrStLoOctDrop indicates the number of low-priority octets dropped for the ingress counter, specified by the index sapIngHsmdaCntrStCntrlId, on this SAP.
sapIngHsmdaCntrStLoPacketsDropped	UINT128	sapIngHsmdaCntrStLoPktDrop	The value of sapIngHsmdaCntrStLoPktDrop indicates the number of low-priority packets dropped for the ingress counter, specified by the index sapIngHsmdaCntrStCntrlId, on this SAP.
sapIngHsmdaCntrStOutProfileOctetsFwd	UINT128	sapIngHsmdaCntrStOutProfOctFwd	The value of sapIngHsmdaCntrStOutProfOctFwd indicates the number of out-of-profile packets forwarded for the ingress counter, specified by the index sapIngHsmdaCntrStCntrlId, on this SAP.
sapIngHsmdaCntrStOutProfilePacketsFwd	UINT128	sapIngHsmdaCntrStOutProfPktFwd	The value of sapIngHsmdaCntrStOutProfPktFwd indicates the number of out-of-profile packets forwarded for the ingress counter, specified by the index sapIngHsmdaCntrStCntrlId, on this SAP.
<b>SapIngQosPlcyQueueStats</b> MIB table name: TIMETRA-SAP-MIB.sapIngQosPlcyQueueStatsTable Monitored classes: <ul style="list-style-type: none"> <li>• service.L2AccessInterface</li> <li>• service.L3AccessInterface</li> <li>• service.IPsecInterface</li> </ul>			
droppedHiPrioOctets	UINT128	sapIngQosPlcyQueueStatsDroppedHiPrioOctets	The value of sapIngQosPlcyQueueStatsDroppedHiPrioOctets indicates the number of high priority octets, as determined by the SAP ingress QoS policy, dropped by the Qchip due to: MBS exceeded, buffer pool limit exceeded, etc.
droppedHiPrioPackets	UINT128	sapIngQosPlcyQueueStatsDroppedHiPrioPackets	The value of sapIngQosPlcyQueueStatsDroppedHiPrioPackets indicates the number of high priority packets, as determined by the SAP ingress QoS policy, dropped by the Qchip due to: MBS exceeded, buffer pool limit exceeded, etc.
droppedLoPrioOctets	UINT128	sapIngQosPlcyQueueStatsDroppedLoPrioOctets	The value of sapIngQosPlcyQueueStatsDroppedLoPrioOctets indicates the number of low priority octets, as determined by the SAP ingress QoS policy, dropped by the Qchip due to: MBS exceeded, buffer pool limit exceeded, etc.

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5620 SAM counter name	Type	MIB counter name	Description
droppedLoPrioPackets	UINT128	saplgQosPlcyQueueStatsDroppedLoPrioPackets	The value of saplgQosPlcyQueueStatsDroppedLoPrioPackets indicates the number of low priority packets, as determined by the SAP ingress QoS policy, dropped by the Qchip due to: MBS exceeded, buffer pool limit exceeded, etc.
forwardedInProfOctets	UINT128	saplgQosPlcyQueueStatsForwardedInProfOctets	The value of saplgQosPlcyQueueStatsForwardedInProfOctets indicates the number of in-profile octets (rate below CIR) forwarded by the ingress Qchip.
forwardedInProfPackets	UINT128	saplgQosPlcyQueueStatsForwardedInProfPackets	The value of saplgQosPlcyQueueStatsForwardedInProfPackets indicates the number of in-profile packets (rate below CIR) forwarded by the ingress Qchip.
forwardedOutProfOctets	UINT128	saplgQosPlcyQueueStatsForwardedOutProfOctets	The value of saplgQosPlcyQueueStatsForwardedOutProfOctets indicates the number of out-of-profile octets (rate above CIR) forwarded by the ingress Qchip.
forwardedOutProfPackets	UINT128	saplgQosPlcyQueueStatsForwardedOutProfPackets	The value of saplgQosPlcyQueueStatsForwardedOutProfPackets indicates the number of out-of-profile packets (rate above CIR) forwarded by the ingress Qchip.
offeredHiPrioOctets	UINT128	saplgQosPlcyQueueStatsOfferedHiPrioOctets	The value of saplgQosPlcyQueueStatsOfferedHiPrioOctets indicates the number of high priority octets, as determined by the SAP ingress QoS policy, offered by the Pchip to the Qchip.
offeredHiPrioPackets	UINT128	saplgQosPlcyQueueStatsOfferedHiPrioPackets	The value of saplgQosPlcyQueueStatsOfferedHiPrioPackets indicates the number of high priority packets, as determined by the SAP ingress QoS policy, offered by the Pchip to the Qchip.
offeredLoPrioOctets	UINT128	saplgQosPlcyQueueStatsOfferedLoPrioOctets	The value of saplgQosPlcyQueueStatsOfferedLoPrioOctets indicates the number of low priority octets, as determined by the SAP ingress QoS policy, offered by the Pchip to the Qchip.
offeredLoPrioPackets	UINT128	saplgQosPlcyQueueStatsOfferedLoPrioPackets	The value of saplgQosPlcyQueueStatsOfferedLoPrioPackets indicates the number of low priority packets, as determined by the SAP ingress QoS policy, offered by the Pchip to the Qchip.
policyId	long	saplgQosPlcyQueuePlcyId	The value of the object saplgQosPlcyQueuePlcyId indicates the row index in the tSapIngressTable corresponding to this ingress QoS policy.

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5620 SAM counter name	Type	MIB counter name	Description
queueId	long	saplgQosPlcyQueueId	The index of the ingress QoS queue of this SAP used by the policy indicated by saplgQosPlcyQueuePlcyId.
uncoloredOctetsOffered	UINT128	saplgQosPlcyQueueStatsUncoloredOctetsOffered	The value of saplgQosPlcyQueueStatsUncoloredOctetsOffered indicates the number of uncolored octets offered to the ingress Qchip.
uncoloredPacketsOffered	UINT128	saplgQosPlcyQueueStatsUncoloredPacketsOffered	The value of saplgQosPlcyQueueStatsUncoloredPacketsOffered indicates the number of uncolored packets offered to the ingress Qchip.
<b>SapIngQosPlcyStats</b> MIB table name: TIMETRA-SAP-MIB.sapIngrQosPlcyStatsTable Monitored classes: <ul style="list-style-type: none"> <li>• service.L2AccessInterface</li> <li>• service.L3AccessInterface</li> <li>• service.IPsecInterface</li> </ul>			
droppedHiPrioOctets	UINT128	saplgQosPlcyDroppedHiPrioOctets	The value of the object saplgQosPlcyDroppedHiPrioOctets indicates the number of high priority octets, as determined by the SAP ingress QoS policy, dropped by the Qchip due to: MBS exceeded, buffer pool limit exceeded, etc.
droppedHiPrioPackets	UINT128	saplgQosPlcyDroppedHiPrioPackets	The value of the object saplgQosPlcyDroppedHiPrioPackets indicates the number of high priority packets, as determined by the SAP ingress QoS policy, dropped by the Qchip due to: MBS exceeded, buffer pool limit exceeded, etc.
droppedLoPrioOctets	UINT128	saplgQosPlcyDroppedLoPrioOctets	The value of the object saplgQosPlcyDroppedLoPrioOctets indicates the number of low priority octets, as determined by the SAP ingress QoS policy, dropped by the Qchip due to: MBS exceeded, buffer pool limit exceeded, etc.
droppedLoPrioPackets	UINT128	saplgQosPlcyDroppedLoPrioPackets	The value of the object saplgQosPlcyDroppedLoPrioPackets indicates the number of low priority packets, as determined by the SAP ingress QoS policy, dropped by the Qchip due to: MBS exceeded, buffer pool limit exceeded, etc.
forwardedInProfOctets	UINT128	saplgQosPlcyForwardedInProfOctets	The value of the object saplgQosPlcyForwardedInProfOctets indicates the number of in-profile octets (rate below CIR) forwarded by the ingress Qchip.

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5620 SAM counter name	Type	MIB counter name	Description
forwardedInProfPackets	UINT128	saplgQosPlcyForwardedInProfPackets	The value of the object saplgQosPlcyForwardedInProfPackets indicates the number of in-profile packets (rate below CIR) forwarded by the ingress Qchip.
forwardedOutProfOctets	UINT128	saplgQosPlcyForwardedOutProfOctets	The value of the object saplgQosPlcyForwardedOutProfOctets indicates the number of out-of-profile octets (rate above CIR) forwarded by the ingress Qchip.
forwardedOutProfPackets	UINT128	saplgQosPlcyForwardedOutProfPackets	The value of the object saplgQosPlcyForwardedOutProfPackets indicates the number of out-of-profile packets (rate above CIR) forwarded by the ingress Qchip.
policyId	long	saplgQosPlcyId	The value of the object saplgQosPlcyId indicates the row index in the tSapIngressTable corresponding to this ingress QoS policy, or one if no policy is specified.
<b>SapIngQosQueueStats</b> MIB table name: TIMETRA-SAP-MIB.sapIngQosQueueStatsTable Monitored classes: <ul style="list-style-type: none"> <li>• service.L2AccessInterface</li> <li>• service.L3AccessInterface</li> <li>• service.IPsecInterface</li> </ul>			
customerId	long	sapIngQosCustId	The Customer ID for the associated service.
droppedHiPrioOctets	UINT128	sapIngQosQueueStatsDroppedHiPrioOctets	The number of high priority octets, as determined by the SAP ingress QoS policy, dropped by the Qchip due to: MBS exceeded, buffer pool limit exceeded, etc.
droppedHiPrioPackets	UINT128	sapIngQosQueueStatsDroppedHiPrioPackets	The number of high priority packets, as determined by the SAP ingress QoS policy, dropped by the Qchip due to: MBS exceeded, buffer pool limit exceeded, etc.
droppedLoPrioOctets	UINT128	sapIngQosQueueStatsDroppedLoPrioOctets	The number of low priority octets, as determined by the SAP ingress QoS policy, dropped by the Qchip due to: MBS exceeded, buffer pool limit exceeded, etc.
droppedLoPrioPackets	UINT128	sapIngQosQueueStatsDroppedLoPrioPackets	The number of low priority packets, as determined by the SAP ingress QoS policy, dropped by the Qchip due to: MBS exceeded, buffer pool limit exceeded, etc.
forwardedInProfOctets	UINT128	sapIngQosQueueStatsForwardedInProfOctets	The number of in-profile octets (rate below CIR) forwarded by the ingress Qchip.
forwardedInProfPackets	UINT128	sapIngQosQueueStatsForwardedInProfPackets	The number of in-profile packets (rate below CIR) forwarded by the ingress Qchip.

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5620 SAM counter name	Type	MIB counter name	Description
forwardedOutProfOctets	UINT128	sapIngQosQueueStatsForwardedOutProfOctets	The number of out-of-profile octets (rate above CIR) forwarded by the ingress Qchip.
forwardedOutProfPackets	UINT128	sapIngQosQueueStatsForwardedOutProfPackets	The number of out-of-profile packets (rate above CIR) forwarded by the ingress Qchip.
offeredHiPrioOctets	UINT128	sapIngQosQueueStatsOfferedHiPrioOctets	The number of high priority octets, as determined by the SAP ingress QoS policy, offered by the Pchip to the Qchip.
offeredHiPrioPackets	UINT128	sapIngQosQueueStatsOfferedHiPrioPackets	The number of high priority packets, as determined by the SAP ingress QoS policy, offered by the Pchip to the Qchip.
offeredLoPrioOctets	UINT128	sapIngQosQueueStatsOfferedLoPrioOctets	The number of low priority octets, as determined by the SAP ingress QoS policy, offered by the Pchip to the Qchip.
offeredLoPrioPackets	UINT128	sapIngQosQueueStatsOfferedLoPrioPackets	The number of low priority packets, as determined by the SAP ingress QoS policy, offered by the Pchip to the Qchip.
queueId	long	sapIngQosQueueId	The index of the ingress QoS queue of this SAP.
uncoloredOctetsOffered	UINT128	sapIngQosQueueStatsUncoloredOctetsOffered	The number of uncolored octets offered to the ingress Qchip.
uncoloredPacketsOffered	UINT128	sapIngQosQueueStatsUncoloredPacketsOffered	The number of uncolored packets offered to the ingress Qchip.
<b>SapIngQosSchedStats</b> MIB table name: TIMETRA-SAP-MIB.sapIngQosSchedStatsTable Monitored classes: <ul style="list-style-type: none"> <li>• service.L2AccessInterface</li> <li>• service.L3AccessInterface</li> <li>• service.IPsecInterface</li> </ul>			
customerId	long	sapIngQosSchedCustId	The Customer ID for the associated service.
forwardedOctets	UINT128	sapIngQosSchedStatsForwardedOctets	The number of forwarded octets, as determined by the SAP ingress scheduler policy, offered by the Pchip to the Qchip.
forwardedPackets	UINT128	sapIngQosSchedStatsForwardedPackets	The number of forwarded packets, as determined by the SAP ingress scheduler policy, offered by the Pchip to the Qchip.
qosSchedName	String	sapIngQosSchedName	The index of the ingress QoS scheduler of this SAP.
<b>SapIngSchedPlcyPortStats</b> MIB table name: TIMETRA-SAP-MIB.sapIngSchedPlcyPortStatsTable Monitored classes: <ul style="list-style-type: none"> <li>• service.L2AccessInterface</li> <li>• service.L3AccessInterface</li> <li>• service.IPsecInterface</li> </ul>			

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5620 SAM counter name	Type	MIB counter name	Description
forwardedOctets	UINT128	sapIngSchedPlcyPortStatsFwdOct	The value of sapIngSchedPlcyPortStatsFwdOct indicates the number of forwarded octets, as determined by the SAP ingress scheduler policy, offered by the Pchip to the Qchip.
forwardedPackets	UINT128	sapIngSchedPlcyPortStatsFwdPkt	The value of sapIngSchedPlcyPortStatsFwdPkt indicates the number of forwarded packets, as determined by the SAP ingress scheduler policy, offered by the Pchip to the Qchip.
portId	long	sapPortId	The ID of the access port where this SAP is defined.
<b>SapIngSchedPlcyStats</b> MIB table name: TIMETRA-SAP-MIB.sapIngSchedPlcyStatsTable Monitored classes: <ul style="list-style-type: none"> <li>• service.L2AccessInterface</li> <li>• service.L3AccessInterface</li> <li>• service.IPsecInterface</li> </ul>			
forwardedOctets	UINT128	sapIngSchedPlcyStatsFwdOct	The number of forwarded octets, as determined by the SAP ingress scheduler policy, offered by the Pchip to the Qchip.
forwardedPackets	UINT128	sapIngSchedPlcyStatsFwdPkt	The number of forwarded packets, as determined by the SAP ingress scheduler policy, offered by the Pchip to the Qchip.
<b>VdoGrpSrcAdiStats</b> MIB table name: TIMETRA-VIDEO-MIB.tmnxVdoSGAdiStatTable Monitored class: service.ZoneAdiChl			
vdoSGAdiAbortReq	long	tmnxVdoSGAdiAbortReq	The value of tmnxVdoSGAdiAbortReq indicates the total number of abort requests received from the Ad Insert (ADI) server.
vdoSGAdiAliveReq	long	tmnxVdoSGAdiAliveReq	The value of tmnxVdoSGAdiAliveReq indicates the total number of alive messages received from the Ad Insert (ADI) server.
vdoSGAdiCueReq	long	tmnxVdoSGAdiCueReq	The value of tmnxVdoSGAdiCueReq indicates the total number of total number of cue requests sent to the Ad Insert (ADI) server.
vdoSGAdiInitReq	long	tmnxVdoSGAdiInitReq	The value of tmnxVdoSGAdiInitReq indicates the total number of init requests received from the Ad Insert (ADI) server.
vdoSGAdiServerAddr	String	tmnxVdoSGAdiServerAddr	The value of tmnxVdoSGAdiServerAddr indicates the address of Ad Insert (ADI) server on this channel.
vdoSGAdiServerAddrType	int	tmnxVdoSGAdiServerAddrType	The value of tmnxVdoSGAdiServerAddrType indicates the type of Ad Insert (ADI) server address represented by tmnxVdoSGAdiServerAddr.

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5620 SAM counter name	Type	MIB counter name	Description
vdoSGAdiServerUptime	long	tmnxVdoSGAdiServerUptime	The value of tmnxVdoSGAdiServerUptime indicates the time in seconds since the connection with Ad Insert (ADI) server was established.
vdoSGAdiSpliceReq	long	tmnxVdoSGAdiSpliceReq	The value of tmnxVdoSGAdiSpliceReq indicates the total number of splice requests received from the Ad Insert (ADI) server.
vdoSGAdiSucAbortResp	long	tmnxVdoSGAdiSucAbortResp	The value of tmnxVdoSGAdiSucAbortResp indicates the total number of successful abort responses sent to the Ad Insert (ADI) server.
vdoSGAdiSucAliveResp	long	tmnxVdoSGAdiSucAliveResp	The value of tmnxVdoSGAdiSucAliveResp indicates the total number of successful alive messages sent to the Ad Insert (ADI) server.
vdoSGAdiSucCueResp	long	tmnxVdoSGAdiSucCueResp	The value of tmnxVdoSGAdiSucCueResp indicates the total number of successful cue responses received from the Ad Insert (ADI) server.
vdoSGAdiSucInitResp	long	tmnxVdoSGAdiSucInitResp	The value of tmnxVdoSGAdiSucInitResp indicates the total number of successful init responses sent to the Ad Insert (ADI) server.
vdoSGAdiSucSpliceInCompResp	long	tmnxVdoSGAdiSucSpliceInCompResp	The value of tmnxVdoSGAdiSucSpliceInCompResp indicates the total number of successful splice-in complete responses sent to the Ad Insert (ADI) server.
vdoSGAdiSucSpliceOutCompResp	long	tmnxVdoSGAdiSucSpliceOutCompResp	The value of tmnxVdoSGAdiSucSpliceOutCompResp indicates the total number of successful splice-out complete responses sent to the Ad Insert (ADI) server.
vdoSGAdiSucSpliceResp	long	tmnxVdoSGAdiSucSpliceResp	The value of tmnxVdoSGAdiSucSpliceResp indicates the total number of successful splice responses sent to the Ad Insert (ADI) server.
vdoSGAdiUnknownSCTE30Req	long	tmnxVdoSGAdiUnknownSCTE30Req	The value of tmnxVdoSGAdiUnknownSCTE30Req indicates the total number of invalid Society of Cable Telecommunications Engineers 30 (SCTE-30) requests received from the Ad Insert (ADI) server.
vdoSGAdiUnsucAbortResp	long	tmnxVdoSGAdiUnsucAbortResp	The value of tmnxVdoSGAdiUnsucAbortResp indicates the total number of unsuccessful abort responses sent to the Ad Insert (ADI) server.
vdoSGAdiUnsucAliveResp	long	tmnxVdoSGAdiUnsucAliveResp	The value of tmnxVdoSGAdiUnsucAliveResp indicates the total number of unsuccessful alive messages sent to the Ad Insert (ADI) server.

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5620 SAM counter name	Type	MIB counter name	Description
vdoSGAdiUnsucCueResp	long	tmnxVdoSGAdiUnsucCueResp	The value of tmnxVdoSGAdiUnsucCueResp indicates the total number of unsuccessful cue responses received from the Ad Insert (ADI) server.
vdoSGAdiUnsucInitResp	long	tmnxVdoSGAdiUnsucInitResp	The value of tmnxVdoSGAdiUnsucInitResp indicates the total number of unsuccessful init responses sent to the Ad Insert (ADI) server.
vdoSGAdiUnsucSpliceOutComRes	long	tmnxVdoSGAdiUnsucSpliceOutComRes	The value of tmnxVdoSGAdiUnsucSpliceOutComRes indicates the total number of unsuccessful splice-out complete responses sent to the Ad Insert (ADI) server.
vdoSGAdiUnsucSpliceResp	long	tmnxVdoSGAdiUnsucSpliceResp	The value of tmnxVdoSGAdiUnsucSpliceResp indicates the total number of unsuccessful splice responses sent to the Ad Insert (ADI) server.
<b>VdoGrpSrcSpliceStats</b> MIB table name: TIMETRA-VIDEO-MIB.tmnxVdoSGSpliceStatusTable Monitored class: service.ZoneAdiChl			
vdoSGSpliceAbortReason	long	tmnxVdoSGSpliceAbortReason	The value of tmnxVdoSGSpliceAbortReason indicates the reason if a splice operation has been aborted. If the value of this object is equal to 'none', then the splice has not been aborted.
vdoSGSpliceAdServerAddr	String	tmnxVdoSGSpliceAdServerAddr	The value of tmnxVdoSGSpliceAdServerAddr indicates the address of the Ad Insert (ADI) server that issued the splice request.
vdoSGSpliceAdServerAddrType	int	tmnxVdoSGSpliceAdServerAddrType	The value of tmnxVdoSGSpliceAdServerAddrType indicates the type of Ad Insert (ADI) server address represented by tmnxVdoSGSpliceAdServerAddr.
vdoSGSpliceBlkFramePTS	String	tmnxVdoSGSpliceBlkFramePTS	The value of tmnxVdoSGSpliceBlkFramePTS indicates the Presentation Timestamp (PTS) of the first black frame.
vdoSGSpliceDurationPlayed	long	tmnxVdoSGSpliceDurationPlayed	The value of tmnxVdoSGSpliceDurationPlayed indicates the splice duration, in seconds, played by the splicer.
vdoSGSpliceDurationReq	long	tmnxVdoSGSpliceDurationReq	The value of tmnxVdoSGSpliceDurationReq indicates the splice duration, in seconds, of the ad requested by the Ad Insert (ADI) server.
vdoSGSpliceMaxAdPTS	String	tmnxVdoSGSpliceMaxAdPTS	The value of tmnxVdoSGSpliceMaxAdPTS indicates the maximum Presentation Timestamp (PTS) value of the last Group of Pictures (GOP) of ad stream (non-black frame).

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5620 SAM counter name	Type	MIB counter name	Description
vdoSGSpliceMinNwPTS	String	tmnxVdoSGSpliceMinNwPTS	The value of tmnxVdoSGSpliceMinNwPTS indicates the minimum Presentation Timestamp (PTS) value from the first Group of Pictures (GOP) of the network stream after the splice out has occurred.
vdoSGSpliceNumBlkFrames	long	tmnxVdoSGSpliceNumBlkFrames	The value of tmnxVdoSGSpliceNumBlkFrames indicates the number of black frames inserted.
vdoSGSplicePriorSessionId	long	tmnxVdoSGSplicePriorSessionId	The value of tmnxVdoSGSplicePriorSessionId indicates the prior session id of the ad. If the value of this object is not equal to 0xFFFFFFFF, then this splice is a back-to-back ad insertion.
vdoSGSpliceRate	long	tmnxVdoSGSpliceRate	The value of tmnxVdoSGSpliceRate indicates the rate of the ad stream, in kilo-bits per second (kbps), received by the splicer.
vdoSGSpliceSessionId	long	tmnxVdoSGSpliceSessionId	The value of tmnxVdoSGSpliceSessionId indicates the session ID of the ad request.
vdoSGSpliceSpliceInSeqNum	long	tmnxVdoSGSpliceSpliceInSeqNum	The value of tmnxVdoSGSpliceSpliceInSeqNum indicates the sequence number at which the splice-in to the ad occurred.
vdoSGSpliceSpliceOutSeqNum	long	tmnxVdoSGSpliceSpliceOutSeqNum	The value of tmnxVdoSGSpliceSpliceOutSeqNum indicates the sequence number at which the splice-out to the ad occurred.
vdoSGSpliceStartTime	long	tmnxVdoSGSpliceStartTime	The value of tmnxVdoSGSpliceStartTime indicates the start time of splice in seconds.
vdoSGSpliceStatus	long	tmnxVdoSGSpliceStatus	The value of tmnxVdoSGSpliceStatus indicates the status of this splice request.
<b>VdoGrpSrcStats</b> MIB table name: TIMETRA-VIDEO-MIB.tmnxVdoGrpSrcStatTable Monitored classes: <ul style="list-style-type: none"> <li>• service.AdiChl</li> <li>• service.ZoneAdiChl</li> </ul>			
vdoGrpSrcADIAAdminState	int	tmnxVdoGrpSrcADIAAdminState	The value of tmnxVdoGrpSrcADIAAdminState indicates whether Ad Insertion is enabled on the video ISA.
vdoGrpSrcADICurrentState	long	tmnxVdoGrpSrcADICurrentState	The value of tmnxVdoGrpSrcADICurrentState indicates whether the video ISA is transmitting network stream or ads.
vdoGrpSrcADIPATChanges	long	tmnxVdoGrpSrcADIPATChanges	The value of tmnxVdoGrpSrcADIPATChanges indicates the total number of Program Association Table (PAT) version changes.
vdoGrpSrcADIPATVersion	long	tmnxVdoGrpSrcADIPATVersion	The value of tmnxVdoGrpSrcADIPATVersion indicates the version of the Program Association Table (PAT).

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5620 SAM counter name	Type	MIB counter name	Description
vdoGrpSrcADIPMTChanges	long	tmnxVdoGrpSrcADIPMTChanges	The value of tmnxVdoGrpSrcADIPMTChanges indicates the total number of Program Map Table (PMT) version changes.
vdoGrpSrcADIPMTVersion	long	tmnxVdoGrpSrcADIPMTVersion	The value of tmnxVdoGrpSrcADIPMTVersion indicates the version of the Program Map Table (PMT).
vdoGrpSrcADIRxPackets	UINT128	tmnxVdoGrpSrcADIRxPackets	The value of tmnxVdoGrpSrcADIRxPackets indicates the total number of Ad Insert (ADI) packets received by the video ISA.
vdoGrpSrcADIRxSCTE35MsgDisc	long	tmnxVdoGrpSrcADIRxSCTE35MsgDisc	The value of tmnxVdoGrpSrcADIRxSCTE35MsgDisc indicates the total number of Society of Cable Telecommunications Engineers (SCTE-35) messages received by the video ISA and discarded. SCTE-35 messages with unsupported commands and encrypted SCTE-35 messages are discarded.
vdoGrpSrcADIRxSCTE35MsgEnc	long	tmnxVdoGrpSrcADIRxSCTE35MsgEnc	The value of tmnxVdoGrpSrcADIRxSCTE35MsgEnc indicates the total number of encrypted Society of Cable Telecommunications Engineers (SCTE-35) messages received by the video ISA.
vdoGrpSrcADIRxSCTE35Msgs	long	tmnxVdoGrpSrcADIRxSCTE35Msgs	The value of tmnxVdoGrpSrcADIRxSCTE35Msgs indicates the total number of Society of Cable Telecommunications Engineers (SCTE-35) messages received by the video ISA.
vdoGrpSrcADIRxSCTE35MsgUnsup	long	tmnxVdoGrpSrcADIRxSCTE35MsgUnsup	The value of tmnxVdoGrpSrcADIRxSCTE35MsgUnsup indicates the total number of unsupported Society of Cable Telecommunications Engineers (SCTE-35) messages received by the video ISA.
vdoGrpSrcADITxPackets	UINT128	tmnxVdoGrpSrcADITxPackets	The value of tmnxVdoGrpSrcADITxPackets indicates the total number of Ad Insert (ADI) packets sent by the video ISA.
vdoGrpSrcADIUnsuppTSLenPkts	long	tmnxVdoGrpSrcADIUnsuppTSLenPkts	The value of tmnxVdoGrpSrcADIUnsuppTSLenPkts indicates the total number of data packets received whose size is not equal to 188 bytes. The value of this object is valid only when the corresponding tmnxVdoGrpADIServerState value is set to 'true'.
vdoGrpSrcAdminBW	long	tmnxVdoGrpSrcAdminBW	The value of tmnxVdoGrpSrcAdminBW indicates the administrative bandwidth of the multicast group.
vdoGrpSrcAdminRTBufferSize	long	tmnxVdoGrpSrcAdminRTBufferSize	The value of tmnxVdoGrpSrcAdminRTBufferSize indicates the number of milliseconds worth of channel packets to store for the Retransmission (RT) server.

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5620 SAM counter name	Type	MIB counter name	Description
vdoGrpSrcBufferSize	long	tmnxVdoGrpSrcBufferSize	The value of tmnxVdoGrpSrcBufferSize indicates the number of milliseconds worth of channel packets stored by the Retransmission (RT) server or Fast Channel Change (FCC) server on this channel.
vdoGrpSrcDupSeqNumber	long	tmnxVdoGrpSrcDupSeqNumber	The value of tmnxVdoGrpSrcDupSeqNumber indicates the total number of Real-time Transport Protocol (RTP) packets detected with a duplicate sequence number.
vdoGrpSrcFCCSrvrAdminState	int	tmnxVdoGrpSrcFCCSrvrAdminState	The value of tmnxVdoGrpSrcFCCSrvrAdminState indicates whether the Fast Channel Change (FCC) server is enabled on this channel.
vdoGrpSrcFCCSrvrChnlType	int	tmnxVdoGrpSrcFCCSrvrChnlType	The value of tmnxVdoGrpSrcFCCSrvrChnlType indicates the type of channel served by the Fast Channel Change (FCC) server.
vdoGrpSrcFCCSrvrRxFailedReq	long	tmnxVdoGrpSrcFCCSrvrRxFailedReq	The value of tmnxVdoGrpSrcFCCSrvrRxFailedReq indicates the total number of failed requests at the Fast Channel Change (FCC) server.
vdoGrpSrcFCCSrvrRxFCCReq	long	tmnxVdoGrpSrcFCCSrvrRxFCCReq	The value of tmnxVdoGrpSrcFCCSrvrRxFCCReq indicates the total number of Fast Channel Change (FCC) requests received by the FCC server.
vdoGrpSrcFCCSrvrTxBytes	UINT128	tmnxVdoGrpSrcFCCSrvrTxBytes	The value of tmnxVdoGrpSrcFCCSrvrTxBytes indicates the total number of bytes sent by the Fast Channel Change (FCC) server.
vdoGrpSrcFCCSrvrTxFCCReplies	long	tmnxVdoGrpSrcFCCSrvrTxFCCReplies	The value of tmnxVdoGrpSrcFCCSrvrTxFCCReplies indicates the total number of Fast Channel Change (FCC) replies sent by the FCC server.
vdoGrpSrcFCCSrvrTxPackets	UINT128	tmnxVdoGrpSrcFCCSrvrTxPackets	The value of tmnxVdoGrpSrcFCCSrvrTxPackets indicates the total number of packets sent by the Fast Channel Change (FCC) server.
vdoGrpSrcGroupAddress	String	tmnxVdoGrpSrcGroupAddress	The value of tmnxVdoGrpSrcGroupAddress indicates the IP multicast group address for which this entry contains information.
vdoGrpSrcGrpAddrType	int	tmnxVdoGrpSrcGrpAddrType	The value of tmnxVdoGrpSrcGrpAddrType indicates the type of IP multicast group address represented by tmnxVdoGrpSrcGroupAddress.
vdoGrpSrcRTClientAdminState	int	tmnxVdoGrpSrcRTClientAdminState	The value of tmnxVdoGrpSrcRTClientAdminState indicates the administrative state of the retransmission client.

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5620 SAM counter name	Type	MIB counter name	Description
vdoGrpSrcRTClientFailedReq	long	tmnxVdoGrpSrcRTClientFailedReq	The value of tmnxVdoGrpSrcRTClientFailedReq indicates the total number of Retransmission (RT) requests that could not be generated by the RT client due to gaps in the sequence numbers.
vdoGrpSrcRTClientGapsDetectd	long	tmnxVdoGrpSrcRTClientGapsDetectd	The value of tmnxVdoGrpSrcRTClientGapsDetectd indicates the total number of gaps in the sequence numbers detected by the Retransmission (RT) client.
vdoGrpSrcRTClientRTSvrPort	long	tmnxVdoGrpSrcRTClientRTSvrPort	The value of tmnxVdoGrpSrcRTClientRTSvrPort indicates the Retransmission (RT) server port for this channel.
vdoGrpSrcRTClientRxReTxBytes	UINT128	tmnxVdoGrpSrcRTClientRxReTxBytes	The value of tmnxVdoGrpSrcRTClientRxReTxBytes indicates the total number of retransmitted bytes received by the Retransmission (RT) client.
vdoGrpSrcRTClientRxReTxPkts	UINT128	tmnxVdoGrpSrcRTClientRxReTxPkts	The value of tmnxVdoGrpSrcRTClientRxReTxPkts indicates the total number of retransmitted packets received by the Retransmission (RT) client.
vdoGrpSrcRTClientTxRTReq	long	tmnxVdoGrpSrcRTClientTxRTReq	The value of tmnxVdoGrpSrcRTClientTxRTReq indicates the total number of Retransmission (RT) requests sent by the RT client.
vdoGrpSrcRTClientTxRTReqReTx	long	tmnxVdoGrpSrcRTClientTxRTReqReTx	The value of tmnxVdoGrpSrcRTClientTxRTReqReTx indicates the total number of repeat Retransmission (RT) requests attempted by the RT client.
vdoGrpSrcRTCIntRTSvrAddr	String	tmnxVdoGrpSrcRTCIntRTSvrAddr	The value of tmnxVdoGrpSrcRTCIntRTSvrAddr indicates the address of the Retransmission (RT) server for this channel.
vdoGrpSrcRTCIntRTSvrAddrType	int	tmnxVdoGrpSrcRTCIntRTSvrAddrType	The value of tmnxVdoGrpSrcRTCIntRTSvrAddrType indicates the type of address represented by tmnxVdoGrpSrcRTCIntRTSvrAddr.
vdoGrpSrcRTSvrAdminState	int	tmnxVdoGrpSrcRTSvrAdminState	The value of tmnxVdoGrpSrcRTSvrAdminState indicates the administrative state of the Retransmission (RT) server.
vdoGrpSrcRTSvrRtpPktsReq	long	tmnxVdoGrpSrcRTSvrRtpPktsReq	The value of tmnxVdoGrpSrcRTSvrRtpPktsReq indicates the totoal number of Real-time Transport Protocol (RTP) packets requested in the Real-time Transport Control Protocol (RTCP) feedback (FB) messages received on this channel.

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5620 SAM counter name	Type	MIB counter name	Description
vdoGrpSrcRTSrvRxFailedReq	long	tmnxVdoGrpSrcRTSrvRxFailedReq	The value of tmnxVdoGrpSrcRTSrvRxFailedReq indicates the total number of failed requests at the Retransmission (RT) server due to congestion or lack of resources.
vdoGrpSrcRTSrvRxRTReq	long	tmnxVdoGrpSrcRTSrvRxRTReq	The value of tmnxVdoGrpSrcRTSrvRxRTReq indicates the total number of RT requests received by the Retransmission (RT) server.
vdoGrpSrcRTSrvTxBytes	UINT128	tmnxVdoGrpSrcRTSrvTxBytes	The value of tmnxVdoGrpSrcRTSrvTxBytes indicates the total number of bytes sent by the Retransmission (RT) server.
vdoGrpSrcRTSrvTxPackets	UINT128	tmnxVdoGrpSrcRTSrvTxPackets	The value of tmnxVdoGrpSrcRTSrvTxPackets indicates the total number of packets sent by the Retransmission (RT) server.
vdoGrpSrcRTSrvTxRTReplies	long	tmnxVdoGrpSrcRTSrvTxRTReplies	The value of tmnxVdoGrpSrcRTSrvTxRTReplies indicates the total number of Retransmission (RT) replies sent by the RT server.
vdoGrpSrcRxBytes	UINT128	tmnxVdoGrpSrcRxBytes	The value of tmnxVdoGrpSrcRxBytes indicates the total number of bytes received on this multicast channel.
vdoGrpSrcRxInvalidPackets	UINT128	tmnxVdoGrpSrcRxInvalidPackets	The value of tmnxVdoGrpSrcRxInvalidPackets indicates the total number of invalid packets received on this multicast channel.
vdoGrpSrcRxPackets	UINT128	tmnxVdoGrpSrcRxPackets	The value of tmnxVdoGrpSrcRxPackets indicates the total number of packets received on this multicast channel.
vdoGrpSrcSourceAddress	String	tmnxVdoGrpSrcSourceAddress	The value of tmnxVdoGrpSrcSourceAddress indicates the IP multicast source address for which this entry contains information.
vdoGrpSrcSrcAddrType	int	tmnxVdoGrpSrcSrcAddrType	The value of tmnxVdoGrpSrcSrcAddrType indicates the type of IP multicast source address represented by tmnxVdoGrpSrcSourceAddress.
vdoGrpSrcSSRCId	long	tmnxVdoGrpSrcSSRCId	The value of tmnxVdoGrpSrcSSRCId indicates the synchronization source (SSRC) identifier carried in the Real-time Transport Protocol (RTP) header to identify the source of a stream of RTP packets.
vdoGrpSrcStreamType	long	tmnxVdoGrpSrcStreamType	The value of tmnxVdoGrpSrcStreamType indicates the type of stream being transmitted from the video ISA perspective. Network stream is the stream ingressing the video ISA and being stored by it. Zone stream is the stream egressing the video ISA into which AD streams will be inserted.

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5620 SAM counter name	Type	MIB counter name	Description
vdoGrpSrcTxBytes	UINT128	tmnxVdoGrpSrcTxBytes	The value of tmnxVdoGrpSrcTxBytes indicates the total number of bytes transmitted on this multicast channel.
vdoGrpSrcTxFailedPackets	UINT128	tmnxVdoGrpSrcTxFailedPackets	The value of tmnxVdoGrpSrcTxFailedPackets indicates the total number of failures during the transmission of packets on this multicast channel. Failure happens when the packet to be sent is not stored in the video cache.
vdoGrpSrcTxPackets	UINT128	tmnxVdoGrpSrcTxPackets	The value of tmnxVdoGrpSrcTxPackets indicates the total number of packets transmitted on this multicast channel.
vdoGrpSrcUDPDestPort	long	tmnxVdoGrpSrcUDPDestPort	The value of tmnxVdoGrpSrcUDPDestPort indicates the UDP destination port in the received RTP multicast stream.
vdoGrpSrcUDPSrcPort	long	tmnxVdoGrpSrcUDPSrcPort	The value of tmnxVdoGrpSrcUDPSrcPort indicates the UDP source port in the received RTP multicast stream.
vdoGrpSrcUptime	long	tmnxVdoGrpSrcUptime	The value of tmnxVdoGrpSrcUptime indicates the time since this source group entry was created.
vdoGrpSrcVdoGrpId	long	tmnxVdoGrpSrcVdoGrpId	The value of tmnxVdoGrpSrcVdoGrpId indicates the identifier of the video group.
<b>VdolfStats</b> MIB table name: TIMETRA-VIDEO-MIB.tmnxVdolfStatTable Monitored class: service.VideoflpAddress			
vdolfScte30InitSessions	long	tmnxVdolfScte30InitSessions	The value of tmnxVdolfScte30InitSessions indicates the total number of scte30 init sessions with the Ad Insert (ADI) servers for this interface.
vdolfScte30TcpSessions	long	tmnxVdolfScte30TcpSessions	The value of tmnxVdolfScte30TcpSessions indicates the total number of scte30 tcp sessions with the Ad Insert (ADI) servers for this interface.
vdolfStatFCCSrRxHdFailedReq	UINT128	tmnxVdolfStatFCCSrRxHdFailedReq	The value of tmnxVdolfStatFCCSrRxHdFailedReq indicates the total number of failed Fast Channel Change (FCC) requests received from High Definition (HD) channels on this interface.
vdolfStatFCCSrRxHdFCCReq	UINT128	tmnxVdolfStatFCCSrRxHdFCCReq	The value of tmnxVdolfStatFCCSrRxHdFCCReq indicates the total number of Fast Channel Change (FCC) requests received from High Definition (HD) channels on this interface.
vdolfStatFCCSrRxPipFailedReq	UINT128	tmnxVdolfStatFCCSrRxPipFailedReq	The value of tmnxVdolfStatFCCSrRxPipFailedReq indicates the total number of failed Fast Channel Change (FCC) requests received from Picture-In-Picture (PIP) channels on this interface.

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5620 SAM counter name	Type	MIB counter name	Description
vdolfStatFCCSRxPipFCCReq	UINT128	tmnxVdolfStatFCCSRxPipFCCReq	The value of tmnxVdolfStatFCCSRxPipFCCReq indicates the total number of Fast Channel Change (FCC) requests received from Picture-In-Picture (PIP) channels on this interface.
vdolfStatFCCSRxSdFailedReq	UINT128	tmnxVdolfStatFCCSRxSdFailedReq	The value of tmnxVdolfStatFCCSRxSdFailedReq indicates the total number of failed Fast Channel Change (FCC) requests received from Standard Definition (SD) channels on this interface.
vdolfStatFCCSRxSdFCCReq	UINT128	tmnxVdolfStatFCCSRxSdFCCReq	The value of tmnxVdolfStatFCCSRxSdFCCReq indicates the total number of Fast Channel Change (FCC) requests received from Standard Definition (SD) channels on this interface.
vdolfStatFCCSRxHdBytes	UINT128	tmnxVdolfStatFCCSRxHdBytes	The value of tmnxVdolfStatFCCSRxHdBytes indicates the total number of High Definition (HD) channel bytes sent from this interface.
vdolfStatFCCSRxHdFCCReplies	UINT128	tmnxVdolfStatFCCSRxHdFCCReplies	The value of tmnxVdolfStatFCCSRxHdFCCReplies indicates the total number of High Definition (HD) channel Fast Channel Change (FCC) replies sent from this interface.
vdolfStatFCCSRxHdPackets	UINT128	tmnxVdolfStatFCCSRxHdPackets	The value of tmnxVdolfStatFCCSRxHdPackets indicates the total number of High Definition (HD) channel packets sent from this interface.
vdolfStatFCCSRxPipBytes	UINT128	tmnxVdolfStatFCCSRxPipBytes	The value of tmnxVdolfStatFCCSRxPipBytes indicates the total number of Picture-In-Picture (PIP) channel bytes sent from this interface.
vdolfStatFCCSRxPipFCCRplies	UINT128	tmnxVdolfStatFCCSRxPipFCCRplies	The value of tmnxVdolfStatFCCSRxPipFCCRplies indicates the total number of Picture-In-Picture (PIP) channel Fast Channel Change (FCC) replies sent from this interface.
vdolfStatFCCSRxPipPackets	UINT128	tmnxVdolfStatFCCSRxPipPackets	The value of tmnxVdolfStatFCCSRxPipPackets indicates the total number of Picture-In-Picture (PIP) channel packets sent from this interface.
vdolfStatFCCSRxSdBytes	UINT128	tmnxVdolfStatFCCSRxSdBytes	The value of tmnxVdolfStatFCCSRxSdBytes indicates the total number of Standard Definition (SD) channel bytes sent from this interface.

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5620 SAM counter name	Type	MIB counter name	Description
vdolfStatFCCSrTxSdFCCReplies	UINT128	tmnxVdolfStatFCCSrTxSdFCCReplies	The value of tmnxVdolfStatFCCSrTxSdFCCReplies indicates the total number of Standard Definition (SD) channel Fast Channel Change (FCC) replies sent from this interface.
vdolfStatFCCSrTxSdPackets	UINT128	tmnxVdolfStatFCCSrTxSdPackets	The value of tmnxVdolfStatFCCSrTxSdPackets indicates the total number of Standard Definition (SD) channel packets sent from this interface.
vdolfStatHdFCCServerMode	int	tmnxVdolfStatHdFCCServerMode	The value of tmnxVdolfStatHdFCCServerMode indicates the mode of the High Definition (HD) Fast Channel Change (FCC) server on this interface.
vdolfStatHdRTServerState	boolean	tmnxVdolfStatHdRTServerState	The value of tmnxVdolfStatHdRTServerState indicates whether the High Definition (HD) retransmission server is enabled on this interface.
vdolfStatPipFCCServerMode	int	tmnxVdolfStatPipFCCServerMode	The value of tmnxVdolfStatPipFCCServerMode indicates the mode of the Picture-in-Picture (PIP) Fast Channel Change (FCC) server on this interface.
vdolfStatPipRTServerState	boolean	tmnxVdolfStatPipRTServerState	The value of tmnxVdolfStatPipRTServerState indicates whether the Picture-in-Picture (PIP) retransmission server is enabled on this interface.
vdolfStatRTSvrHdRtpPktsReq	UINT128	tmnxVdolfStatRTSvrHdRtpPktsReq	The value of tmnxVdolfStatRTSvrHdRtpPktsReq indicates the total number of High Definition (HD) channel Real-time Transport Protocol (RTP) packets requested in the Real-time Transport Control Protocol (RTCP) feedback (FB) messages received on this interface.
vdolfStatRTSvrPipRtpPktsReq	UINT128	tmnxVdolfStatRTSvrPipRtpPktsReq	The value of tmnxVdolfStatRTSvrPipRtpPktsReq indicates the total number of Picture-In-Picture (PIP) channel Real-time Transport Protocol (RTP) packets requested in the Real-time Transport Control Protocol (RTCP) feedback (FB) messages received on this interface.
vdolfStatRTSvrRxHdFailedReq	UINT128	tmnxVdolfStatRTSvrRxHdFailedReq	The value of tmnxVdolfStatRTSvrRxHdFailedReq indicates the total number of failed Retransmission (RT) requests received from High Definition (HD) channels on this interface.
vdolfStatRTSvrRxHdRTReq	UINT128	tmnxVdolfStatRTSvrRxHdRTReq	The value of tmnxVdolfStatRTSvrRxHdRTReq indicates the total number of Retransmission (RT) requests received from High Definition (HD) channels on this interface.

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5620 SAM counter name	Type	MIB counter name	Description
vdolfStatRTSvrRxPipFailedReq	UINT128	tmnxVdolfStatRTSvrRxPipFailedReq	The value of tmnxVdolfStatRTSvrRxPipFailedReq indicates the total number of failed Retransmission (RT) requests received from Picture-In-Picture (PIP) channels on this interface.
vdolfStatRTSvrRxPipRTReq	UINT128	tmnxVdolfStatRTSvrRxPipRTReq	The value of tmnxVdolfStatRTSvrRxPipRTReq indicates the total number of Retransmission (RT) requests received from Picture-In-Picture (PIP) channels on this interface.
vdolfStatRTSvrRxSdFailedReq	UINT128	tmnxVdolfStatRTSvrRxSdFailedReq	The value of tmnxVdolfStatRTSvrRxSdFailedReq indicates the total number of failed Retransmission (RT) requests received from Standard Definition (SD) channels on this interface.
vdolfStatRTSvrRxSdRTReq	UINT128	tmnxVdolfStatRTSvrRxSdRTReq	The value of tmnxVdolfStatRTSvrRxSdRTReq indicates the total number of Retransmission (RT) requests received from Standard Definition (SD) channels on this interface.
vdolfStatRTSvrSdRtpPktsReq	UINT128	tmnxVdolfStatRTSvrSdRtpPktsReq	The value of tmnxVdolfStatRTSvrSdRtpPktsReq indicates the total number of Standard Definition (SD) channel Real-time Transport Protocol (RTP) packets requested in the Real-time Transport Control Protocol (RTCP) feedback (FB) messages received on this interface.
vdolfStatRTSvrTxHdBytes	UINT128	tmnxVdolfStatRTSvrTxHdBytes	The value of tmnxVdolfStatRTSvrTxHdBytes indicates the total number of High Definition (HD) channel bytes sent from this interface.
vdolfStatRTSvrTxHdPackets	UINT128	tmnxVdolfStatRTSvrTxHdPackets	The value of tmnxVdolfStatRTSvrTxHdPackets indicates the total number of High Definition (HD) channel packets sent from this interface.
vdolfStatRTSvrTxHdRTReplies	UINT128	tmnxVdolfStatRTSvrTxHdRTReplies	The value of tmnxVdolfStatRTSvrTxHdRTReplies indicates the total number of High Definition (HD) channel Retransmission (RT) replies sent from this interface.
vdolfStatRTSvrTxPipBytes	UINT128	tmnxVdolfStatRTSvrTxPipBytes	The value of tmnxVdolfStatRTSvrTxPipBytes indicates the total number of Picture-In-Picture (PIP) channel bytes sent from this interface.
vdolfStatRTSvrTxPipPackets	UINT128	tmnxVdolfStatRTSvrTxPipPackets	The value of tmnxVdolfStatRTSvrTxPipPackets indicates the total number of Picture-In-Picture (PIP) channel packets sent from this interface.

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5620 SAM counter name	Type	MIB counter name	Description
vdolfStatRTSvrTxPipRTReplies	UINT128	tmnxVdolfStatRTSvrTxPipRTReplies	The value of tmnxVdolfStatRTSvrTxPipRTReplies indicates the total number of Picture-In-Picture (PIP) channel Retransmission (RT) replies sent from this interface.
vdolfStatRTSvrTxSdBytes	UINT128	tmnxVdolfStatRTSvrTxSdBytes	The value of tmnxVdolfStatRTSvrTxSdBytes indicates the total number of Standard Definition (SD) channel bytes sent from this interface.
vdolfStatRTSvrTxSdPackets	UINT128	tmnxVdolfStatRTSvrTxSdPackets	The value of tmnxVdolfStatRTSvrTxSdPackets indicates the total number of Standard Definition (SD) channel packets sent from this interface.
vdolfStatRTSvrTxSdRTReplies	UINT128	tmnxVdolfStatRTSvrTxSdRTReplies	The value of tmnxVdolfStatRTSvrTxSdRTReplies indicates the total number of Standard Definition (SD) channel Retransmission (RT) replies sent from this interface.
vdolfStatSdFCCServerMode	int	tmnxVdolfStatSdFCCServerMode	The value of tmnxVdolfStatSdFCCServerMode indicates the mode of the Standard Definition (SD) Fast Channel Change (FCC) server on this interface.
vdolfStatSdRTServerState	boolean	tmnxVdolfStatSdRTServerState	The value of tmnxVdolfStatSdRTServerState indicates whether the Standard Definition (SD) retransmission server is enabled on this interface.
vdolfStatTxFailedPackets	UINT128	tmnxVdolfStatTxFailedPackets	The value of tmnxVdolfStatTxFailedPackets indicates the total number of failures during the transmission of packets from this video interface. Failure happens when the packet to be sent is not stored in the video cache.

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Table A-47 sitesec statistics

5620 SAM counter name	Type	MIB counter name	Description
<b>CpmFilterQueueStats</b> MIB table name: TIMETRA-SECURITY-MIB.tCpmFilterQueueStatsTable Monitored class: sitesec.CpmFilterQueue			
droppedInOctets	UINT128	tCpmFilterQInProfileDropOctets	The value of tCpmFilterQInProfileDropOctets indicates the number of octets complying to the queue Qos profile dropped from the tCpmFilterQueueEntry with the same index.

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5620 SAM counter name	Type	MIB counter name	Description
droppedInPackets	UINT128	tCpmFilterQInProfileDropPkts	The value of tCpmFilterQInProfileDropPkts indicates the number of packets complying to the queue Qos profile dropped from the tCpmFilterQueueEntry with the same index.
droppedOutOctets	UINT128	tCpmFilterQOutProfileDropOctets	The value of tCpmFilterQOutProfileDropOctets indicates the number of octets not complying to the queue Qos profile dropped from the tCpmFilterQueueEntry with the same index.
droppedOutPackets	UINT128	tCpmFilterQOutProfileDropPkts	The value of tCpmFilterQOutProfileDropPkts indicates the number of packets not complying to the queue Qos profile dropped from the tCpmFilterQueueEntry with the same index.
forwardedInOctets	UINT128	tCpmFilterQInProfileFwdOctets	The value of tCpmFilterQInProfileFwdOctets indicates the number of octets complying to the queue Qos profile forwarded from the tCpmFilterQueueEntry with the same index.
forwardedInPackets	UINT128	tCpmFilterQInProfileFwdPkts	The value of tCpmFilterQInProfileFwdPkts indicates the number of packets complying to the queue Qos profile forwarded from the tCpmFilterQueueEntry with the same index.
forwardedOutOctets	UINT128	tCpmFilterQOutProfileFwdOctets	The value of tCpmFilterQOutProfileFwdOctets indicates the number of octets not complying to the queue Qos profile forwarded from the tCpmFilterQueueEntry with the same index.
forwardedOutPackets	UINT128	tCpmFilterQOutProfileFwdPkts	The value of tCpmFilterQOutProfileFwdPkts indicates the number of packets not complying to the queue Qos profile forwarded from the tCpmFilterQueueEntry with the same index.
<b>CpmlpFilterStats</b> MIB table name: TIMETRA-SECURITY-MIB.tCpmlpFilterStatsTable Monitored class: sitesec.CpmlpFilterEntry			
droppedPackets	UINT128	tCpmlpFilterStatsDroppedPkts	The value of tCpmlpFilterStatsDroppedPkts indicates the number of packets dropped due to the tCpmlpFilterEntry with the same index.
forwardedPackets	UINT128	tCpmlpFilterStatsForwardedPkts	The value of tCpmlpFilterStatsForwardedPkts indicates the number of packets forwarded due to the tCpmlpFilterEntry with the same index.

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5620 SAM counter name	Type	MIB counter name	Description
<b>CpmlPv6FilterStats</b> MIB table name: TIMETRA-SECURITY-MIB.tCpmlPv6FilterStatsTable Monitored class: sitesec.CpmlPv6FilterEntry			
droppedPackets	UINT128	tCpmlPv6FilterStatsDroppedPkts	The value of tCpmlPv6FilterStatsDroppedPkts indicates the number of packets dropped due to the tCpmlPv6FilterEntry with the same index.
forwardedPackets	UINT128	tCpmlPv6FilterStatsForwardedPkts	The value of tCpmlPv6FilterStatsForwardedPkts indicates the number of packets forwarded due to the tCpmlPv6FilterEntry with the same index.
<b>CpmMacFilterStats</b> MIB table name: TIMETRA-SECURITY-MIB.tCpmMacFilterStatsTable Monitored class: sitesec.CpmMacFilterEntry			
droppedPackets	UINT128	tCpmMacFilterStatsDroppedPkts	The value of tCpmMacFilterStatsDroppedPkts indicates the number of packets dropped due to the tCpmMacFilterEntry with the same index.
forwardedPackets	UINT128	tCpmMacFilterStatsForwardedPkts	The value of tCpmMacFilterStatsForwardedPkts indicates the number of packets forwarded due to the tCpmMacFilterEntry with the same index.
<b>MafEntryStats</b> MIB table name: TIMETRA-SECURITY-MIB.tmnxIPMafMatchTable Monitored class: sitesec.MafEntry			
matchCount	UINT128	tmnxIPMafMatchCount	The value of tmnxIPMafMatchCount indicates the number of times a management packet has matched this filter entry.

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Table A-48 sonetequipment statistics

5620 SAM counter name	Type	MIB counter name	Description
<b>SonetFarEndLineCurrentStats</b> MIB table name: SONET-MIB.sonetFarEndLineCurrentTable Monitored class: equipment.PhysicalPort			
codingViolations	long	sonetFarEndLineCurrentCVs	The counter associated with the number of Far End Coding Violations reported via the far end block error count encountered by a SONET/SDH Medium/Section/Line interface in the current 15 minute interval.
erroredSeconds	long	sonetFarEndLineCurrentESs	The counter associated with the number of Far End Errored Seconds encountered by a SONET/SDH interface in the current 15 minute interval.

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5620 SAM counter name	Type	MIB counter name	Description
severelyErroredSeconds	long	sonetFarEndLineCurrentSEss	The counter associated with the number of Far End Severely Errored Seconds encountered by a SONET/SDH Medium/Section/Line interface in the current 15 minute interval.
unavailableSeconds	long	sonetFarEndLineCurrentUASs	The counter associated with the number of Far End Unavailable Seconds encountered by a SONET/SDH Medium/Section/Line interface in the current 15 minute interval.
<b>SonetFarEndLineIntervalStats</b> MIB table name: SONET-MIB.sonetFarEndLineIntervalTable Monitored class: equipment.PhysicalPort			
codingViolations	long	sonetFarEndLineIntervalCVs	The counter associated with the number of Far End Coding Violations reported via the far end block error count encountered by a SONET/SDH Line interface in a particular 15-minute interval in the past 24 hours.
erroredSeconds	long	sonetFarEndLineIntervalESs	The counter associated with the number of Far End Errored Seconds encountered by a SONET/SDH Line interface in a particular 15-minute interval in the past 24 hours.
intervalNumber	int	sonetFarEndLineIntervalNumber	A number between 1 and 96, which identifies the interval for which the set of statistics is available. The interval identified by 1 is the most recently completed 15 minute interval, and the interval identified by N is the interval immediately preceding the one identified by N-1.
severelyErroredSeconds	long	sonetFarEndLineIntervalSEss	The counter associated with the number of Far End Severely Errored Seconds encountered by a SONET/SDH Line interface in a particular 15-minute interval in the past 24 hours.
unavailableSeconds	long	sonetFarEndLineIntervalUASs	The counter associated with the number of Far End Unavailable Seconds encountered by a SONET/SDH Line interface in a particular 15-minute interval in the past 24 hours.
<b>SonetFarEndPathCurrentStats</b> MIB table name: SONET-MIB.sonetFarEndPathCurrentTable Monitored classes: <ul style="list-style-type: none"> <li>sonetequipment.Sts1Channel</li> <li>sonetequipment.Sts3Channel</li> <li>sonetequipment.Sts12Channel</li> <li>sonetequipment.Sts48Channel</li> <li>sonetequipment.Sts192Channel</li> <li>sonetequipment.Tu3Channel</li> </ul>			

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5620 SAM counter name	Type	MIB counter name	Description
codingViolations	long	sonetFarEndPathCurrentCVs	The counter associated with the number of Far End Coding Violations reported via the far end block error count encountered by a SONET/SDH Path interface in the current 15 minute interval.
erroredSeconds	long	sonetFarEndPathCurrentESs	The counter associated with the number of Far End Errored Seconds encountered by a SONET/SDH interface in the current 15 minute interval.
severelyErroredSeconds	long	sonetFarEndPathCurrentSESs	The counter associated with the number of Far End Severely Errored Seconds encountered by a SONET/SDH Path interface in the current 15 minute interval.
unavailableSeconds	long	sonetFarEndPathCurrentUASs	The counter associated with the number of Far End Unavailable Seconds encountered by a SONET/SDH Path interface in the current 15 minute interval.
<b>SonetFarEndPathIntervalStats</b> MIB table name: SONET-MIB.sonetFarEndPathIntervalTable Monitored classes: <ul style="list-style-type: none"> <li>sonetequipment.Sts1Channel</li> <li>sonetequipment.Sts3Channel</li> <li>sonetequipment.Sts12Channel</li> <li>sonetequipment.Sts48Channel</li> <li>sonetequipment.Sts192Channel</li> <li>sonetequipment.Tu3Channel</li> </ul>			
codingViolations	long	sonetFarEndPathIntervalCVs	The counter associated with the number of Far End Coding Violations reported via the far end block error count encountered by a SONET/SDH Path interface in a particular 15-minute interval in the past 24 hours.
erroredSeconds	long	sonetFarEndPathIntervalESs	The counter associated with the number of Far End Errored Seconds encountered by a SONET/SDH Path interface in a particular 15-minute interval in the past 24 hours.
intervalNumber	int	sonetFarEndPathIntervalNumber	A number between 1 and 96, which identifies the interval for which the set of statistics is available. The interval identified by 1 is the most recently completed 15 minute interval, and the interval identified by N is the interval immediately preceding the one identified by N-1.
severelyErroredSeconds	long	sonetFarEndPathIntervalSESs	The counter associated with the number of Far End Severely Errored Seconds encountered by a SONET/SDH Path interface in a particular 15-minute interval in the past 24 hours.

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5620 SAM counter name	Type	MIB counter name	Description
unavailableSeconds	long	sonetFarEndPathIntervalUAs	The counter associated with the number of Far End Unavailable Seconds encountered by a SONET/SDH Path interface in a particular 15-minute interval in the past 24 hours.
<b>SonetFarEndVtCurrentStats</b> MIB table name: SONET-MIB.sonetFarEndVTCurrentTable Monitored class: sonetequipment.TributaryChannel			
codingViolations	long	sonetFarEndVtCurrentCVs	The counter associated with the number of Far End Coding Violations reported via the far end block error count encountered by a SONET/SDH VT interface in the current 15 minute interval.
erroredSeconds	long	sonetFarEndVtCurrentESs	The counter associated with the number of Far End Errored Seconds encountered by a SONET/SDH interface in the current 15 minute interval.
severelyErroredSeconds	long	sonetFarEndVtCurrentSESSs	The counter associated with the number of Far End Severely Errored Seconds encountered by a SONET/SDH VT interface in the current 15 minute interval.
unavailableSeconds	long	sonetFarEndVtCurrentUAs	The counter associated with the number of Far End Unavailable Seconds encountered by a SONET/SDH VT interface in the current 15 minute interval.
<b>SonetFarEndVtIntervalStats</b> MIB table name: SONET-MIB.sonetFarEndVTIntervalTable Monitored class: sonetequipment.TributaryChannel			
codingViolations	long	sonetFarEndVtIntervalCVs	The counter associated with the number of Far End Coding Violations reported via the far end block error count encountered by a SONET/SDH VT interface in a particular 15-minute interval in the past 24 hours.
erroredSeconds	long	sonetFarEndVtIntervalESs	The counter associated with the number of Far End Errored Seconds encountered by a SONET/SDH VT interface in a particular 15-minute interval in the past 24 hours.
intervalNumber	int	sonetFarEndVtIntervalNumber	A number between 1 and 96, which identifies the interval for which the set of statistics is available. The interval identified by 1 is the most recently completed 15 minute interval, and the interval identified by N is the interval immediately preceding the one identified by N-1.
severelyErroredSeconds	long	sonetFarEndVtIntervalSESSs	The counter associated with the number of Far End Severely Errored Seconds encountered by a SONET/SDH VT interface in a particular 15-minute interval in the past 24 hours.

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5620 SAM counter name	Type	MIB counter name	Description
unavailableSeconds	long	sonetFarEndVTIntervalUASs	The counter associated with the number of Far End Unavailable Seconds encountered by a SONET/SDH VT interface in a particular 15-minute interval in the past 24 hours.
<b>SonetLineCurrentStats</b> MIB table name: SONET-MIB.sonetLineCurrentTable Monitored class: equipment.PhysicalPort			
codingViolations	long	sonetLineCurrentCVs	The counter associated with the number of Coding Violations encountered by a SONET/SDH Line in the current 15 minute interval.
currentStatus	long	sonetLineCurrentStatus	This variable indicates the status of the interface. The sonetLineCurrentStatus is a bit map represented as a sum, therefore, it can represent multiple defects simultaneously. The sonetLineNoDefect should be set if and only if no other flag is set. The various bit positions are: 1 sonetLineNoDefect 2 sonetLineAIS 4 sonetLineRDI.
erroredSeconds	long	sonetLineCurrentESs	The counter associated with the number of Errored Seconds encountered by a SONET/SDH Line in the current 15 minute interval.
severelyErroredSeconds	long	sonetLineCurrentSEsSs	The counter associated with the number of Severely Errored Seconds encountered by a SONET/SDH Line in the current 15 minute interval.
unavailableSeconds	long	sonetLineCurrentUASs	The counter associated with the number of Unavailable Seconds encountered by a SONET/SDH Line in the current 15 minute interval.
<b>SonetLineIntervalStats</b> MIB table name: SONET-MIB.sonetLineIntervalTable Monitored class: equipment.PhysicalPort			
codingViolations	long	sonetLineIntervalCVs	The counter associated with the number of Coding Violations encountered by a SONET/SDH Line in a particular 15-minute interval in the past 24 hours.
erroredSeconds	long	sonetLineIntervalESs	The counter associated with the number of Errored Seconds encountered by a SONET/SDH Line in a particular 15-minute interval in the past 24 hours.
intervalNumber	int	sonetLineIntervalNumber	A number between 1 and 96, which identifies the interval for which the set of statistics is available. The interval identified by 1 is the most recently completed 15 minute interval, and the interval identified by N is the interval immediately preceding the one identified by N-1.

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5620 SAM counter name	Type	MIB counter name	Description
severelyErroredSeconds	long	sonetLineIntervalSEss	The counter associated with the number of Severely Errored Seconds encountered by a SONET/SDH Line in a particular 15-minute interval in the past 24 hours.
unavailableSeconds	long	sonetLineIntervalUAss	The counter associated with the number of Unavailable Seconds encountered by a SONET/SDH Line in a particular 15-minute interval in the past 24 hours.
<b>SonetPathCurrentStats</b> MIB table name: SONET-MIB.sonetPathCurrentTable Monitored classes: <ul style="list-style-type: none"> <li>sonetequipment.Sts1Channel</li> <li>sonetequipment.Sts3Channel</li> <li>sonetequipment.Sts12Channel</li> <li>sonetequipment.Sts48Channel</li> <li>sonetequipment.Sts192Channel</li> <li>sonetequipment.Tu3Channel</li> </ul>			
codingViolations	long	sonetPathCurrentCVs	The counter associated with the number of Coding Violations encountered by a SONET/SDH Path in the current 15 minute interval.
currentStatus	long	sonetPathCurrentStatus	This variable indicates the status of the interface. The sonetPathCurrentStatus is a bit map represented as a sum, therefore, it can represent multiple defects simultaneously. The sonetPathNoDefect should be set if and only if no other flag is set. The various bit positions are: 1 sonetPathNoDefect 2 sonetPathSTSLOP 4 sonetPathSTSAIS 8 sonetPathSTSRDI 16 sonetPathUnequipped 32 sonetPathSignalLabelMismatch.
currentWidth	int	sonetPathCurrentWidth	A value that indicates the type of the SONET/SDH Path. For SONET, the assigned types are the STS-Nc SPEs, where N = 1, 3, 12, 24, 48, 192 and 768. STS-1 is equal to 51.84 Mbps. For SDH, the assigned types are the STM-Nc VCs, where N = 1, 4, 16, 64 and 256.
erroredSeconds	long	sonetPathCurrentESs	The counter associated with the number of Errored Seconds encountered by a SONET/SDH Path in the current 15 minute interval.
severelyErroredSeconds	long	sonetPathCurrentSEss	The counter associated with the number of Severely Errored Seconds encountered by a SONET/SDH Path in the current 15 minute interval.
unavailableSeconds	long	sonetPathCurrentUAss	The counter associated with the number of Unavailable Seconds encountered by a Path in the current 15 minute interval.

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5620 SAM counter name	Type	MIB counter name	Description
<b>SonetPathIntervalStats</b> MIB table name: SONET-MIB.sonetPathIntervalTable Monitored classes: <ul style="list-style-type: none"> <li>sonetequipment.Sts1Channel</li> <li>sonetequipment.Sts3Channel</li> <li>sonetequipment.Sts12Channel</li> <li>sonetequipment.Sts48Channel</li> <li>sonetequipment.Sts192Channel</li> <li>sonetequipment.Tu3Channel</li> </ul>			
codingViolations	long	sonetPathIntervalCVs	The counter associated with the number of Coding Violations encountered by a SONET/SDH Path in a particular 15-minute interval in the past 24 hours.
erroredSeconds	long	sonetPathIntervalESs	The counter associated with the number of Errored Seconds encountered by a SONET/SDH Path in a particular 15-minute interval in the past 24 hours.
intervalNumber	int	sonetPathIntervalNumber	A number between 1 and 96, which identifies the interval for which the set of statistics is available. The interval identified by 1 is the most recently completed 15 minute interval, and the interval identified by N is the interval immediately preceding the one identified by N-1.
severelyErroredSeconds	long	sonetPathIntervalSESs	The counter associated with the number of Severely Errored Seconds encountered by a SONET/SDH Path in a particular 15-minute interval in the past 24 hours.
unavailableSeconds	long	sonetPathIntervalUASs	The counter associated with the number of Unavailable Seconds encountered by a Path in a particular 15-minute interval in the past 24 hours.
<b>SonetSectionCurrentStats</b> MIB table name: SONET-MIB.sonetSectionCurrentTable Monitored class: equipment.PhysicalPort			
codingViolations	long	sonetSectionCurrentCVs	The counter associated with the number of Coding Violations encountered by a SONET/SDH Section in the current 15 minute interval.
currentStatus	long	sonetSectionCurrentStatus	This variable indicates the status of the interface. The sonetSectionCurrentStatus is a bit map represented as a sum, therefore, it can represent multiple defects simultaneously. The sonetSectionNoDefect should be set if and only if no other flag is set. The various bit positions are: 1 sonetSectionNoDefect 2 sonetSectionLOS 4 sonetSectionLOF.
erroredSeconds	long	sonetSectionCurrentESs	The counter associated with the number of Errored Seconds encountered by a SONET/SDH Section in the current 15 minute interval.

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5620 SAM counter name	Type	MIB counter name	Description
severelyErroredFramingSeconds	long	sonetSectionCurrentSEFSs	The counter associated with the number of Severely Errored Framing Seconds encountered by a SONET/SDH Section in the current 15 minute interval.
severelyErroredSeconds	long	sonetSectionCurrentSESS	The counter associated with the number of Severely Errored Seconds encountered by a SONET/SDH Section in the current 15 minute interval.
<b>SonetSectionIntervalStats</b> MIB table name: SONET-MIB.sonetSectionIntervalTable Monitored class: equipment.PhysicalPort			
codingViolations	long	sonetSectionIntervalCVs	The counter associated with the number of Coding Violations encountered by a SONET/SDH Section in a particular 15-minute interval in the past 24 hours.
erroredSeconds	long	sonetSectionIntervalESs	The counter associated with the number of Errored Seconds encountered by a SONET/SDH Section in a particular 15-minute interval in the past 24 hours.
intervalNumber	int	sonetSectionIntervalNumber	A number between 1 and 96, which identifies the interval for which the set of statistics is available. The interval identified by 1 is the most recently completed 15 minute interval, and the interval identified by N is the interval immediately preceding the one identified by N-1.
severelyErroredFramingSeconds	long	sonetSectionIntervalSEFSs	The counter associated with the number of Severely Errored Framing Seconds encountered by a SONET/SDH Section in a particular 15-minute interval in the past 24 hours.
severelyErroredSeconds	long	sonetSectionIntervalSESS	The counter associated with the number of Severely Errored Seconds encountered by a SONET/SDH Section in a particular 15-minute interval in the past 24 hours.
<b>SonetVtCurrentStats</b> MIB table name: SONET-MIB.sonetVTCurrentTable Monitored class: sonetequipment.TributaryChannel			
codingViolations	long	sonetVTCurrentCVs	The counter associated with the number of Coding Violations encountered by a SONET/SDH VT in the current 15 minute interval.
currentStatus	long	sonetVTCurrentStatus	This variable indicates the status of the interface. The sonetVTCurrentStatus is a bit map represented as a sum, therefore, it can represent multiple defects and failures simultaneously. The sonetVTNoDefect should be set if and only if no other flag is set. The various bit positions are: 1 sonetVTNoDefect 2 sonetVTLOP 4 sonetVTPathAIS 8 sonetVTPathRDI 16 sonetVTPathRFI 32 sonetVTUnequipped 64 sonetVTSignalLabelMismatch.

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5620 SAM counter name	Type	MIB counter name	Description
currentWidth	int	sonetVTCurrentWidth	A value that indicates the type of the SONET VT and SDH VC. Assigned widths are VT1.5/VC11, VT2/VC12, VT3, VT6/VC2, and VT6c.
erroredSeconds	long	sonetVTCurrentESs	The counter associated with the number of Errored Seconds encountered by a SONET/SDH VT in the current 15 minute interval.
severelyErroredSeconds	long	sonetVTCurrentSESSs	The counter associated with the number of Severely Errored Seconds encountered by a SONET/SDH VT in the current 15 minute interval.
unavailableSeconds	long	sonetVTCurrentUASs	The counter associated with the number of Unavailable Seconds encountered by a VT in the current 15 minute interval.
<b>SonetVtIntervalStats</b> MIB table name: SONET-MIB.sonetVtIntervalTable Monitored class: sonetequipment.TributaryChannel			
codingViolations	long	sonetVtIntervalCVs	The counter associated with the number of Coding Violations encountered by a SONET/SDH VT in a particular 15-minute interval in the past 24 hours.
erroredSeconds	long	sonetVtIntervalESs	The counter associated with the number of Errored Seconds encountered by a SONET/SDH VT in a particular 15-minute interval in the past 24 hours.
intervalNumber	int	sonetVtIntervalNumber	A number between 1 and 96, which identifies the interval for which the set of statistics is available. The interval identified by 1 is the most recently completed 15 minute interval, and the interval identified by N is the interval immediately preceding the one identified by N-1.
severelyErroredSeconds	long	sonetVtIntervalSESSs	The counter associated with the number of Severely Errored Seconds encountered by a SONET/SDH VT in a particular 15-minute interval in the past 24 hours.
unavailableSeconds	long	sonetVtIntervalUASs	The counter associated with the number of Unavailable Seconds encountered by a VT in a particular 15-minute interval in the past 24 hours.

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Table A-49 srrp statistics

5620 SAM counter name	Type	MIB counter name	Description
<b>InstanceStats</b> MIB table name: TIMETRA-MC-REDUNDANCY-MIB.tmnxSrrpStatsTable Monitored class: srrp.Instance			

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5620 SAM counter name	Type	MIB counter name	Description
advertiseIntervalDiscards	long	tmnxSrrpStatsAdvIntDiscards	The value for tmnxSrrpStatsAdvIntDiscards indicates the total number of SRRP advertisement packets discarded because the advertisement interval in the received packet was different than the one configured for the local virtual router.
advertiseIntervalErrors	long	tmnxSrrpStatsAdvIntErrors	The value for tmnxSrrpStatsAdvIntErrors indicates the total number of SRRP advertisement packets received for which the advertisement interval is different than the one configured for the local virtual router.
advertiseRcvd	long	tmnxSrrpStatsAdvRcvd	The value for tmnxSrrpStatsAdvRcvd indicates the total number of SRRP advertisements received by this virtual router.
advertiseSent	long	tmnxSrrpStatsAdvSent	The value for tmnxSrrpStatsAdvSent indicates the total number of SRRP advertisements sent by this virtual router.
becomeBackupRouting	long	tmnxSrrpStatsBecomeBackupRouting	The value for tmnxSrrpStatsBecomeBackupRouting indicates the total number of times that the virtual router's state has transitioned to backup routing state.
becomeBackupShunt	long	tmnxSrrpStatsBecomeBackupShunt	The value for tmnxSrrpStatsBecomeBackupShunt indicates the total number of times that the virtual router's state has transitioned to backup shunt.
becomeMaster	long	tmnxSrrpStatsBecomeMaster	The value for tmnxSrrpStatsBecomeMaster indicates the total number of times that the virtual router's state has transitioned to master.
becomeNonMaster	long	tmnxSrrpStatsBecomeNonMaster	The value for tmnxSrrpStatsBecomeNonMaster indicates the total number times that the virtual router's state has transitioned from master to a non-master state.
masterChanges	long	tmnxSrrpStatsMasterChanges	The value for tmnxSrrpStatsMasterChanges indicates the total number of times the virtual router has seen the master virtual router change.
preemptedEvents	long	tmnxSrrpStatsPreemptedEvents	The value for tmnxSrrpStatsPreemptedEvents indicates the total number of times the virtual router has been preempted by another non-owner master with higher priority.
preemptEvents	long	tmnxSrrpStatsPreemptEvents	The value for tmnxSrrpStatsPreemptEvents indicates the total number of times the virtual router has preempted another non-owner master with lower priority.

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5620 SAM counter name	Type	MIB counter name	Description
priorityZeroPktsRcvd	long	tmnxSrrpStatsPriZeroPktsSent	The value for tmnxSrrpStatsPriZeroPktsSent indicates the total number of SRRP packets sent by the virtual router with a priority of '0'.
priorityZeroPktsSent	long	tmnxSrrpStatsPriZeroPktsRcvd	The value for tmnxSrrpStatsPriZeroPktsRcvd indicates the total number of SRRP packets received by the virtual router with a priority of '0'.

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Table A-50 subscrauth statistics

5620 SAM counter name	Type	MIB counter name	Description
<b>PolicyStats</b> MIB table name: TIMETRA-SUBSCRIBER-MGMT-MIB.tmnxSubAuthPlcyStatsTable Monitored class: subscrauth.Policy			
rejectedAuthentications	long	tmnxSubAuthPlcyReject	The value of tmnxSubAuthPlcyReject indicates how many subscriber messages (e.g. DHCP, PPPoE, ...) were rejected by the authentication. Note that not all requests are therefore forwarded to radius. If several requests are sent in a short timeframe, only the first one is sent to radius.
rejectedRadiusFallbackAuthentications	long	tmnxSubAuthPlcyFallbackReject	The value of tmnxSubAuthPlcyReject indicates how many subscriber messages (e.g. DHCP, PPPoE, ...) were rejected by the fallback mechanism.
successfulAuthentications	long	tmnxSubAuthPlcySuccess	The value of tmnxSubAuthPlcySuccess indicates how many subscriber messages (e.g. DHCP, PPPoE, ...) were authenticated successfully. Note that not all requests are therefore forwarded to radius. If several requests are sent in a short timeframe, only the first one is sent to radius.
successfulRadiusFallbackAuthentications	long	tmnxSubAuthPlcyFallbackSuccess	The value of tmnxSubAuthPlcySuccess indicates how many subscriber messages (e.g. DHCP, PPPoE, ...) were authenticated successfully by the fallback mechanism.
<b>RadiusEntryStats</b> MIB table name: TIMETRA-SUBSCRIBER-MGMT-MIB.tmnxSubAuthPlcyRadStatsTable Monitored class: subscrauth.RadiusEntry			
failedAuthenticationRequests	long	tmnxSubAuthPlcyRadSendFail	The value of tmnxSubAuthPlcyRadSendFail indicates how many authentication requests failed because the packet could not be sent out.
md5VerificationFailedRequests	long	tmnxSubAuthPlcyRadMd5Fail	The value of tmnxSubAuthPlcyRadMd5Fail indicates how many times the MD5 verification failed on a msg from this radius server.

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5620 SAM counter name	Type	MIB counter name	Description
pendingAuthenticationRequest	long	tmnxSubAuthPlcyRadPending	The value of tmnxSubAuthPlcyRadPending indicates how many authentication requests are currently pending.
rejectedAuthenticationRequests	long	tmnxSubAuthPlcyRadReject	The value of tmnxSubAuthPlcyRadReject indicates how many authentication requests were rejected by this radius server.
successfulAuthenticationRequests	long	tmnxSubAuthPlcyRadSuccess	The value of tmnxSubAuthPlcyRadSuccess indicates how many authentication requests were accepted by this radius server.
timedOutAuthenticationRequests	long	tmnxSubAuthPlcyRadTimeout	The value of tmnxSubAuthPlcyRadTimeout indicates how many times this radius did not reply to an authentication request within the timeout.

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Table A-51 svq statistics

5620 SAM counter name	Type	MIB counter name	Description
<b>CustMultiSvcSiteEgrSchedPlcyPortStats</b> MIB table name: TIMETRA-SERV-MIB.custMultiSvcSiteEgrSchedPlcyPortStatsTable Monitored class: svq.AggregationScheduler			
forwardedOctets	UINT128	custEgrSchedPlcyPortStatsFwdOct	The value of custEgrSchedPlcyPortStatsFwdOct indicates the number of forwarded octets, as determined by the customer multi service site egress scheduler policy.
forwardedPackets	UINT128	custEgrSchedPlcyPortStatsFwdPkt	The value of custEgrSchedPlcyPortStatsFwdPkt indicates the number of forwarded packets, as determined by the customer multi service site egress scheduler policy.
portID	long	custEgrSchedPlcyPortStatsPort	The value of custEgrSchedPlcyPortStatsPort is used as an index of the egress QoS scheduler of this customer multi service site. When an MSS assignment is an aps/ccag/lag in 'link' mode, each member-port of the aps/ccag/lag has its own scheduler. This object refers to the TmnxPortID of these member-ports.
<b>CustMultiSvcSiteEgrSchedPlcyStats</b> MIB table name: TIMETRA-SERV-MIB.custMultiSvcSiteEgrSchedPlcyStatsTable Monitored class: svq.AggregationScheduler			
forwardedOctets	UINT128	custEgrSchedPlcyStatsFwdOct	The value of the object custEgrSchedPlcyStatsFwdOct indicates the number of forwarded octets, as determined by the customer multi service site egress scheduler policy.

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5620 SAM counter name	Type	MIB counter name	Description
forwardedPackets	UINT128	custEgrSchedPlcyStatsFwdPkt	The value of the object custEgrSchedPlcyStatsFwdPkt indicates the number of forwarded packets, as determined by the customer multi service site egress scheduler policy.
<b>CustMultiSvcSiteIngSchedPlcyPortStats</b> MIB table name: TIMETRA-SERV-MIB.custMultiSvcSiteIngSchedPlcyPortStatsTable Monitored class: svq.AggregationScheduler			
forwardedOctets	UINT128	custIngSchedPlcyPortStatsFwdOct	The value of custIngSchedPlcyPortStatsFwdOct indicates the number of forwarded octets, as determined by the customer multi service site ingress scheduler policy.
forwardedPackets	UINT128	custIngSchedPlcyPortStatsFwdPkt	The value of custIngSchedPlcyPortStatsFwdPkt indicates the number of forwarded packets, as determined by the customer multi service site ingress scheduler policy.
portID	long	custIngSchedPlcyPortStatsPort	The value of custIngSchedPlcyPortStatsPort is used as an index of the ingress QoS scheduler of this customer multi service site. When an MSS assignment is an aps/ccag/lag in 'link' mode, each member-port of the aps/ccag/lag has its own scheduler. This object refers to the TmnxPortID of these member-ports.
<b>CustMultiSvcSiteIngSchedPlcyStats</b> MIB table name: TIMETRA-SERV-MIB.custMultiSvcSiteIngSchedPlcyStatsTable Monitored class: svq.AggregationScheduler			
forwardedOctets	UINT128	custIngSchedPlcyStatsFwdOct	The value of the object custIngSchedPlcyStatsFwdOct indicates the number of forwarded octets, as determined by the customer multi service site ingress scheduler policy.
forwardedPackets	UINT128	custIngSchedPlcyStatsFwdPkt	The value of the object custIngSchedPlcyStatsFwdPkt indicates the number of forwarded packets, as determined by the customer multi service site ingress scheduler policy.

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Table A-52 svt statistics

5620 SAM counter name	Type	MIB counter name	Description
<b>BsxSpokeSdpBindingCustRecAppGrpStats</b> MIB table name: TIMETRA-BSX-NG-MIB.tmnxBsxStatAaSubTable Monitored class: svt.SpokeSdpBinding			

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5620 SAM counter name	Type	MIB counter name	Description
activeFlowsFromSub	long	tmnxBsxStatAaSubActFlwsFmSb	The value of tmnxBsxStatAaSubActFlwsFmSb indicates the number of allowed flows in the subscriber to network direction that are active.
activeFlowsToSub	long	tmnxBsxStatAaSubActFlwsToSb	The value of tmnxBsxStatAaSubActFlwsToSb indicates the number of allowed flows in the network to subscriber direction that are active.
appGrpName	String	tmnxBsxStatAaName	The value of tmnxBsxStatAaName specifies either the ISA-AA protocol, application or app-group name for which statistics are requested. The tmnxBsxStatAaType is used to determine the statistics type.
durationFlowsLong	UINT128	tmnxBsxStatAaSubHCLngDurFlws	The value of tmnxBsxStatAaSubHCLngDurFlws indicates the total number of flows with a duration greater than 180 seconds, that have completed. This object is a 64-bit version of tmnxBsxStatAaSubLngDurFlws.
durationFlowsMedium	UINT128	tmnxBsxStatAaSubHCMedDurFlws	The value of tmnxBsxStatAaSubHCMedDurFlws indicates the total number of flows with a duration less than or equal to 180 seconds, but greater than 30 seconds, that have completed. This object is a 64-bit version of tmnxBsxStatAaSubMedDurFlws.
durationFlowsShort	UINT128	tmnxBsxStatAaSubHCShrtDurFlws	The value of tmnxBsxStatAaSubHCShrtDurFlws indicates the total number of flows with a duration less than or equal to 30 seconds, that have completed. This object is a 64-bit version of tmnxBsxStatAaSubShrtDurFlws.
flowsAdmitFromSub	UINT128	tmnxBsxStatAaSubHCFlwsAdmFmSb	The value of tmnxBsxStatAaSubHCFlwsAdmFmSb indicates the total number of flows permitted for the subscriber to network direction. This object is a 64-bit version of tmnxBsxStatAaSubFlwsAdmFmSb.
flowsAdmitToSub	UINT128	tmnxBsxStatAaSubHCFlwsAdmToSb	The value of tmnxBsxStatAaSubHCFlwsAdmToSb indicates the total number of flows permitted for the network to subscriber direction. This object is a 64-bit version of tmnxBsxStatAaSubFlwsAdmToSb.
flowsDenyFromSub	UINT128	tmnxBsxStatAaSubHCFlwsDnyFmSb	The value of tmnxBsxStatAaSubHCFlwsDnyFmSb indicates the total number of flows that dropped subsequent packets in the subscriber to network direction. This object is a 64-bit version of tmnxBsxStatAaSubFlwsDnyFmSb.

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5620 SAM counter name	Type	MIB counter name	Description
flowsDenyToSub	UINT128	tmnxBsxStatAaSubHCFlwsDnyToSb	The value of tmnxBsxStatAaSubHCFlwsDnyToSb indicates the total number of flows that dropped subsequent packets in the network to subscriber direction. This object is the 64-bit version of tmnxBsxStatAaSubFlwsDnyToSb.
octsAdmitFromSub	UINT128	tmnxBsxStatAaSubHCOctsAdmFmSb	The value of tmnxBsxStatAaSubHCOctsAdmFmSb indicates the total number of bytes permitted for the subscriber to network direction. This object is a 64-bit version of tmnxBsxStatAaSubOctsAdmFmSb.
octsAdmitToSub	UINT128	tmnxBsxStatAaSubHCOctsAdmToSb	The value of tmnxBsxStatAaSubHCOctsAdmToSb indicates the total number of bytes permitted for the network to subscriber direction. This object is a 64-bit version of tmnxBsxStatAaSubOctsAdmToSb.
octsDenyFromSub	UINT128	tmnxBsxStatAaSubHCOctsDnyFmSb	The value of tmnxBsxStatAaSubHCOctsDnyFmSb indicates the total number of bytes dropped for the subscriber to network direction. This object is a 64-bit version of tmnxBsxStatAaSubOctsDnyFmSb.
octsDenyToSub	UINT128	tmnxBsxStatAaSubHCOctsDnyToSb	The value of tmnxBsxStatAaSubHCOctsDnyToSb indicates the total number of bytes dropped for the network to subscriber direction. This object is a 64-bit version of tmnxBsxStatAaSubOctsDnyToSb.
pktsAdmitFromSub	UINT128	tmnxBsxStatAaSubHCPktsAdmFmSb	The value of tmnxBsxStatAaSubHCPktsAdmFmSb indicates the total number of packets permitted for the subscriber to network direction. This object is a 64-bit version of tmnxBsxStatAaSubPktsAdmFmSb.
pktsAdmitToSub	UINT128	tmnxBsxStatAaSubHCPktsAdmToSb	The value of tmnxBsxStatAaSubHCPktsAdmToSb indicates the total number of packets permitted for the network to subscriber direction. This object is a 64-bit version of tmnxBsxStatAaSubPktsAdmToSb.
pktsDenyFromSub	UINT128	tmnxBsxStatAaSubHCPktsDnyFmSb	The value of tmnxBsxStatAaSubHCPktsDnyFmSb indicates the total number of packets dropped for the subscriber to network direction. This object is a 64-bit version of tmnxBsxStatAaSubPktsDnyFmSb.
pktsDenyToSub	UINT128	tmnxBsxStatAaSubHCPktsDnyToSb	The value of tmnxBsxStatAaSubHCPktsDnyToSb indicates the total number of packets dropped for the network to subscriber direction. This object is a 64-bit version of tmnxBsxStatAaSubPktsDnyToSb.

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5620 SAM counter name	Type	MIB counter name	Description
statsInterval	int	tmnxBsxAaSubStatsInterval	The tmnxBsxAaSubStatsInterval specifies the interval for the retrieval of application assurance subscriber statistics.
termFlowDuration	UINT128	tmnxBsxStatAaSubHCTermFlwDur	The value of tmnxBsxStatAaSubHCTermFlwDur indicates the sum of all flow durations from first packet seen to last packet seen for flows that have terminated. This object is a 64-bit version of tmnxBsxStatAaSubTermFlwDur.
termFlows	UINT128	tmnxBsxStatAaSubHCTermFlws	The value of tmnxBsxStatAaSubHCTermFlws indicates the total number of allowed flows that have terminated. This object is a 64-bit version of tmnxBsxStatAaSubTermFlws.
<b>BsxSpokeSdpBindingCustRecAppStats</b> MIB table name: TIMETRA-BSX-NG-MIB.tmnxBsxStatAaSubTable Monitored class: svt.SpokeSdpBinding			
activeFlowsFromSub	long	tmnxBsxStatAaSubActFlwsFmSb	The value of tmnxBsxStatAaSubActFlwsFmSb indicates the number of allowed flows in the subscriber to network direction that are active.
activeFlowsToSub	long	tmnxBsxStatAaSubActFlwsToSb	The value of tmnxBsxStatAaSubActFlwsToSb indicates the number of allowed flows in the network to subscriber direction that are active.
durationFlowsLong	UINT128	tmnxBsxStatAaSubHCLngDurFlws	The value of tmnxBsxStatAaSubHCLngDurFlws indicates the total number of flows with a duration greater than 180 seconds, that have completed. This object is a 64-bit version of tmnxBsxStatAaSubLngDurFlws.
durationFlowsMedium	UINT128	tmnxBsxStatAaSubHCMedDurFlws	The value of tmnxBsxStatAaSubHCMedDurFlws indicates the total number of flows with a duration less than or equal to 180 seconds, but greater than 30 seconds, that have completed. This object is a 64-bit version of tmnxBsxStatAaSubMedDurFlws.
durationFlowsShort	UINT128	tmnxBsxStatAaSubHCShrtDurFlws	The value of tmnxBsxStatAaSubHCShrtDurFlws indicates the total number of flows with a duration less than or equal to 30 seconds, that have completed. This object is a 64-bit version of tmnxBsxStatAaSubShrtDurFlws.
flowsAdmitFromSub	UINT128	tmnxBsxStatAaSubHCFlwsAdmFmSb	The value of tmnxBsxStatAaSubHCFlwsAdmFmSb indicates the total number of flows permitted for the subscriber to network direction. This object is a 64-bit version of tmnxBsxStatAaSubFlwsAdmFmSb.

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5620 SAM counter name	Type	MIB counter name	Description
flowsAdmitToSub	UINT128	tmnxBsxStatAaSubHCFlwsAdmToSb	The value of tmnxBsxStatAaSubHCFlwsAdmToSb indicates the total number of flows permitted for the network to subscriber direction. This object is a 64-bit version of tmnxBsxStatAaSubFlwsAdmToSb.
flowsDenyFromSub	UINT128	tmnxBsxStatAaSubHCFlwsDnyFmSb	The value of tmnxBsxStatAaSubHCFlwsDnyFmSb indicates the total number of flows that dropped subsequent packets in the subscriber to network direction. This object is a 64-bit version of tmnxBsxStatAaSubFlwsDnyFmSb.
flowsDenyToSub	UINT128	tmnxBsxStatAaSubHCFlwsDnyToSb	The value of tmnxBsxStatAaSubHCFlwsDnyToSb indicates the total number of flows that dropped subsequent packets in the network to subscriber direction. This object is the 64-bit version of tmnxBsxStatAaSubFlwsDnyToSb.
octsAdmitFromSub	UINT128	tmnxBsxStatAaSubHCOctsAdmFmSb	The value of tmnxBsxStatAaSubHCOctsAdmFmSb indicates the total number of bytes permitted for the subscriber to network direction. This object is a 64-bit version of tmnxBsxStatAaSubOctsAdmFmSb.
octsAdmitToSub	UINT128	tmnxBsxStatAaSubHCOctsAdmToSb	The value of tmnxBsxStatAaSubHCOctsAdmToSb indicates the total number of bytes permitted for the network to subscriber direction. This object is a 64-bit version of tmnxBsxStatAaSubOctsAdmToSb.
octsDenyFromSub	UINT128	tmnxBsxStatAaSubHCOctsDnyFmSb	The value of tmnxBsxStatAaSubHCOctsDnyFmSb indicates the total number of bytes dropped for the subscriber to network direction. This object is a 64-bit version of tmnxBsxStatAaSubOctsDnyFmSb.
octsDenyToSub	UINT128	tmnxBsxStatAaSubHCOctsDnyToSb	The value of tmnxBsxStatAaSubHCOctsDnyToSb indicates the total number of bytes dropped for the network to subscriber direction. This object is a 64-bit version of tmnxBsxStatAaSubOctsDnyToSb.
pktsAdmitFromSub	UINT128	tmnxBsxStatAaSubHCPktsAdmFmSb	The value of tmnxBsxStatAaSubHCPktsAdmFmSb indicates the total number of packets permitted for the subscriber to network direction. This object is a 64-bit version of tmnxBsxStatAaSubPktsAdmFmSb.
pktsAdmitToSub	UINT128	tmnxBsxStatAaSubHCPktsAdmToSb	The value of tmnxBsxStatAaSubHCPktsAdmToSb indicates the total number of packets permitted for the network to subscriber direction. This object is a 64-bit version of tmnxBsxStatAaSubPktsAdmToSb.

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5620 SAM counter name	Type	MIB counter name	Description
pktsDenyFromSub	UINT128	tmnxBsxStatAaSubHCPktsDnyFmSb	The value of tmnxBsxStatAaSubHCPktsDnyFmSb indicates the total number of packets dropped for the subscriber to network direction. This object is a 64-bit version of tmnxBsxStatAaSubPktsDnyFmSb.
pktsDenyToSub	UINT128	tmnxBsxStatAaSubHCPktsDnyToSb	The value of tmnxBsxStatAaSubHCPktsDnyToSb indicates the total number of packets dropped for the network to subscriber direction. This object is a 64-bit version of tmnxBsxStatAaSubPktsDnyToSb.
statsInterval	int	tmnxBsxAaSubStatsInterval	The tmnxBsxAaSubStatsInterval specifies the interval for the retrieval of application assurance subscriber statistics.
termFlowDuration	UINT128	tmnxBsxStatAaSubHCTermFlwDur	The value of tmnxBsxStatAaSubHCTermFlwDur indicates the sum of all flow durations from first packet seen to last packet seen for flows that have terminated. This object is a 64-bit version of tmnxBsxStatAaSubTermFlwDur.
termFlows	UINT128	tmnxBsxStatAaSubHCTermFlws	The value of tmnxBsxStatAaSubHCTermFlws indicates the total number of allowed flows that have terminated. This object is a 64-bit version of tmnxBsxStatAaSubTermFlws.
<b>BsxSpokeSdpBindingCustRecProtStats</b> MIB table name: TIMETRA-BSX-NG-MIB.tmnxBsxStatAaSubTable Monitored class: svt.SpokeSdpBinding			
activeFlowsFromSub	long	tmnxBsxStatAaSubActFlwsFmSb	The value of tmnxBsxStatAaSubActFlwsFmSb indicates the number of allowed flows in the subscriber to network direction that are active.
activeFlowsToSub	long	tmnxBsxStatAaSubActFlwsToSb	The value of tmnxBsxStatAaSubActFlwsToSb indicates the number of allowed flows in the network to subscriber direction that are active.
durationFlowsLong	UINT128	tmnxBsxStatAaSubHCLngDurFlws	The value of tmnxBsxStatAaSubHCLngDurFlws indicates the total number of flows with a duration greater than 180 seconds, that have completed. This object is a 64-bit version of tmnxBsxStatAaSubLngDurFlws.
durationFlowsMedium	UINT128	tmnxBsxStatAaSubHCMedDurFlws	The value of tmnxBsxStatAaSubHCMedDurFlws indicates the total number of flows with a duration less than or equal to 180 seconds, but greater than 30 seconds, that have completed. This object is a 64-bit version of tmnxBsxStatAaSubMedDurFlws.

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5620 SAM counter name	Type	MIB counter name	Description
durationFlowsShort	UINT128	tmnxBsxStatAaSubHCShrtDurFlws	The value of tmnxBsxStatAaSubHCShrtDurFlws indicates the total number of flows with a duration less than or equal to 30 seconds, that have completed. This object is a 64-bit version of tmnxBsxStatAaSubShrtDurFlws.
flowsAdmitFromSub	UINT128	tmnxBsxStatAaSubHCFlwsAdmFmSb	The value of tmnxBsxStatAaSubHCFlwsAdmFmSb indicates the total number of flows permitted for the subscriber to network direction. This object is a 64-bit version of tmnxBsxStatAaSubFlwsAdmFmSb.
flowsAdmitToSub	UINT128	tmnxBsxStatAaSubHCFlwsAdmToSb	The value of tmnxBsxStatAaSubHCFlwsAdmToSb indicates the total number of flows permitted for the network to subscriber direction. This object is a 64-bit version of tmnxBsxStatAaSubFlwsAdmToSb.
flowsDenyFromSub	UINT128	tmnxBsxStatAaSubHCFlwsDnyFmSb	The value of tmnxBsxStatAaSubHCFlwsDnyFmSb indicates the total number of flows that dropped subsequent packets in the subscriber to network direction. This object is a 64-bit version of tmnxBsxStatAaSubFlwsDnyFmSb.
flowsDenyToSub	UINT128	tmnxBsxStatAaSubHCFlwsDnyToSb	The value of tmnxBsxStatAaSubHCFlwsDnyToSb indicates the total number of flows that dropped subsequent packets in the network to subscriber direction. This object is the 64-bit version of tmnxBsxStatAaSubFlwsDnyToSb.
octsAdmitFromSub	UINT128	tmnxBsxStatAaSubHCOctsAdmFmSb	The value of tmnxBsxStatAaSubHCOctsAdmFmSb indicates the total number of bytes permitted for the subscriber to network direction. This object is a 64-bit version of tmnxBsxStatAaSubOctsAdmFmSb.
octsAdmitToSub	UINT128	tmnxBsxStatAaSubHCOctsAdmToSb	The value of tmnxBsxStatAaSubHCOctsAdmToSb indicates the total number of bytes permitted for the network to subscriber direction. This object is a 64-bit version of tmnxBsxStatAaSubOctsAdmToSb.
octsDenyFromSub	UINT128	tmnxBsxStatAaSubHCOctsDnyFmSb	The value of tmnxBsxStatAaSubHCOctsDnyFmSb indicates the total number of bytes dropped for the subscriber to network direction. This object is a 64-bit version of tmnxBsxStatAaSubOctsDnyFmSb.
octsDenyToSub	UINT128	tmnxBsxStatAaSubHCOctsDnyToSb	The value of tmnxBsxStatAaSubHCOctsDnyToSb indicates the total number of bytes dropped for the network to subscriber direction. This object is a 64-bit version of tmnxBsxStatAaSubOctsDnyToSb.

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5620 SAM counter name	Type	MIB counter name	Description
pktsAdmitFromSub	UINT128	tmnxBsxStatAaSubHCPktsAdmFmSb	The value of tmnxBsxStatAaSubHCPktsAdmFmSb indicates the total number of packets permitted for the subscriber to network direction. This object is a 64-bit version of tmnxBsxStatAaSubPktsAdmFmSb.
pktsAdmitToSub	UINT128	tmnxBsxStatAaSubHCPktsAdmToSb	The value of tmnxBsxStatAaSubHCPktsAdmToSb indicates the total number of packets permitted for the network to subscriber direction. This object is a 64-bit version of tmnxBsxStatAaSubPktsAdmToSb.
pktsDenyFromSub	UINT128	tmnxBsxStatAaSubHCPktsDnyFmSb	The value of tmnxBsxStatAaSubHCPktsDnyFmSb indicates the total number of packets dropped for the subscriber to network direction. This object is a 64-bit version of tmnxBsxStatAaSubPktsDnyFmSb.
pktsDenyToSub	UINT128	tmnxBsxStatAaSubHCPktsDnyToSb	The value of tmnxBsxStatAaSubHCPktsDnyToSb indicates the total number of packets dropped for the network to subscriber direction. This object is a 64-bit version of tmnxBsxStatAaSubPktsDnyToSb.
statsInterval	int	tmnxBsxAaSubStatsInterval	The tmnxBsxAaSubStatsInterval specifies the interval for the retrieval of application assurance subscriber statistics.
termFlowDuration	UINT128	tmnxBsxStatAaSubHCTermFlwDur	The value of tmnxBsxStatAaSubHCTermFlwDur indicates the sum of all flow durations from first packet seen to last packet seen for flows that have terminated. This object is a 64-bit version of tmnxBsxStatAaSubTermFlwDur.
termFlows	UINT128	tmnxBsxStatAaSubHCTermFlws	The value of tmnxBsxStatAaSubHCTermFlws indicates the total number of allowed flows that have terminated. This object is a 64-bit version of tmnxBsxStatAaSubTermFlws.
<b>BsxSpokeSdpBindingStudyAppStats</b> MIB table name: TIMETRA-BSX-NG-MIB.tmnxBsxStatAaSubSdyTable Monitored class: svt.SpokeSdpBinding			
activeFlowsFromSub	long	tmnxBsxStatAaSubSdyActFlwsFmSb	The value of tmnxBsxStatAaSubSdyActFlwsFmSb indicates the number of allowed flows in the subscriber to network direction that are active.
activeFlowsToSub	long	tmnxBsxStatAaSubSdyActFlwsToSb	The value of tmnxBsxStatAaSubSdyActFlwsToSb indicates the number of allowed flows in the network to subscriber direction that are active.

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5620 SAM counter name	Type	MIB counter name	Description
durationFlowsLong	UINT128	tmnxBsxStatAaSubSdyHCLngDurFlws	The value of tmnxBsxStatAaSubSdyHCLngDurFlws indicates the total number of flows with a duration greater than 180 seconds, that have completed. This object is a 64-bit version of tmnxBsxStatAaSubSdyLngDurFlws.
durationFlowsMedium	UINT128	tmnxBsxStatAaSubSdyHCMedDurFlws	The value of tmnxBsxStatAaSubSdyHCMedDurFlws indicates the total number of flows with a duration less than or equal to 180 seconds, but greater than 30 seconds, that have completed. This object is a 64-bit version of tmnxBsxStatAaSubSdyMedDurFlws.
durationFlowsShort	UINT128	tmnxBsxStatAaSubSdyHCSHrtDurFlws	The value of tmnxBsxStatAaSubSdyHCSHrtDurFlws indicates the total number of flows with a duration less than or equal to 30 seconds, that have completed. This object is a 64-bit version of tmnxBsxStatAaSubSdySHrtDurFlws.
flowsAdmitFromSub	UINT128	tmnxBsxStatAaSubSdyHCFFlwsAdmFmSb	The value of tmnxBsxStatAaSubSdyHCFFlwsAdmFmSb indicates the total number of flows permitted for the subscriber to network direction. This object is a 64-bit version of tmnxBsxStatAaSubSdyFlwsAdmFmSb.
flowsAdmitToSub	UINT128	tmnxBsxStatAaSubSdyHCFFlwsAdmToSb	The value of tmnxBsxStatAaSubSdyHCFFlwsAdmToSb indicates the total number of flows permitted for the network to subscriber direction. This object is a 64-bit version of tmnxBsxStatAaSubSdyFlwsAdmToSb.
flowsDenyFromSub	UINT128	tmnxBsxStatAaSubSdyHCFFlwsDnyFmSb	The value of tmnxBsxStatAaSubSdyHCFFlwsDnyFmSb indicates the total number of flows that dropped subsequent packets in the subscriber to network direction. This object is a 64-bit version of tmnxBsxStatAaSubSdyFlwsDnyFmSb.
flowsDenyToSub	UINT128	tmnxBsxStatAaSubSdyHCFFlwsDnyToSb	The value of tmnxBsxStatAaSubSdyHCFFlwsDnyToSb indicates the total number of flows that dropped subsequent packets in the network to subscriber direction. This object is a 64-bit version of tmnxBsxStatAaSubSdyFlwsDnyToSb.
octsAdmitFromSub	UINT128	tmnxBsxStatAaSubSdyHCOctsAdmFmSb	The value of tmnxBsxStatAaSubSdyHCOctsAdmFmSb indicates the total number of bytes permitted for the subscriber to network direction. This object is a 64-bit version of tmnxBsxStatAaSubSdyOctsAdmFmSb.
octsAdmitFromSub	UINT128	tmnxBsxStatAaSubSdyOctsAdmFmSb	The value of tmnxBsxStatAaSubSdyOctsAdmFmSb indicates the total number of bytes permitted for the subscriber to network direction.

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5620 SAM counter name	Type	MIB counter name	Description
octsAdmitToSub	UINT128	tmnxBsxStatAaSubSdyHC OctsAdmToSb	The value of tmnxBsxStatAaSubSdyHCOctsAdmToSb indicates the total number of bytes permitted for the network to subscriber direction. This object is a 64-bit version of tmnxBsxStatAaSubSdyOctsAdmToSb.
octsDenyFromSub	UINT128	tmnxBsxStatAaSubSdyHC OctsDnyFmSb	The value of tmnxBsxStatAaSubSdyHCOctsDnyFmSb indicates the total number of bytes dropped for the subscriber to network direction. This object is a 64-bit version of tmnxBsxStatAaSubSdyOctsDnyFmSb.
octsDenyToSub	UINT128	tmnxBsxStatAaSubSdyHC OctsDnyToSb	The value of tmnxBsxStatAaSubSdyHCOctsDnyToSb indicates the total number of bytes dropped for the network to subscriber direction. This object is a 64-bit version of tmnxBsxStatAaSubSdyOctsDnyToSb.
pktsAdmitFromSub	UINT128	tmnxBsxStatAaSubSdyHC PktsAdmFmSb	The value of tmnxBsxStatAaSubSdyHCPktsAdmFmSb indicates the total number of packets permitted for the subscriber to network direction. This object is a 64-bit version of tmnxBsxStatAaSubSdyPktsAdmFmSb.
pktsAdmitToSub	UINT128	tmnxBsxStatAaSubSdyHC PktsAdmToSb	The value of tmnxBsxStatAaSubSdyHCPktsAdmToSb indicates the total number of packets permitted for the network to subscriber direction. This object is a 64-bit version of tmnxBsxStatAaSubSdyPktsAdmToSb.
pktsDenyFromSub	UINT128	tmnxBsxStatAaSubSdyHC PktsDnyFmSb	The value of tmnxBsxStatAaSubSdyHCPktsDnyFmSb indicates the total number of packets dropped for the subscriber to network direction. This object is a 64-bit version of tmnxBsxStatAaSubSdyPktsDnyFmSb.
pktsDenyToSub	UINT128	tmnxBsxStatAaSubSdyHC PktsDnyToSb	The value of tmnxBsxStatAaSubSdyHCPktsDnyToSb indicates the total number of packets dropped for the network to subscriber direction. This object is a 64-bit version of tmnxBsxStatAaSubSdyPktsDnyToSb.
termFlowDuration	UINT128	tmnxBsxStatAaSubSdyHC TermFlwDur	The value of tmnxBsxStatAaSubSdyHCTermFlwDur indicates the sum of all flow durations from first packet seen to last packet seen for flows that have terminated. This object is a 64-bit version of tmnxBsxStatAaSubSdyTermFlwDur.
termFlows	UINT128	tmnxBsxStatAaSubSdyHC TermFlws	The value of tmnxBsxStatAaSubSdyHCTermFlws indicates the total number of allowed flows that have terminated. This object is a 64-bit version of tmnxBsxStatAaSubSdyTermFlws.

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5620 SAM counter name	Type	MIB counter name	Description
<b>BsxSpokeSdpBindingStudyProtStats</b> MIB table name: TIMETRA-BSX-NG-MIB.tmnxBsxStatAaSubSdyTable Monitored class: svt.SpokeSdpBinding			
activeFlowsFromSub	long	tmnxBsxStatAaSubSdyActFlwsFmSb	The value of tmnxBsxStatAaSubSdyActFlwsFmSb indicates the number of allowed flows in the subscriber to network direction that are active.
activeFlowsToSub	long	tmnxBsxStatAaSubSdyActFlwsToSb	The value of tmnxBsxStatAaSubSdyActFlwsToSb indicates the number of allowed flows in the network to subscriber direction that are active.
durationFlowsLong	UINT128	tmnxBsxStatAaSubSdyHCLngDurFlws	The value of tmnxBsxStatAaSubSdyHCLngDurFlws indicates the total number of flows with a duration greater than 180 seconds, that have completed. This object is a 64-bit version of tmnxBsxStatAaSubSdyLngDurFlws.
durationFlowsMedium	UINT128	tmnxBsxStatAaSubSdyHCMedDurFlws	The value of tmnxBsxStatAaSubSdyHCMedDurFlws indicates the total number of flows with a duration less than or equal to 180 seconds, but greater than 30 seconds, that have completed. This object is a 64-bit version of tmnxBsxStatAaSubSdyMedDurFlws.
durationFlowsShort	UINT128	tmnxBsxStatAaSubSdyHCShtDurFlws	The value of tmnxBsxStatAaSubSdyHCShtDurFlws indicates the total number of flows with a duration less than or equal to 30 seconds, that have completed. This object is a 64-bit version of tmnxBsxStatAaSubSdyShtDurFlws.
flowsAdmitFromSub	UINT128	tmnxBsxStatAaSubSdyHCFFlwsAdmFmSb	The value of tmnxBsxStatAaSubSdyHCFFlwsAdmFmSb indicates the total number of flows permitted for the subscriber to network direction. This object is a 64-bit version of tmnxBsxStatAaSubSdyFlwsAdmFmSb.
flowsAdmitToSub	UINT128	tmnxBsxStatAaSubSdyHCFFlwsAdmToSb	The value of tmnxBsxStatAaSubSdyHCFFlwsAdmToSb indicates the total number of flows permitted for the network to subscriber direction. This object is a 64-bit version of tmnxBsxStatAaSubSdyFlwsAdmToSb.
flowsDenyFromSub	UINT128	tmnxBsxStatAaSubSdyHCFFlwsDnyFmSb	The value of tmnxBsxStatAaSubSdyHCFFlwsDnyFmSb indicates the total number of flows that dropped subsequent packets in the subscriber to network direction. This object is a 64-bit version of tmnxBsxStatAaSubSdyFlwsDnyFmSb.

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5620 SAM counter name	Type	MIB counter name	Description
flowsDenyToSub	UINT128	tmnxBsxStatAaSubSdyHCF lwsDnyToSb	The value of tmnxBsxStatAaSubSdyHCFlwsDnyToSb indicates the total number of flows that dropped subsequent packets in the network to subscriber direction. This object is a 64-bit version of tmnxBsxStatAaSubSdyFlwsDnyToSb.
octsAdmitFromSub	UINT128	tmnxBsxStatAaSubSdyHC OctsAdmFmSb	The value of tmnxBsxStatAaSubSdyHCOctsAdmFmSb indicates the total number of bytes permitted for the subscriber to network direction. This object is a 64-bit version of tmnxBsxStatAaSubSdyOctsAdmFmSb.
octsAdmitFromSub	UINT128	tmnxBsxStatAaSubSdyOct sAdmFmSb	The value of tmnxBsxStatAaSubSdyOctsAdmFmSb indicates the total number of bytes permitted for the subscriber to network direction.
octsAdmitToSub	UINT128	tmnxBsxStatAaSubSdyHC OctsAdmToSb	The value of tmnxBsxStatAaSubSdyHCOctsAdmToSb indicates the total number of bytes permitted for the network to subscriber direction. This object is a 64-bit version of tmnxBsxStatAaSubSdyOctsAdmToSb.
octsDenyFromSub	UINT128	tmnxBsxStatAaSubSdyHC OctsDnyFmSb	The value of tmnxBsxStatAaSubSdyHCOctsDnyFmSb indicates the total number of bytes dropped for the subscriber to network direction. This object is a 64-bit version of tmnxBsxStatAaSubSdyOctsDnyFmSb.
octsDenyToSub	UINT128	tmnxBsxStatAaSubSdyHC OctsDnyToSb	The value of tmnxBsxStatAaSubSdyHCOctsDnyToSb indicates the total number of bytes dropped for the network to subscriber direction. This object is a 64-bit version of tmnxBsxStatAaSubSdyOctsDnyToSb.
pktsAdmitFromSub	UINT128	tmnxBsxStatAaSubSdyHC PktsAdmFmSb	The value of tmnxBsxStatAaSubSdyHCPktsAdmFmSb indicates the total number of packets permitted for the subscriber to network direction. This object is a 64-bit version of tmnxBsxStatAaSubSdyPktsAdmFmSb.
pktsAdmitToSub	UINT128	tmnxBsxStatAaSubSdyHC PktsAdmToSb	The value of tmnxBsxStatAaSubSdyHCPktsAdmToSb indicates the total number of packets permitted for the network to subscriber direction. This object is a 64-bit version of tmnxBsxStatAaSubSdyPktsAdmToSb.
pktsDenyFromSub	UINT128	tmnxBsxStatAaSubSdyHC PktsDnyFmSb	The value of tmnxBsxStatAaSubSdyHCPktsDnyFmSb indicates the total number of packets dropped for the subscriber to network direction. This object is a 64-bit version of tmnxBsxStatAaSubSdyPktsDnyFmSb.

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5620 SAM counter name	Type	MIB counter name	Description
pktsDenyToSub	UINT128	tmnxBsxStatAaSubSdyHCPktsDnyToSb	The value of tmnxBsxStatAaSubSdyHCPktsDnyToSb indicates the total number of packets dropped for the network to subscriber direction. This object is a 64-bit version of tmnxBsxStatAaSubSdyPktsDnyToSb.
protName	String	tmnxBsxStatAaName	The value of tmnxBsxStatAaName specifies either the ISA-AA protocol, application or app-group name for which statistics are requested. The tmnxBsxStatAaType is used to determine the statistics type.
termFlowDuration	UINT128	tmnxBsxStatAaSubSdyHCTermFlwDur	The value of tmnxBsxStatAaSubSdyHCTermFlwDur indicates the sum of all flow durations from first packet seen to last packet seen for flows that have terminated. This object is a 64-bit version of tmnxBsxStatAaSubSdyTermFlwDur.
termFlows	UINT128	tmnxBsxStatAaSubSdyHCTermFlws	The value of tmnxBsxStatAaSubSdyHCTermFlws indicates the total number of allowed flows that have terminated. This object is a 64-bit version of tmnxBsxStatAaSubSdyTermFlws.
<b>GRE Tunnel Stats</b> MIB table name: TIMETRA-SAP-MIB.tmnxGreTunnelStatsTable Monitored class: svt.GRETunnel			
bytesRx	UINT128	tmnxGreTunnelBytesRx	The value of tmnxGreTunnelBytesRx indicates the number of bytes this GRE Tunnel has received.
bytesRxHi	long	tmnxGreTunnelBytesRxHi	The value of tmnxGreTunnelBytesRxHi indicates higher 32 bits of the value of tmnxGreTunnelBytesRx object.
bytesRxLo	long	tmnxGreTunnelBytesRxLo	The value of tmnxGreTunnelBytesRxLo indicates lower 32 bits of the value of tmnxGreTunnelBytesRx object.
bytesTx	UINT128	tmnxGreTunnelBytesTx	The value of tmnxGreTunnelBytesTx indicates the number of bytes this GRE Tunnel has sent.
bytesTxHi	long	tmnxGreTunnelBytesTxHi	The value of tmnxGreTunnelBytesTxHi indicates higher 32 bits of the value of tmnxGreTunnelBytesTx object.
bytesTxLo	long	tmnxGreTunnelBytesTxLo	The value of tmnxGreTunnelBytesTxLo indicates lower 32 bits of the value of tmnxGreTunnelBytesTx object.
invalidChksumRx	UINT128	tmnxGreTunnelInvalidChksumRx	The value of tmnxGreTunnelInvalidChksumRx indicates the number of packets this GRE Tunnel received with invalid checksum and were dropped.
invalidChksumRxHi	long	tmnxGreTunnelInvalidChksumRxHi	The value of tmnxGreTunnelInvalidChksumRxHi indicates higher 32 bits of the value of tmnxGreTunnelInvalidChksumRx object.

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5620 SAM counter name	Type	MIB counter name	Description
invalidChksumRxLo	long	tmnxGreTunnelInvalidChksumRxLo	The value of tmnxGreTunnelInvalidChksumRxLo indicates lower 32 bits of the value of tmnxGreTunnelInvalidChksumRx object.
keyIgnoredRx	UINT128	tmnxGreTunnelKeyIgnoredRx	The value of tmnxGreTunnelKeyIgnoredRx indicates the number of packets this GRE Tunnel received and processed ignoring key field.
keyIgnoredRxHi	long	tmnxGreTunnelKeyIgnoredRxHi	The value of tmnxGreTunnelKeyIgnoredRxHi indicates higher 32 bits of the value of tmnxGreTunnelKeyIgnoredRx object.
keyIgnoredRxLo	long	tmnxGreTunnelKeyIgnoredRxLo	The value of tmnxGreTunnelKeyIgnoredRxLo indicates lower 32 bits of the value of tmnxGreTunnelKeyIgnoredRx object.
loopsRx	UINT128	tmnxGreTunnelLoopsRx	The value of tmnxGreTunnelLoopsRx indicates the number of packets this GRE Tunnel received with payload with destination address which could result in a loop and were dropped.
loopsRxHi	long	tmnxGreTunnelLoopsRxHi	The value of tmnxGreTunnelLoopsRxHi indicates higher 32 bits of the value of tmnxGreTunnelLoopsRx object.
loopsRxLo	long	tmnxGreTunnelLoopsRxLo	The value of tmnxGreTunnelLoopsRxLo indicates lower 32 bits of the value of tmnxGreTunnelLoopsRx object.
pktsRx	UINT128	tmnxGreTunnelPktsRx	The value of tmnxGreTunnelPktsRx indicates the number of packets this GRE Tunnel has received.
pktsRxHi	long	tmnxGreTunnelPktsRxHi	The value of tmnxGreTunnelPktsRxHi indicates higher 32 bits of the value of tmnxGreTunnelPktsRx object.
pktsRxLo	long	tmnxGreTunnelPktsRxLo	The value of tmnxGreTunnelPktsRxLo indicates lower 32 bits of the value of tmnxGreTunnelPktsRx object.
pktsTx	UINT128	tmnxGreTunnelPktsTx	The value of tmnxGreTunnelPktsTx indicates the number of packets this GRE Tunnel has sent.
pktsTxHi	long	tmnxGreTunnelPktsTxHi	The value of tmnxGreTunnelPktsTxHi indicates higher 32 bits of the value of tmnxGreTunnelPktsTx object.
pktsTxLo	long	tmnxGreTunnelPktsTxLo	The value of tmnxGreTunnelPktsTxLo indicates lower 32 bits of the value of tmnxGreTunnelPktsTx object.
rxErrors	long	tmnxGreTunnelRxErrors	The value of tmnxGreTunnelRxErrors indicates the number of packet receive errors.
seqIgnoredRx	UINT128	tmnxGreTunnelSeqIgnoredRx	The value of tmnxGreTunnelSeqIgnoredRx indicates the number of packets this GRE Tunnel and processed ignoring sequence field.

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5620 SAM counter name	Type	MIB counter name	Description
seqIgnoredRxHi	long	tmnxGreTunnelSeqIgnoredRxHi	The value of tmnxGreTunnelSeqIgnoredRxHi indicates higher 32 bits of the value of tmnxGreTunnelSeqIgnoredRx object.
seqIgnoredRxLo	long	tmnxGreTunnelSeqIgnoredRxLo	The value of tmnxGreTunnelSeqIgnoredRxLo indicates lower 32 bits of the value of tmnxGreTunnelSeqIgnoredRx object.
tooBigTx	UINT128	tmnxGreTunnelTooBigTx	The value of tmnxGreTunnelTooBigTx indicates the number of packets this GRE Tunnel received which were too big to transmit.
tooBigTxHi	long	tmnxGreTunnelTooBigTxHi	The value of tmnxGreTunnelTooBigTxHi indicates higher 32 bits of the value of tmnxGreTunnelTooBigTx object.
tooBigTxLo	long	tmnxGreTunnelTooBigTxLo	The value of tmnxGreTunnelTooBigTxLo indicates lower 32 bits of the value of tmnxGreTunnelTooBigTx object.
txErrors	long	tmnxGreTunnelTxErrors	The value of tmnxGreTunnelTxErrors indicates the number of packet transmit errors.
versUnsupRx	UINT128	tmnxGreTunnelVersUnsupRx	The value of tmnxGreTunnelVersUnsupRx indicates the number of packets this GRE Tunnel received with unsupported GRE version and were dropped.
versUnsupRxHi	long	tmnxGreTunnelVersUnsupRxHi	The value of tmnxGreTunnelVersUnsupRxHi indicates higher 32 bits of the value of tmnxGreTunnelVersUnsupRx object.
versUnsupRxLo	long	tmnxGreTunnelVersUnsupRxLo	The value of tmnxGreTunnelVersUnsupRxLo indicates lower 32 bits of the value of tmnxGreTunnelVersUnsupRx object.
<b>MirrorSdpBindingStats</b> MIB table name: TIMETRA-SDP-MIB.sdpBindBaseStatsTable Monitored class: svt.MirrorSdpBinding			
egressForwardedOctets	UINT128	sdpBindBaseStatsEgressForwardedOctets	.
egressForwardedPackets	UINT128	sdpBindBaseStatsEgressForwardedPackets	.
ingressDroppedOctets	UINT128	sdpBindBaseStatsIngressDroppedOctets	.
ingressDroppedPackets	UINT128	sdpBindBaseStatsIngressDroppedPackets	.
ingressForwardedOctets	UINT128	sdpBindBaseStatsIngressForwardedOctets	.
ingressForwardedPackets	UINT128	sdpBindBaseStatsIngressForwardedPackets	.

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5620 SAM counter name	Type	MIB counter name	Description
<b>SdpBindingBaseStats</b> MIB table name: TIMETRA-SDP-MIB.sdpBindBaseStatsTable Monitored classes: <ul style="list-style-type: none"> <li>svt.SpokeSdpBinding</li> <li>svt.MeshSdpBinding</li> </ul>			
egressForwardedOctets	UINT128	sdpBindBaseStatsEgressForwardedOctets	.
egressForwardedPackets	UINT128	sdpBindBaseStatsEgressForwardedPackets	.
ingressDroppedOctets	UINT128	sdpBindBaseStatsIngressDroppedOctets	.
ingressDroppedPackets	UINT128	sdpBindBaseStatsIngressDroppedPackets	.
ingressForwardedOctets	UINT128	sdpBindBaseStatsIngressForwardedOctets	.
ingressForwardedPackets	UINT128	sdpBindBaseStatsIngressForwardedPackets	.
<b>SdpBindingIcmpSnpgErrorStats</b> MIB table name: ALCATEL-IGMP-SNOOPING-MIB.sdpBindIcmpSnpgStatsTable Monitored classes: <ul style="list-style-type: none"> <li>svt.SpokeSdpBinding</li> <li>svt.MeshSdpBinding</li> </ul>			
sdpBndIcmpSnpgImportPolicyDrops	long	sdpBndIcmpSnpgImportPolicyDrops	The value of the object sdpBndIcmpSnpgImportPolicyDrops indicates the number of times an IGMP Group or Source is dropped because of applying an import policy on this SDP Bind.
sdpBndIcmpSnpgMaxNumGroupsDrops	long	sdpBndIcmpSnpgMaxNumGroupsDrops	The value of the object sdpBndIcmpSnpgMaxNumGroupsDrops indicates the number of times an IGMP Group is dropped because of exceeding the configured maximum number of groups on this SDP Bind.
sdpBndIcmpSnpgMaxNumSourcesDrops	long	sdpBndIcmpSnpgMaxNumSourcesDrops	The value of the object sdpBndIcmpSnpgMaxNumSourcesDrops indicates the number of times an IGMP Source is dropped because of exceeding the configured maximum number of sources per group on this SDP Bind.
sdpBndIcmpSnpgMcastPolicyDrops	long	sdpBndIcmpSnpgMcastPolicyDrops	The value of the object sdpBndIcmpSnpgMcastPolicyDrops indicates the number of times an IGMP Group is dropped because of applying a multicast CAC policy on this SDP Bind.
sdpBndIcmpSnpgRxBadEncodedPkts	long	sdpBndIcmpSnpgRxBadEncodedPkts	The value of the object sdpBndIcmpSnpgRxBadEncodedPkts indicates the number of IGMP packets dropped on this SDP Bind because of a bad encoding.

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5620 SAM counter name	Type	MIB counter name	Description
sdpBndlgmpSnpgRxBadlgmpChksmPkts	long	sdpBndlgmpSnpgRxBadlgmpChksmPkts	The value of the object sdpBndlgmpSnpgRxBadlgmpChksmPkts indicates the number of dropped IGMP packets on this SDP Bind because of a bad IGMP header checksum.
sdpBndlgmpSnpgRxBadIpChksmPkts	long	sdpBndlgmpSnpgRxBadIpChksmPkts	The value of the object sdpBndlgmpSnpgRxBadIpChksmPkts indicates the number of dropped IGMP packets on this SDP Bind because of a bad IPv4 header checksum.
sdpBndlgmpSnpgRxBadLenPkts	long	sdpBndlgmpSnpgRxBadLenPkts	The value of the object sdpBndlgmpSnpgRxBadLenPkts indicates the number of IGMP packets dropped on this SDP Bind because of a bad length.
sdpBndlgmpSnpgRxNoRtrAlertPkts	long	sdpBndlgmpSnpgRxNoRtrAlertPkts	The value of the object sdpBndlgmpSnpgRxNoRtrAlertPkts indicates the number of IGMP packets dropped on this SDP Bind because the Router Alert Option in the IP packet is not set.
sdpBndlgmpSnpgRxWrongVersionPkts	long	sdpBndlgmpSnpgRxWrongVersionPkts	The value of the object sdpBndlgmpSnpgRxWrongVersionPkts indicates the total number of IGMP packets with a wrong version received on this SDP Bind.
sdpBndlgmpSnpgRxZeroSrcAdrPkts	long	sdpBndlgmpSnpgRxZeroSrcAdrPkts	The value of the object sdpBndlgmpSnpgRxZeroSrcAdrPkts indicates the number of IGMP packets dropped on this SDP Bind because they contain a zero source IPv4 address.
sdpBndlgmpSnpgSendQueryCfgDrops	long	sdpBndlgmpSnpgSendQueryCfgDrops	The value of the object sdpBndlgmpSnpgSendQueryCfgDrops indicates the number of times an IGMP Query is dropped because the object sdpBndlgmpSnpgCfgSendQueries for this SDP Bind is set to 'enabled(1)'.
<b>SdpBindinglgmpSnpgStats</b> MIB table name: ALCATEL-IGMP-SNOOPING-MIB.sdpBindinglgmpSnpgStatsTable Monitored classes: <ul style="list-style-type: none"> <li>• svt.SpokeSdpBinding</li> <li>• svt.MeshSdpBinding</li> </ul>			
sdpBndlgmpSnpgFwdGenQueries	long	sdpBndlgmpSnpgFwdGenQueries	The value of the object sdpBndlgmpSnpgFwdGenQueries indicates the number of IGMP General Queries forwarded on this SDP Bind.
sdpBndlgmpSnpgFwdGrpSpecQueries	long	sdpBndlgmpSnpgFwdGrpSpecQueries	The value of the object sdpBndlgmpSnpgFwdGrpSpecQueries indicates the number of IGMP Group-Specific Queries forwarded on this SDP Bind.
sdpBndlgmpSnpgFwdSrcSpecQueries	long	sdpBndlgmpSnpgFwdSrcSpecQueries	The value of the object sdpBndlgmpSnpgFwdSrcSpecQueries indicates the number of IGMP Group-And-Source-Specific Queries forwarded on this SDP Bind.

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5620 SAM counter name	Type	MIB counter name	Description
sdpBndlGmpSnpgFwdUnknownType	long	sdpBndlGmpSnpgFwdUnknownType	The value of the object sdpBndlGmpSnpgFwdUnknownType indicates the number of IGMP unknown type packets forwarded on this SDP Bind.
sdpBndlGmpSnpgFwdV1Reports	long	sdpBndlGmpSnpgFwdV1Reports	The value of the object sdpBndlGmpSnpgFwdV1Reports indicates the number of IGMPv1 Reports forwarded on this SDP Bind.
sdpBndlGmpSnpgFwdV2Leaves	long	sdpBndlGmpSnpgFwdV2Leaves	The value of the object sdpBndlGmpSnpgFwdV2Leaves indicates the number of IGMPv2 Leaves forwarded on this SDP Bind.
sdpBndlGmpSnpgFwdV2Reports	long	sdpBndlGmpSnpgFwdV2Reports	The value of the object sdpBndlGmpSnpgFwdV2Reports indicates the number of IGMPv2 Reports forwarded on this SDP Bind.
sdpBndlGmpSnpgFwdV3Reports	long	sdpBndlGmpSnpgFwdV3Reports	The value of the object sdpBndlGmpSnpgFwdV3Reports indicates the number of IGMPv3 Reports forwarded on this SDP Bind.
sdpBndlGmpSnpgRxGenQueries	long	sdpBndlGmpSnpgRxGenQueries	The value of the object sdpBndlGmpSnpgRxGenQueries indicates the number of IGMP General Queries received on this SDP Bind.
sdpBndlGmpSnpgRxGrpSpecQueries	long	sdpBndlGmpSnpgRxGrpSpecQueries	The value of the object sdpBndlGmpSnpgRxGrpSpecQueries indicates the number of IGMP Group-Specific Queries received on this SDP Bind.
sdpBndlGmpSnpgRxSrcSpecQueries	long	sdpBndlGmpSnpgRxSrcSpecQueries	The value of the object sdpBndlGmpSnpgRxSrcSpecQueries indicates the number of IGMP Group-And-Source-Specific Queries received on this SDP Bind.
sdpBndlGmpSnpgRxUnknownType	long	sdpBndlGmpSnpgRxUnknownType	The value of the object sdpBndlGmpSnpgRxUnknownType indicates the number of IGMP unknown type packets received on this SDP Bind.
sdpBndlGmpSnpgRxV1Reports	long	sdpBndlGmpSnpgRxV1Reports	The value of the object sdpBndlGmpSnpgRxV1Reports indicates the number of IGMPv1 Reports received on this SDP Bind.
sdpBndlGmpSnpgRxV2Leaves	long	sdpBndlGmpSnpgRxV2Leaves	The value of the object sdpBndlGmpSnpgRxV2Leaves indicates the number of IGMPv2 Leaves received on this SDP Bind.
sdpBndlGmpSnpgRxV2Reports	long	sdpBndlGmpSnpgRxV2Reports	The value of the object sdpBndlGmpSnpgRxV2Reports indicates the number of IGMPv2 Reports received on this SDP Bind.
sdpBndlGmpSnpgRxV3Reports	long	sdpBndlGmpSnpgRxV3Reports	The value of the object sdpBndlGmpSnpgRxV3Reports indicates the number of IGMPv3 Reports received on this SDP Bind.

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5620 SAM counter name	Type	MIB counter name	Description
sdpBndlgmpSnpgTxGenQueries	long	sdpBndlgmpSnpgTxGenQueries	The value of the object sdpBndlgmpSnpgTxGenQueries indicates the number of IGMP General Queries transmitted on this SDP Bind.
sdpBndlgmpSnpgTxGrpSpecQueries	long	sdpBndlgmpSnpgTxGrpSpecQueries	The value of the object sdpBndlgmpSnpgTxGrpSpecQueries indicates the number of IGMP Group-Specific Queries transmitted on this SDP Bind.
sdpBndlgmpSnpgTxSrcSpecQueries	long	sdpBndlgmpSnpgTxSrcSpecQueries	The value of the object sdpBndlgmpSnpgTxSrcSpecQueries indicates the number of IGMP Group-And-Source-Specific Queries transmitted on this SDP Bind.
sdpBndlgmpSnpgTxV1Reports	long	sdpBndlgmpSnpgTxV1Reports	The value of the object sdpBndlgmpSnpgTxV1Reports indicates the number of IGMPv1 Reports transmitted on this SDP Bind.
sdpBndlgmpSnpgTxV2Leaves	long	sdpBndlgmpSnpgTxV2Leaves	The value of the object sdpBndlgmpSnpgTxV2Leaves indicates the number of IGMPv2 Leaves transmitted on this SDP Bind.
sdpBndlgmpSnpgTxV2Reports	long	sdpBndlgmpSnpgTxV2Reports	The value of the object sdpBndlgmpSnpgTxV2Reports indicates the number of IGMPv2 Reports transmitted on this SDP Bind.
sdpBndlgmpSnpgTxV3Reports	long	sdpBndlgmpSnpgTxV3Reports	The value of the object sdpBndlgmpSnpgTxV3Reports indicates the number of IGMPv3 Reports transmitted on this SDP Bind.
<b>TunnelKeepAliveStats</b> MIB table name: TIMETRA-SDP-MIB.sdpInfoTable Monitored class: svt.Tunnel			
lateHelloResponses	long	sdpKeepAliveNumLateHelloResponseMessages	The number of SDP Echo Response messages received after the corresponding Request timeout timer expired.
receivedHelloMessages	long	sdpKeepAliveNumHelloResponseMessages	The number of SDP Echo Response messages received since the keep-alive was administratively enabled or the counter was cleared.
transmittedHelloMessages	long	sdpKeepAliveNumHelloRequestMessages	The number of SDP Echo Request messages transmitted since the keep-alive was administratively enabled or the counter was cleared.

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5620 SAM counter name	Type	MIB counter name	Description
<b>DS1CurrentStats</b> MIB table name: DS1-MIB.dsx1CurrentTable Monitored class: tdmequipment.DS1E1Channel			
burstyErroredSeconds	long	dsx1CurrentBESs	The number of Bursty Errored Seconds.
controlledSlipSeconds	long	dsx1CurrentCSSs	The number of Controlled Slip Seconds.
degradedMinutes	long	dsx1CurrentDMs	The number of Degraded Minutes.
erroredSeconds	long	dsx1CurrentESs	The number of Errored Seconds.
lineCodingViolations	long	dsx1CurrentLCVs	The number of Line Code Violations (LCVs).
lineErroredSeconds	long	dsx1CurrentLESSs	The number of Line Errored Seconds.
pBitCodingViolations	long	dsx1CurrentPCVs	The number of Path Coding Violations.
severelyErroredFramingSeconds	long	dsx1CurrentSEFSSs	The number of Severely Errored Framing Seconds.
severelyErroredSeconds	long	dsx1CurrentSESs	The number of Severely Errored Seconds.
unavailableSeconds	long	dsx1CurrentUASs	The number of Unavailable Seconds.
<b>DS1FarEndCurrentStats</b> MIB table name: DS1-MIB.dsx1FarEndCurrentTable Monitored class: tdmequipment.DS1E1Channel			
burstyErroredSeconds	long	dsx1FarEndCurrentBESs	The number of Far End Bursty Errored Seconds.
controlledSlipSeconds	long	dsx1FarEndCurrentCSSs	The number of Far End Controlled Slip Seconds.
degradedMinutes	long	dsx1FarEndCurrentDMs	The number of Far End Degraded Minutes.
erroredSeconds	long	dsx1FarEndCurrentESs	The number of Far End Errored Seconds.
invalidIntervals	int	dsx1FarEndInvalidIntervals	The number of intervals in the range from 0 to dsx1FarEndValidIntervals for which no data is available. This object will typically be zero except in cases where the data for some intervals are not available (e.g., in proxy situations).
lineErroredSeconds	long	dsx1FarEndCurrentLESSs	The number of Far End Line Errored Seconds.
pathCodingViolations	long	dsx1FarEndCurrentPCVs	The number of Far End Path Coding Violations.
severelyErroredFramingSeconds	long	dsx1FarEndCurrentSEFSSs	The number of Far End Severely Errored Framing Seconds.
severelyErroredSeconds	long	dsx1FarEndCurrentSESs	The number of Far End Severely Errored Seconds.
timeElapsed	int	dsx1FarEndTimeElapsed	The number of seconds that have elapsed since the beginning of the far end current error-measurement period. If, for some reason, such as an adjustment in the system's time-of-day clock, the current interval exceeds the maximum value, the agent will return the maximum value.

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5620 SAM counter name	Type	MIB counter name	Description
unavailableSeconds	long	dsx1FarEndCurrentUASs	The number of Unavailable Seconds.
validIntervals	int	dsx1FarEndValidIntervals	The number of previous far end intervals for which data was collected. The value will be 96 unless the interface was brought online within the last 24 hours, in which case the value will be the number of complete 15 minute far end intervals since the interface has been online. In the case where the agent is a proxy, it is possible that some intervals are unavailable. In this case, this interval is the maximum interval number for which data is available.
<b>DS1FarEndIntervalStats</b> MIB table name: DS1-MIB.dsx1FarEndIntervalTable Monitored class: tdmequipment.DS1E1Channel			
burstyErroredSeconds	long	dsx1FarEndIntervalBESs	The number of Far End Bursty Errored Seconds.
controlledSlipSeconds	long	dsx1FarEndIntervalCSSs	The number of Far End Controlled Slip Seconds.
degradedMinutes	long	dsx1FarEndIntervalDMs	The number of Far End Degraded Minutes.
erroredSeconds	long	dsx1FarEndIntervalESs	The number of Far End Errored Seconds.
intervalNumber	int	dsx1FarEndIntervalNumber	A number between 1 and 96, where 1 is the most recently completed 15 minute interval and 96 is the 15 minutes interval completed 23 hours and 45 minutes prior to interval 1.
lineErroredSeconds	long	dsx1FarEndIntervalLESs	The number of Far End Line Errored Seconds.
pathCodingViolations	long	dsx1FarEndIntervalPCVs	The number of Far End Path Coding Violations.
severelyErroredFramingSeconds	long	dsx1FarEndIntervalSEFSSs	The number of Far End Severely Errored Framing Seconds.
severelyErroredSeconds	long	dsx1FarEndIntervalSESs	The number of Far End Severely Errored Seconds.
unavailableSeconds	long	dsx1FarEndIntervalUASs	The number of Unavailable Seconds.
<b>DS1FarEndTotalStats</b> MIB table name: DS1-MIB.dsx1FarEndTotalTable Monitored class: tdmequipment.DS1E1Channel			
burstyErroredSeconds	long	dsx1FarEndTotalBESs	The number of Bursty Errored Seconds (BESs) encountered by a DS1 interface in the previous 24 hour interval. Invalid 15 minute intervals count as 0.
controlledSlipSeconds	long	dsx1FarEndTotalCSSs	The number of Far End Controlled Slip Seconds encountered by a DS1 interface in the previous 24 hour interval. Invalid 15 minute intervals count as 0.
degradedMinutes	long	dsx1FarEndTotalDMs	The number of Degraded Minutes (DMs) encountered by a DS1 interface in the previous 24 hour interval. Invalid 15 minute intervals count as 0.

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5620 SAM counter name	Type	MIB counter name	Description
erroredSeconds	long	dsx1FarEndTotalESS	The number of Far End Errored Seconds encountered by a DS1 interface in the previous 24 hour interval. Invalid 15 minute intervals count as 0.
lineErroredSeconds	long	dsx1FarEndTotalLESS	The number of Far End Line Errored Seconds encountered by a DS1 interface in the previous 24 hour interval. Invalid 15 minute intervals count as 0.
pathCodingViolations	long	dsx1FarEndTotalPCVs	The number of Far End Path Coding Violations reported via the far end block error count encountered by a DS1 interface in the previous 24 hour interval. Invalid 15 minute intervals count as 0.
severelyErroredFramingSeconds	long	dsx1FarEndTotalSEFSs	The number of Far End Severely Errored Framing Seconds encountered by a DS1 interface in the previous 24 hour interval. Invalid 15 minute intervals count as 0.
severelyErroredSeconds	long	dsx1FarEndTotalSESS	The number of Far End Severely Errored Seconds encountered by a DS1 interface in the previous 24 hour interval. Invalid 15 minute intervals count as 0.
unavailableSeconds	long	dsx1FarEndTotalUASs	The number of Unavailable Seconds encountered by a DS1 interface in the previous 24 hour interval. Invalid 15 minute intervals count as 0.
<b>DS1IntervalStats</b> MIB table name: DS1-MIB.dsx1IntervalTable Monitored class: tdmequipment.DS1E1Channel			
burstyErroredSeconds	long	dsx1IntervalBESs	The number of Bursty Errored Seconds.
controlledSlipSeconds	long	dsx1IntervalCSSs	The number of Controlled Slip Seconds.
degradedMinutes	long	dsx1IntervalDMs	The number of Degraded Minutes.
erroredSeconds	long	dsx1IntervalESS	The number of Errored Seconds.
intervalNumber	int	dsx1IntervalNumber	A number between 1 and 96, where 1 is the most recently completed 15 minute interval and 96 is the 15 minutes interval completed 23 hours and 45 minutes prior to interval 1.
lineCodingViolations	long	dsx1IntervalLCVs	The number of Line Code Violations.
lineErroredSeconds	long	dsx1IntervalLESS	The number of Line Errored Seconds.
pBitCodingViolations	long	dsx1IntervalPCVs	The number of Path Coding Violations.
severelyErroredFramingSeconds	long	dsx1IntervalSEFSs	The number of Severely Errored Framing Seconds.
severelyErroredSeconds	long	dsx1IntervalSESS	The number of Severely Errored Seconds.
unavailableSeconds	long	dsx1IntervalUASs	The number of Unavailable Seconds. This object may decrease if the occurrence of unavailable seconds occurs across an interval boundary.
<b>DS1TotalStats</b> MIB table name: DS1-MIB.dsx1TotalTable Monitored class: tdmequipment.DS1E1Channel			

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5620 SAM counter name	Type	MIB counter name	Description
burstyErroredSeconds	long	dsx1TotalBESs	The number of Bursty Errored Seconds (BESs) encountered by a DS1 interface in the previous 24 hour interval. Invalid 15 minute intervals count as 0.
controlledSlipSeconds	long	dsx1TotalCSSs	The number of Controlled Slip Seconds encountered by a DS1 interface in the previous 24 hour interval. Invalid 15 minute intervals count as 0.
degradedMinutes	long	dsx1TotalDMs	The number of Degraded Minutes (DMs) encountered by a DS1 interface in the previous 24 hour interval. Invalid 15 minute intervals count as 0.
erroredSeconds	long	dsx1TotalESs	The sum of Errored Seconds encountered by a DS1 interface in the previous 24 hour interval. Invalid 15 minute intervals count as 0.
lineCodingViolations	long	dsx1TotalLCVs	The number of Line Code Violations (LCVs) encountered by a DS1 interface in the current 15 minute interval. Invalid 15 minute intervals count as 0.
lineErroredSeconds	long	dsx1TotalLESs	The number of Line Errored Seconds encountered by a DS1 interface in the previous 24 hour interval. Invalid 15 minute intervals count as 0.
pBitCodingViolations	long	dsx1TotalPCVs	The number of Path Coding Violations encountered by a DS1 interface in the previous 24 hour interval. Invalid 15 minute intervals count as 0.
severelyErroredFramingSeconds	long	dsx1TotalSEFSs	The number of Severely Errored Framing Seconds encountered by a DS1 interface in the previous 24 hour interval. Invalid 15 minute intervals count as 0.
severelyErroredSeconds	long	dsx1TotalSESs	The number of Severely Errored Seconds encountered by a DS1 interface in the previous 24 hour interval. Invalid 15 minute intervals count as 0.
unavailableSeconds	long	dsx1TotalUASs	The number of Unavailable Seconds encountered by a DS1 interface in the previous 24 hour interval. Invalid 15 minute intervals count as 0.
<b>DS3CurrentStats</b> MIB table name: DS3-MIB.ds3CurrentTable Monitored class: tdmequipment.DS3E3Channel			
cBitCodingViolations	long	dsx3CurrentCCVs	The number of C-bit Coding Violations.
cBitErroredSeconds	long	dsx3CurrentCESs	The number of C-bit Errored Seconds.
cBitSeverelyErroredSeconds	long	dsx3CurrentCSESs	The number of C-bit Severely Errored Seconds.
lineCodingViolations	long	dsx3CurrentLCVs	The counter associated with the number of Line Coding Violations.
lineErroredSeconds	long	dsx3CurrentLESs	The number of Line Errored Seconds.
pBitCodingViolations	long	dsx3CurrentPCVs	The counter associated with the number of P-bit Coding Violations.

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5620 SAM counter name	Type	MIB counter name	Description
pBitErroredSeconds	long	dsx3CurrentPESs	The counter associated with the number of P-bit Errored Seconds.
pBitSeverelyErroredSeconds	long	dsx3CurrentPSEss	The counter associated with the number of P-bit Severely Errored Seconds.
severelyErroredFramingSeconds	long	dsx3CurrentSEFss	The counter associated with the number of Severely Errored Framing Seconds.
unavailableSeconds	long	dsx3CurrentUASs	The counter associated with the number of Unavailable Seconds.
<b>DS3FarEndCurrentStats</b> MIB table name: DS3-MIB.dsx3FarEndCurrentTable Monitored class: tdmequipment.DS3E3Channel			
cBitCodingViolations	long	dsx3FarEndCurrentCCVs	The counter associated with the number of Far End C-bit Coding Violations reported via the far end block error count.
cBitErroredSeconds	long	dsx3FarEndCurrentCESs	The counter associated with the number of Far End C-bit Errored Seconds.
cBitSeverelyErroredSeconds	long	dsx3FarEndCurrentCSEss	The counter associated with the number of Far End C-bit Severely Errored Seconds.
invalidIntervals	int	dsx3FarEndInvalidIntervals	The number of intervals in the range from 0 to dsx3FarEndValidIntervals for which no data is available. This object will typically be zero except in cases where the data for some intervals are not available (e.g., in proxy situations).
timeElapsed	int	dsx3FarEndTimeElapsed	The number of seconds that have elapsed since the beginning of the far end current error-measurement period. If, for some reason, such as an adjustment in the system's time-of-day clock, the current interval exceeds the maximum value, the agent will return the maximum value.
unavailableSeconds	long	dsx3FarEndCurrentUASs	The counter associated with the number of Far End unavailable seconds.
validIntervals	int	dsx3FarEndValidIntervals	The number of previous far end intervals for which data was collected. The value will be 96 unless the interface was brought online within the last 24 hours, in which case the value will be the number of complete 15 minute far end intervals since the interface has been online. In the case where the agent is a proxy, it is possible that some intervals are unavailable. In this case, this interval is the maximum interval number for which data is available.
<b>DS3FarEndIntervalStats</b> MIB table name: DS3-MIB.dsx3FarEndIntervalTable Monitored class: tdmequipment.DS3E3Channel			
cBitCodingViolations	long	dsx3FarEndIntervalCCVs	The counter associated with the number of Far End C-bit Coding Violations reported via the far end block error count.

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5620 SAM counter name	Type	MIB counter name	Description
cBitErroredSeconds	long	dsx3FarEndIntervalCESs	The counter associated with the number of Far End C-bit Errored Seconds encountered by a DS3 interface in one of the previous 96, individual 15 minute, intervals. In the case where the agent is a proxy and data is not available, return noSuchInstance.
cBitSeverelyErroredSeconds	long	dsx3FarEndIntervalCSEss	The counter associated with the number of Far End C-bit Severely Errored Seconds.
intervalNumber	int	dsx3FarEndIntervalNumber	A number between 1 and 96, where 1 is the most recently completed 15 minute interval and 96 is the 15 minutes interval completed 23 hours and 45 minutes prior to interval 1.
unavailableSeconds	long	dsx3FarEndIntervalUASs	The counter associated with the number of Far End unavailable seconds.
<b>DS3FarEndTotalStats</b> MIB table name: DS3-MIB.dsx3FarEndTotalTable Monitored class: tdmequipment.DS3E3Channel			
cBitCodingViolations	long	dsx3FarEndTotalCCVs	The counter associated with the number of Far End C-bit Coding Violations reported via the far end block error count encountered by a DS3 interface in the previous 24 hour interval. Invalid 15 minute intervals count as 0.
cBitErroredSeconds	long	dsx3FarEndTotalCESs	The counter associated with the number of Far End C-bit Errored Seconds encountered by a DS3 interface in the previous 24 hour interval. Invalid 15 minute intervals count as 0.
cBitSeverelyErroredSeconds	long	dsx3FarEndTotalCSEss	The counter associated with the number of Far End C-bit Severely Errored Seconds encountered by a DS3 interface in the previous 24 hour interval. Invalid 15 minute intervals count as 0.
unavailableSeconds	long	dsx3FarEndTotalUASs	The counter associated with the number of Far End unavailable seconds encountered by a DS3 interface in the previous 24 hour interval. Invalid 15 minute intervals count as 0.
<b>DS3IntervalStats</b> MIB table name: DS3-MIB.dsx3IntervalTable Monitored class: tdmequipment.DS3E3Channel			
cBitCodingViolations	long	dsx3IntervalCCVs	The number of C-bit Coding Violations.
cBitErroredSeconds	long	dsx3IntervalCESs	The number of C-bit Errored Seconds.
cBitSeverelyErroredSeconds	long	dsx3IntervalCSEss	The number of C-bit Severely Errored Seconds.
intervalNumber	int	dsx3IntervalNumber	A number between 1 and 96, where 1 is the most recently completed 15 minute interval and 96 is the 15 minutes interval completed 23 hours and 45 minutes prior to interval 1.

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5620 SAM counter name	Type	MIB counter name	Description
lineCodingViolations	long	dsx3IntervalLCVs	The counter associated with the number of Line Coding Violations.
lineErroredSeconds	long	dsx3IntervalLEsSs	The number of Line Errored Seconds (BPVs or illegal zero sequences).
pBitCodingViolations	long	dsx3IntervalPCVs	The counter associated with the number of P-bit Coding Violations.
pBitErroredSeconds	long	dsx3IntervalPESs	The counter associated with the number of P-bit Errored Seconds.
pBitSeverelyErroredSeconds	long	dsx3IntervalPSESs	The counter associated with the number of P-bit Severely Errored Seconds.
severelyErroredFramingSeconds	long	dsx3IntervalSEFSs	The counter associated with the number of Severely Errored Framing Seconds.
unavailableSeconds	long	dsx3IntervalUASs	The counter associated with the number of Unavailable Seconds. This object may decrease if the occurrence of unavailable seconds occurs across an interval boundary.
<b>DS3TotalStats</b> MIB table name: DS3-MIB.dsx3TotalTable Monitored class: tdmequipment.DS3E3Channel			
cBitCodingViolations	long	dsx3TotalCCVs	The number of C-bit Coding Violations encountered by a DS3 interface in the previous 24 hour interval. Invalid 15 minute intervals count as 0.
cBitErroredSeconds	long	dsx3TotalCESs	The number of C-bit Errored Seconds encountered by a DS3 interface in the previous 24 hour interval. Invalid 15 minute intervals count as 0.
cBitSeverelyErroredSeconds	long	dsx3TotalCSESs	The number of C-bit Severely Errored Seconds encountered by a DS3 interface in the previous 24 hour interval. Invalid 15 minute intervals count as 0.
lineCodingViolations	long	dsx3TotalLCVs	The counter associated with the number of Line Coding Violations encountered by a DS3/E3 interface in the previous 24 hour interval. Invalid 15 minute intervals count as 0.
lineErroredSeconds	long	dsx3TotalLEsSs	The number of Line Errored Seconds (BPVs or illegal zero sequences) encountered by a DS3/E3 interface in the previous 24 hour interval. Invalid 15 minute intervals count as 0.
pBitCodingViolations	long	dsx3TotalPCVs	The counter associated with the number of P-bit Coding Violations, encountered by a DS3 interface in the previous 24 hour interval. Invalid 15 minute intervals count as 0.
pBitErroredSeconds	long	dsx3TotalPESs	The counter associated with the number of P-bit Errored Seconds, encountered by a DS3 interface in the previous 24 hour interval. Invalid 15 minute intervals count as 0.

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5620 SAM counter name	Type	MIB counter name	Description
pBitSeverelyErroredSeconds	long	dsx3TotalPSEs	The counter associated with the number of P-bit Severely Errored Seconds, encountered by a DS3 interface in the previous 24 hour interval. Invalid 15 minute intervals count as 0.
severelyErroredFramingSeconds	long	dsx3TotalSEFSs	The counter associated with the number of Severely Errored Framing Seconds, encountered by a DS3/E3 interface in the previous 24 hour interval. Invalid 15 minute intervals count as 0.
unavailableSeconds	long	dsx3TotalUASs	The counter associated with the number of Unavailable Seconds, encountered by a DS3 interface in the previous 24 hour interval. Invalid 15 minute intervals count as 0.

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5620 SAM counter name	Type	MIB counter name	Description
<b>CircuitDhcpRelayCfgStats</b> MIB table name: TIMETRA-SDP-MIB.sdpBindDhcpStatsTable Monitored class: svt.SdpBinding			
sdpBindDhcpStatsClntDropdPkts	long	sdpBindDhcpStatsClntDropdPkts	The value of the object sdpBindDhcpStatsClntDropdPkts indicates the number of DHCP client packets that have been dropped on this SDP bind.
sdpBindDhcpStatsClntForwdPkts	long	sdpBindDhcpStatsClntForwdPkts	The value of the object sdpBindDhcpStatsClntForwdPkts indicates the number of DHCP client packets that have been forwarded on this SDP bind.
sdpBindDhcpStatsClntProxLSPkts	long	sdpBindDhcpStatsClntProxLSPkts	The value of the object sdpBindDhcpStatsClntProxLSPkts indicates the number of DHCP client packets that have been proxied on this SDP bind based on a lease state. The lease itself can have been obtained from a DHCP or RADIUS server. This is the so called lease split functionality.
sdpBindDhcpStatsClntProxRadPkts	long	sdpBindDhcpStatsClntProxRadPkts	The value of the object sdpBindDhcpStatsClntProxRadPkts indicates the number of DHCP client packets that have been proxied on this SDP bind based on data received from a RADIUS server.
sdpBindDhcpStatsClntSnoopdPkts	long	sdpBindDhcpStatsClntSnoopdPkts	The value of the object sdpBindDhcpStatsClntSnoopdPkts indicates the number of DHCP client packets that have been snooped on this SDP bind.

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5620 SAM counter name	Type	MIB counter name	Description
sdpBindDhcpStatsGenForceRenPkts	long	sdpBindDhcpStatsGenForceRenPkts	The value of the object sdpBindDhcpStatsGenForceRenPkts indicates the number of DHCP FORCERENEW messages spoofed on this SDP bind to the DHCP clients.
sdpBindDhcpStatsGenReleasePkts	long	sdpBindDhcpStatsGenReleasePkts	The value of the object sdpBindDhcpStatsGenReleasePkts indicates the number of DHCP RELEASE messages spoofed on this SDP bind to the DHCP server.
sdpBindDhcpStatsSrvrDropdPkts	long	sdpBindDhcpStatsSrvrDropdPkts	The value of the object sdpBindDhcpStatsSrvrDropdPkts indicates the number of DHCP server packets that have been dropped on this SDP bind.
sdpBindDhcpStatsSrvrForwdPkts	long	sdpBindDhcpStatsSrvrForwdPkts	The value of the object sdpBindDhcpStatsSrvrForwdPkts indicates the number of DHCP server packets that have been forwarded on this SDP bind.
sdpBindDhcpStatsSrvrSnoopdPkts	long	sdpBindDhcpStatsSrvrSnoopdPkts	The value of the object sdpBindDhcpStatsSrvrSnoopdPkts indicates the number of DHCP server packets that have been snooped on this SDP bind.
<b>InterfacePimSnoopingStats</b> MIB table name: TIMETRA-PIM-SNOOPING-MIB.tmnxPimSnpgIfStatsTable Monitored class: vpls.InterfacePimSnooping			
tmnxPimSnpgIfJoinPolicyDrops	long	tmnxPimSnpgIfJoinPolicyDrops	The value of tmnxPimSnpgIfJoinPolicyDrops indicates the number of times the join policy match resulted in dropping PIM Join-Prune Message or one of the source group contained in the message.
tmnxPimSnpgIfRxBadChecksumDscrd	long	tmnxPimSnpgIfRxBadChecksumDscrd	The value of tmnxPimSnpgIfRxBadChecksumDscrd indicates the number of PIM messages received on this interface which were discarded because of bad checksum.
tmnxPimSnpgIfRxBadEncodings	long	tmnxPimSnpgIfRxBadEncodings	The value of tmnxPimSnpgIfRxBadEncodings indicates the number of PIM messages with bad encodings received on this interface.
tmnxPimSnpgIfRxBadVersionDscrd	long	tmnxPimSnpgIfRxBadVersionDscrd	The value of tmnxPimSnpgIfRxBadVersionDscrd indicates the number of PIM messages with bad versions received on this interface.
tmnxPimSnpgIfRxHellos	long	tmnxPimSnpgIfRxHellos	The value of tmnxPimSnpgIfRxHellos indicates the number of PIM hello messages received on this interface.
tmnxPimSnpgIfRxHellosDropped	long	tmnxPimSnpgIfRxHellosDropped	The value of tmnxPimSnpgIfRxHellosDropped indicates the number of PIM Hello messages which were received on this interface but were dropped.

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5620 SAM counter name	Type	MIB counter name	Description
tmnxPimSnpgIfRxJoinPruneErrs	long	tmnxPimSnpgIfRxJoinPruneErrs	The value of tmnxPimSnpgIfRxJoinPruneErrs indicates the number of errors while processing Join-Prune messages received on this interface.
tmnxPimSnpgIfRxJoinPrunes	long	tmnxPimSnpgIfRxJoinPrunes	The value of tmnxPimSnpgIfRxJoinPrunes indicates the number of PIM Join Prune messages received on this interface.
tmnxPimSnpgIfRxNbrUnknown	long	tmnxPimSnpgIfRxNbrUnknown	The value of tmnxPimSnpgIfRxNbrUnknown indicates the number of PIM messages (other than Hello messages) which were received on this interface and were rejected because the adjacency with the neighbor router was not already established.
tmnxPimSnpgIfRxPkts	long	tmnxPimSnpgIfRxPkts	The value of tmnxPimSnpgIfRxPkts indicates the number of multicast data packets received on this interface.
tmnxPimSnpgIfSGTypes	long	tmnxPimSnpgIfSGTypes	The value of tmnxPimSnpgIfSGTypes indicates the number of (S,G) entries in tmnxPimSnpgIfGrpSrcTable.
tmnxPimSnpgIfStarGTypes	long	tmnxPimSnpgIfStarGTypes	The value of tmnxPimSnpgIfStarGTypes indicates the number of (*,G) entries in tmnxPimSnpgIfGrpSrcTable.
tmnxPimSnpgIfTxJoinPrunes	long	tmnxPimSnpgIfTxJoinPrunes	The value of tmnxPimSnpgIfTxJoinPrunes indicates the number of PIM Join Prune messages transmitted on this interface.
tmnxPimSnpgIfTxPkts	long	tmnxPimSnpgIfTxPkts	The value of tmnxPimSnpgIfTxPkts indicates the number of multicast data packets transmitted on this interface.
<b>L2AccessInterfacelgmpSnpgErrorStats</b> MIB table name: ALCATEL-IGMP-SNOOPING-MIB.saplgmpSnpgStatsTable Monitored classes: <ul style="list-style-type: none"> <li>• vpls.AbstractL2AccessInterface</li> <li>• vpls.IL2AccessInterface</li> <li>• mvpls.IL2AccessInterface</li> </ul>			
saplgmpSnpgImportPolicyDrops	long	saplgmpSnpgImportPolicyDrops	The value of the object saplgmpSnpgImportPolicyDrops indicates the number of times an IGMP Group or Source is dropped because of applying an import policy on this SAP.
saplgmpSnpgMaxNumGroupsDrops	long	saplgmpSnpgMaxNumGroupsDrops	The value of the object saplgmpSnpgMaxNumGroupsDrops indicates the number of times an IGMP Group is dropped because of exceeding the configured maximum number of groups on this SAP.
saplgmpSnpgMaxNumSourcesDrops	long	saplgmpSnpgMaxNumSourcesDrops	The value of the object saplgmpSnpgMaxNumSourcesDrops indicates the number of times an IGMP Source is dropped because of exceeding the configured maximum number of sources per group on this SAP.

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5620 SAM counter name	Type	MIB counter name	Description
saplgmpSnpgMcacPolicyDrops	long	saplgmpSnpgMcacPolicyDrops	The value of the object saplgmpSnpgMcacPolicyDrops indicates the number of times an IGMP Group is dropped because of applying a multicast CAC policy on this SAP.
saplgmpSnpgMcsFailures	long	saplgmpSnpgMcsFailures	The value of the object saplgmpSnpgMcsFailures indicates the number of times an IGMP Group on this SAP could not be synced to the MCS (multi-chassis synchronization) database.
saplgmpSnpgRxBadEncodedPkts	long	saplgmpSnpgRxBadEncodedPkts	The value of the object saplgmpSnpgRxBadEncodedPkts indicates the number of IGMP packets dropped on this SAP because of a bad encoding.
saplgmpSnpgRxBadIgmpChksumPkts	long	saplgmpSnpgRxBadIgmpChksumPkts	The value of the object saplgmpSnpgRxBadIgmpChksumPkts indicates the number of dropped IGMP packets on this SAP because of a bad IGMP header checksum.
saplgmpSnpgRxBadIpChksumPkts	long	saplgmpSnpgRxBadIpChksumPkts	The value of the object saplgmpSnpgRxBadIpChksumPkts indicates the number of dropped IGMP packets on this SAP because of a bad IPv4 header checksum.
saplgmpSnpgRxBadLenPkts	long	saplgmpSnpgRxBadLenPkts	The value of the object saplgmpSnpgRxBadLenPkts indicates the number of IGMP packets dropped on this SAP because of a bad length.
saplgmpSnpgRxBadNoRtrAlertPkts	long	saplgmpSnpgRxBadNoRtrAlertPkts	The value of the object saplgmpSnpgRxBadNoRtrAlertPkts indicates the number of IGMP packets dropped on this SAP because the Router Alert Option in the IP packet is not set.
saplgmpSnpgRxBadWrongVersionPkts	long	saplgmpSnpgRxBadWrongVersionPkts	The value of the object saplgmpSnpgRxBadWrongVersionPkts indicates the total number of IGMP packets with a wrong version received on this SAP.
saplgmpSnpgRxBadZeroSrcAdrPkts	long	saplgmpSnpgRxBadZeroSrcAdrPkts	The value of the object saplgmpSnpgRxBadZeroSrcAdrPkts indicates the number of IGMP packets dropped on this SAP because they contain a zero source IPv4 address.
saplgmpSnpgSendQueryCfgDrops	long	saplgmpSnpgSendQueryCfgDrops	The value of the object saplgmpSnpgSendQueryCfgDrops indicates the number of times an IGMP Query is dropped because the object saplgmpSnpgSendQueryCfgDrops for this SAP is set to 'enabled(1)'.
<b>L2AccessInterfaceIgmpSnpgStats</b> MIB table name: ALCATEL-IGMP-SNOOPING-MIB.saplgmpSnpgStatsTable Monitored classes: <ul style="list-style-type: none"> <li>vpls.AbstractL2AccessInterface</li> <li>vpls.IL2AccessInterface</li> <li>mvpls.IL2AccessInterface</li> </ul>			

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5620 SAM counter name	Type	MIB counter name	Description
saplgmpSnpgFwdGenQueries	long	saplgmpSnpgFwdGenQueries	The value of the object saplgmpSnpgFwdGenQueries indicates the number of IGMP General Queries forwarded on this SAP.
saplgmpSnpgFwdGrpSpecQueries	long	saplgmpSnpgFwdGrpSpecQueries	The value of the object saplgmpSnpgFwdGrpSpecQueries indicates the number of IGMP Group-Specific Queries forwarded on this SAP.
saplgmpSnpgFwdSrcSpecQueries	long	saplgmpSnpgFwdSrcSpecQueries	The value of the object saplgmpSnpgFwdSrcSpecQueries indicates the number of IGMP Group-And-Source-Specific Queries forwarded on this SAP.
saplgmpSnpgFwdUnknownType	long	saplgmpSnpgFwdUnknownType	The value of the object saplgmpSnpgFwdUnknownType indicates the number of IGMP unknown type packets forwarded on this SAP.
saplgmpSnpgFwdV1Reports	long	saplgmpSnpgFwdV1Reports	The value of the object saplgmpSnpgFwdV1Reports indicates the number of IGMPv1 Reports forwarded on this SAP.
saplgmpSnpgFwdV2Leaves	long	saplgmpSnpgFwdV2Leaves	The value of the object saplgmpSnpgFwdV2Leaves indicates the number of IGMPv2 Leaves forwarded on this SAP.
saplgmpSnpgFwdV2Reports	long	saplgmpSnpgFwdV2Reports	The value of the object saplgmpSnpgFwdV2Reports indicates the number of IGMPv2 Reports forwarded on this SAP.
saplgmpSnpgFwdV3Reports	long	saplgmpSnpgFwdV3Reports	The value of the object saplgmpSnpgFwdV3Reports indicates the number of IGMPv3 Reports forwarded on this SAP.
saplgmpSnpgRxGenQueries	long	saplgmpSnpgRxGenQueries	The value of the object saplgmpSnpgRxGenQueries indicates the number of IGMP General Queries received on this SAP.
saplgmpSnpgRxGrpSpecQueries	long	saplgmpSnpgRxGrpSpecQueries	The value of the object saplgmpSnpgRxGrpSpecQueries indicates the number of IGMP Group-Specific Queries received on this SAP.
saplgmpSnpgRxSrcSpecQueries	long	saplgmpSnpgRxSrcSpecQueries	The value of the object saplgmpSnpgRxSrcSpecQueries indicates the number of IGMP Group-And-Source-Specific Queries received on this SAP.
saplgmpSnpgRxUnknownType	long	saplgmpSnpgRxUnknownType	The value of the object saplgmpSnpgRxUnknownType indicates the number of IGMP unknown type packets received on this SAP.
saplgmpSnpgRxV1Reports	long	saplgmpSnpgRxV1Reports	The value of the object saplgmpSnpgRxV1Reports indicates the number of IGMPv1 Reports received on this SAP.

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5620 SAM counter name	Type	MIB counter name	Description
saplgmpSnpgRxV2Leaves	long	saplgmpSnpgRxV2Leaves	The value of the object saplgmpSnpgRxV2Leaves indicates the number of IGMPv2 Leaves received on this SAP.
saplgmpSnpgRxV2Reports	long	saplgmpSnpgRxV2Reports	The value of the object saplgmpSnpgRxV2Reports indicates the number of IGMPv2 Reports received on this SAP.
saplgmpSnpgRxV3Reports	long	saplgmpSnpgRxV3Reports	The value of the object saplgmpSnpgRxV3Reports indicates the number of IGMPv3 Reports received on this SAP.
saplgmpSnpgTxGenQueries	long	saplgmpSnpgTxGenQueries	The value of the object saplgmpSnpgTxGenQueries indicates the number of IGMP General Queries transmitted on this SAP.
saplgmpSnpgTxGrpSpecQueries	long	saplgmpSnpgTxGrpSpecQueries	The value of the object saplgmpSnpgTxGrpSpecQueries indicates the number of IGMP Group-Specific Queries transmitted on this SAP.
saplgmpSnpgTxSrcSpecQueries	long	saplgmpSnpgTxSrcSpecQueries	The value of the object saplgmpSnpgTxSrcSpecQueries indicates the number of IGMP Group-And-Source-Specific Queries transmitted on this SAP.
saplgmpSnpgTxV1Reports	long	saplgmpSnpgTxV1Reports	The value of the object saplgmpSnpgTxV1Reports indicates the number of IGMPv1 Reports transmitted on this SAP.
saplgmpSnpgTxV2Leaves	long	saplgmpSnpgTxV2Leaves	The value of the object saplgmpSnpgTxV2Leaves indicates the number of IGMPv2 Leaves transmitted on this SAP.
saplgmpSnpgTxV2Reports	long	saplgmpSnpgTxV2Reports	The value of the object saplgmpSnpgTxV2Reports indicates the number of IGMPv2 Reports transmitted on this SAP.
saplgmpSnpgTxV3Reports	long	saplgmpSnpgTxV3Reports	The value of the object saplgmpSnpgTxV3Reports indicates the number of IGMPv3 Reports transmitted on this SAP.
<b>L2AccessInterfaceMldMvrStats</b> MIB table name: TIMETRA-MLD-SNOOPING-MIB.sapMldSnpgStatsTable Monitored class: vpls.AbstractL2AccessInterface			
sapMldSnpgMvrFromVplsCfgDrops	long	sapMldSnpgMvrFromVplsCfgDrops	The value of the object sapMldSnpgMvrFromVplsCfgDrops indicates the number of times an MLD group or Query is dropped because of applying the sapMldSnpgCfgMvrFromVplsId configuration on this SAP.

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5620 SAM counter name	Type	MIB counter name	Description
sapMldSnpgMvrToSapCfgDrops	long	sapMldSnpgMvrToSapCfgDrops	The value of the object sapMldSnpgMvrToSapCfgDrops indicates the number times an MLD Report or Query is dropped because of applying the sapMldSnpgCfgMvrToSapPortId and sapMldSnpgCfgMvrToSapEncapVal configuration on this SAP.
<b>L2AccessInterfaceMldSnpgErrorStats</b> MIB table name: TIMETRA-MLD-SNOOPING-MIB.sapMldSnpgStatsTable Monitored class: vpls.AbstractL2AccessInterface			
sapMldSnpgImportPolicyDrops	long	sapMldSnpgImportPolicyDrops	The value of the object sapMldSnpgImportPolicyDrops indicates the number of times an MLD group or source is dropped because of applying an import policy on this SAP.
sapMldSnpgMaxNumGroupsDrops	long	sapMldSnpgMaxNumGroupsDrops	The value of the object sapMldSnpgMaxNumGroupsDrops indicates the number of times an MLD group is dropped because of exceeding the configured maximum number of groups on this SAP.
sapMldSnpgMcsFailures	long	sapMldSnpgMcsFailures	The value of the object sapMldSnpgMcsFailures indicates the number of times an MLD group on this SAP could not be synced to the MCS (multi-chassis synchronization) database.
sapMldSnpgRxBadEncodedPkts	long	sapMldSnpgRxBadEncodedPkts	The value of the object sapMldSnpgRxBadEncodedPkts indicates the number of MLD packets dropped on this SAP because of a bad encoding.
sapMldSnpgRxBadLenPkts	long	sapMldSnpgRxBadLenPkts	The value of the object sapMldSnpgRxBadLenPkts indicates the number of MLD packets dropped on this SAP because of a bad length.
sapMldSnpgRxBadMldChksumPkts	long	sapMldSnpgRxBadMldChksumPkts	The value of the object sapMldSnpgRxBadMldChksumPkts indicates the number of dropped MLD packets on this SAP because of a bad MLD header checksum.
sapMldSnpgRxNoRtrAlertPkts	long	sapMldSnpgRxNoRtrAlertPkts	The value of the object sapMldSnpgRxNoRtrAlertPkts indicates the number of MLD packets dropped on this SAP because the Router Alert Option in the IP packet is not set.
sapMldSnpgRxWrongVersionPkts	long	sapMldSnpgRxWrongVersionPkts	The value of the object sapMldSnpgRxWrongVersionPkts indicates the total number of MLD packets with a wrong version received on this SAP.
sapMldSnpgRxZeroSrcAdrPkts	long	sapMldSnpgRxZeroSrcAdrPkts	The value of the object sapMldSnpgRxZeroSrcAdrPkts indicates the number of MLD packets dropped on this SAP because they contain a zero source IPv6 address.

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5620 SAM counter name	Type	MIB counter name	Description
sapMldSnpgSendQueryCfgDrops	long	sapMldSnpgSendQueryCfgDrops	The value of the object sapMldSnpgSendQueryCfgDrops indicates the number of times an MLD Query is dropped because the object sapMldSnpgCfgSendQueries for this SAP is set to 'inService(2)'.
<b>L2AccessInterfaceMldSnpgStats</b> MIB table name: TIMETRA-MLD-SNOOPING-MIB.sapMldSnpgStatsTable Monitored class: vpls.AbstractL2AccessInterface			
sapMldSnpgFwdGenQueries	long	sapMldSnpgFwdGenQueries	The value of the object sapMldSnpgFwdGenQueries indicates the number of MLD General Queries forwarded on this SAP.
sapMldSnpgFwdGrpSpecQueries	long	sapMldSnpgFwdGrpSpecQueries	The value of the object sapMldSnpgFwdGrpSpecQueries indicates the number of MLD Group-Specific Queries forwarded on this SAP.
sapMldSnpgFwdSrcSpecQueries	long	sapMldSnpgFwdSrcSpecQueries	The value of the object sapMldSnpgFwdSrcSpecQueries indicates the number of MLD Group-And-Source-Specific Queries forwarded on this SAP.
sapMldSnpgFwdUnknownType	long	sapMldSnpgFwdUnknownType	The value of the object sapMldSnpgFwdUnknownType indicates the number of MLD unknown type packets forwarded on this SAP.
sapMldSnpgFwdV1Leaves	long	sapMldSnpgFwdV1Leaves	The value of the object sapMldSnpgFwdV1Leaves indicates the number of MLDv1 Leaves forwarded on this SAP.
sapMldSnpgFwdV1Reports	long	sapMldSnpgFwdV1Reports	The value of the object sapMldSnpgFwdV1Reports indicates the number of MLDv1 Reports forwarded on this SAP.
sapMldSnpgFwdV2Reports	long	sapMldSnpgFwdV2Reports	The value of the object sapMldSnpgFwdV2Reports indicates the number of MLDv2 Reports forwarded on this SAP.
sapMldSnpgRxGenQueries	long	sapMldSnpgRxGenQueries	The value of the object sapMldSnpgRxGenQueries indicates the number of MLD General Queries received on this SAP.
sapMldSnpgRxGrpSpecQueries	long	sapMldSnpgRxGrpSpecQueries	The value of the object sapMldSnpgRxGrpSpecQueries indicates the number of MLD Group-Specific Queries received on this SAP.
sapMldSnpgRxLocalScopePkts	long	sapMldSnpgRxLocalScopePkts	The value of the object sapMldSnpgRxLocalScopePkts indicates the number of MLD packets received on the link-local scope IPv6 multicast address.

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5620 SAM counter name	Type	MIB counter name	Description
sapMldSnpgRxRsvdScopePkts	long	sapMldSnpgRxRsvdScopePkts	The value of the object sapMldSnpgRxRsvdScopePkts indicates the number of MLD packets received on the reserved scope IPv6 multicast address.
sapMldSnpgRxSrcSpecQueries	long	sapMldSnpgRxSrcSpecQueries	The value of the object sapMldSnpgRxSrcSpecQueries indicates the number of MLD Group-And-Source-Specific Queries received on this SAP.
sapMldSnpgRxUnknownType	long	sapMldSnpgRxUnknownType	The value of the object sapMldSnpgRxUnknownType indicates the number of MLD unknown type packets received on this SAP.
sapMldSnpgRxV1Leaves	long	sapMldSnpgRxV1Leaves	The value of the object sapMldSnpgRxV1Leaves indicates the number of MLDv1 Leaves received on this SAP.
sapMldSnpgRxV1Reports	long	sapMldSnpgRxV1Reports	The value of the object sapMldSnpgRxV1Reports indicates the number of MLDv1 Reports received on this SAP.
sapMldSnpgRxV2Reports	long	sapMldSnpgRxV2Reports	The value of the object sapMldSnpgRxV2Reports indicates the number of MLDv2 Reports received on this SAP.
sapMldSnpgTxGenQueries	long	sapMldSnpgTxGenQueries	The value of the object sapMldSnpgTxGenQueries indicates the number of MLD General Queries transmitted on this SAP.
sapMldSnpgTxGrpSpecQueries	long	sapMldSnpgTxGrpSpecQueries	The value of the object sapMldSnpgTxGrpSpecQueries indicates the number of MLD Group-Specific Queries transmitted on this SAP.
sapMldSnpgTxSrcSpecQueries	long	sapMldSnpgTxSrcSpecQueries	The value of the object sapMldSnpgTxSrcSpecQueries indicates the number of MLD Group-And-Source-Specific Queries transmitted on this SAP.
sapMldSnpgTxV1Leaves	long	sapMldSnpgTxV1Leaves	The value of the object sapMldSnpgTxV1Leaves indicates the number of MLDv1 Leaves transmitted on this SAP.
sapMldSnpgTxV1Reports	long	sapMldSnpgTxV1Reports	The value of the object sapMldSnpgTxV1Reports indicates the number of MLDv1 Reports transmitted on this SAP.
sapMldSnpgTxV2Reports	long	sapMldSnpgTxV2Reports	The value of the object sapMldSnpgTxV2Reports indicates the number of MLDv2 Reports transmitted on this SAP.
<b>L2AccessInterfaceMvrStats</b> MIB table name: ALCATEL-IGMP-SNOOPING-MIB.sapIgmppSnpgStatsTable Monitored class: vpls.AbstractL2AccessInterface			

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5620 SAM counter name	Type	MIB counter name	Description
saplgmpSnpMvrFromVplsCfgDrops	long	saplgmpSnpMvrFromVplsCfgDrops	The value of the object saplgmpSnpMvrFromVplsCfgDrops indicates the number of times an IGMP Group or Query is dropped because of applying the saplgmpSnpMvrFromVplsCfg configuration on this SAP.
saplgmpSnpMvrToSapCfgDrops	long	saplgmpSnpMvrToSapCfgDrops	The value of the object saplgmpSnpMvrToSapCfgDrops indicates the number times an IGMP Report or Query is dropped because of applying the saplgmpSnpMvrToSapPortId and saplgmpSnpMvrToSapEncapVal configuration on this SAP.
<b>L2AccessIfDhcpRelayCfgStats</b> MIB table name: TIMETRA-SAP-MIB.sapTlsDhcpStatsTable Monitored class: vpls.AbstractL2AccessInterface			
sapTlsDhcpStatsClntDropPckts	long	sapTlsDhcpStatsClntDropPckts	The value of the object sapTlsDhcpStatsClntDropPckts indicates the number of DHCP client packets that have been dropped on this SAP.
sapTlsDhcpStatsClntForwPckts	long	sapTlsDhcpStatsClntForwPckts	The value of the object sapTlsDhcpStatsClntForwPckts indicates the number of DHCP client packets that have been forwarded on this SAP.
sapTlsDhcpStatsClntProxLSPckts	long	sapTlsDhcpStatsClntProxLSPckts	The value of the object sapTlsDhcpStatsClntProxLSPckts indicates the number of DHCP client packets that have been proxied on this SAP based on a lease state. The lease itself can have been obtained from a DHCP or RADIUS server. This is the so called lease split functionality.
sapTlsDhcpStatsClntProxRadPckts	long	sapTlsDhcpStatsClntProxRadPckts	The value of the object sapTlsDhcpStatsClntProxRadPckts indicates the number of DHCP client packets that have been proxied on this SAP based on data received from a RADIUS server.
sapTlsDhcpStatsClntSnoopPckts	long	sapTlsDhcpStatsClntSnoopPckts	The value of the object sapTlsDhcpStatsClntSnoopPckts indicates the number of DHCP client packets that have been snooped on this SAP.
sapTlsDhcpStatsGenForceRenPckts	long	sapTlsDhcpStatsGenForceRenPckts	The value of the object sapTlsDhcpStatsGenForceRenPckts indicates the number of DHCP FORCERENEW messages spoofed on this SAP to the DHCP clients.
sapTlsDhcpStatsGenReleasePckts	long	sapTlsDhcpStatsGenReleasePckts	The value of the object sapTlsDhcpStatsGenReleasePckts indicates the number of DHCP RELEASE messages spoofed on this SAP to the DHCP server.

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5620 SAM counter name	Type	MIB counter name	Description
sapTlsDhcpStatsSrvrDropdPkts	long	sapTlsDhcpStatsSrvrDropdPkts	The value of the object sapTlsDhcpStatsSrvrDropdPkts indicates the number of DHCP server packets that have been dropped on this SAP.
sapTlsDhcpStatsSrvrForwdPkts	long	sapTlsDhcpStatsSrvrForwdPkts	The value of the object sapTlsDhcpStatsSrvrForwdPkts indicates the number of DHCP server packets that have been forwarded on this SAP.
sapTlsDhcpStatsSrvrSnoopdPkts	long	sapTlsDhcpStatsSrvrSnoopdPkts	The value of the object sapTlsDhcpStatsSrvrSnoopdPkts indicates the number of DHCP server packets that have been snooped on this SAP.
<b>SdpBindingMldSnpgErrorStats</b> MIB table name: TIMETRA-MLD-SNOOPING-MIB.sdpBindMldSnpgStatsTable Monitored class: vpls.SdpBindingMldSnpgCfg			
sdpBndMldSnpgImportPolicyDrops	long	sdpBndMldSnpgImportPolicyDrops	The value of the object sdpBndMldSnpgImportPolicyDrops indicates the number of times an MLD group or source is dropped because of applying an import policy on this SDP Bind.
sdpBndMldSnpgMaxNumGroupsDrops	long	sdpBndMldSnpgMaxNumGroupsDrops	The value of the object sdpBndMldSnpgMaxNumGroupsDrops indicates the number of times an MLD group is dropped because of exceeding the configured maximum number of groups on this SDP Bind.
sdpBndMldSnpgRxBadEncodedPkts	long	sdpBndMldSnpgRxBadEncodedPkts	The value of the object sdpBndMldSnpgRxBadEncodedPkts indicates the number of MLD packets dropped on this SDP Bind because of a bad encoding.
sdpBndMldSnpgRxBadLenPkts	long	sdpBndMldSnpgRxBadLenPkts	The value of the object sdpBndMldSnpgRxBadLenPkts indicates the number of MLD packets dropped on this SDP Bind because of a bad length.
sdpBndMldSnpgRxBadMldChksumPkts	long	sdpBndMldSnpgRxBadMldChksumPkts	The value of the object sdpBndMldSnpgRxBadMldChksumPkts indicates the number of dropped MLD packets on this SDP Bind because of a bad MLD header checksum.
sdpBndMldSnpgRxLocalScopePkts	long	sdpBndMldSnpgRxLocalScopePkts	The value of the object sdpBndMldSnpgRxLocalScopePkts indicates the number of MLD packets received on the link-local scope IPv6 multicast address.
sdpBndMldSnpgRxNoRtrAlertPkts	long	sdpBndMldSnpgRxNoRtrAlertPkts	The value of the object sdpBndMldSnpgRxNoRtrAlertPkts indicates the number of MLD packets dropped on this SDP Bind because the Router Alert Option in the IP packet is not set.

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5620 SAM counter name	Type	MIB counter name	Description
sdpBndMldSnpgRxRsvdScopePkts	long	sdpBndMldSnpgRxRsvdScopePkts	The value of the object sdpBndMldSnpgRxRsvdScopePkts indicates the number of MLD packets received on the reserved scope IPv6 multicast address.
sdpBndMldSnpgRxWrongVersionPkts	long	sdpBndMldSnpgRxWrongVersionPkts	The value of the object sdpBndMldSnpgRxWrongVersionPkts indicates the total number of MLD packets with a wrong version received on this SDP Bind.
sdpBndMldSnpgRxZeroSrcAdrPkts	long	sdpBndMldSnpgRxZeroSrcAdrPkts	The value of the object sdpBndMldSnpgRxZeroSrcAdrPkts indicates the number of MLD packets dropped on this SDP Bind because they contain a zero source IPv6 address.
sdpBndMldSnpgSendQueryCfgDrops	long	sdpBndMldSnpgSendQueryCfgDrops	The value of the object sdpBndMldSnpgSendQueryCfgDrops indicates the number of times an MLD Query is dropped because the object sdpBndMldSnpgCfgSendQueries for this SDP Bind is set to 'inService(2)'.
<b>SdpBindingMldSnpgStats</b> MIB table name: TIMETRA-MLD-SNOOPING-MIB.sdpBindMldSnpgStatsTable Monitored class: vpls.SdpBindingMldSnpgCfg			
sdpBndMldSnpgFwdGenQueries	long	sdpBndMldSnpgFwdGenQueries	The value of the object sdpBndMldSnpgFwdGenQueries indicates the number of MLD General Queries forwarded on this SDP Bind.
sdpBndMldSnpgFwdGrpSpecQueries	long	sdpBndMldSnpgFwdGrpSpecQueries	The value of the object sdpBndMldSnpgFwdGrpSpecQueries indicates the number of MLD Group-Specific Queries forwarded on this SDP Bind.
sdpBndMldSnpgFwdSrcSpecQueries	long	sdpBndMldSnpgFwdSrcSpecQueries	The value of the object sdpBndMldSnpgFwdSrcSpecQueries indicates the number of MLD Group-And-Source-Specific Queries forwarded on this SDP Bind.
sdpBndMldSnpgFwdUnknownType	long	sdpBndMldSnpgFwdUnknownType	The value of the object sdpBndMldSnpgFwdUnknownType indicates the number of MLD unknown type packets forwarded on this SDP Bind.
sdpBndMldSnpgFwdV1Leaves	long	sdpBndMldSnpgFwdV1Leaves	The value of the object sdpBndMldSnpgFwdV1Leaves indicates the number of MLDv1 Leaves forwarded on this SDP Bind.
sdpBndMldSnpgFwdV1Reports	long	sdpBndMldSnpgFwdV1Reports	The value of the object sdpBndMldSnpgFwdV1Reports indicates the number of MLDv1 Reports forwarded on this SDP Bind.
sdpBndMldSnpgFwdV2Reports	long	sdpBndMldSnpgFwdV2Reports	The value of the object sdpBndMldSnpgFwdV2Reports indicates the number of MLDv2 Reports forwarded on this SDP Bind.

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5620 SAM counter name	Type	MIB counter name	Description
sdpBndMldSnpgRxGenQueries	long	sdpBndMldSnpgRxGenQueries	The value of the object sdpBndMldSnpgRxGenQueries indicates the number of MLD General Queries received on this SDP Bind.
sdpBndMldSnpgRxGrpSpecQueries	long	sdpBndMldSnpgRxGrpSpecQueries	The value of the object sdpBndMldSnpgRxGrpSpecQueries indicates the number of MLD Group-Specific Queries received on this SDP Bind.
sdpBndMldSnpgRxSrcSpecQueries	long	sdpBndMldSnpgRxSrcSpecQueries	The value of the object sdpBndMldSnpgRxSrcSpecQueries indicates the number of MLD Group-And-Source-Specific Queries received on this SDP Bind.
sdpBndMldSnpgRxUnknownType	long	sdpBndMldSnpgRxUnknownType	The value of the object sdpBndMldSnpgRxUnknownType indicates the number of MLD unknown type packets received on this SDP Bind.
sdpBndMldSnpgRxV1Leaves	long	sdpBndMldSnpgRxV1Leaves	The value of the object sdpBndMldSnpgRxV1Leaves indicates the number of MLDv1 Leaves received on this SDP Bind.
sdpBndMldSnpgRxV1Reports	long	sdpBndMldSnpgRxV1Reports	The value of the object sdpBndMldSnpgRxV1Reports indicates the number of MLDv1 Reports received on this SDP Bind.
sdpBndMldSnpgRxV2Reports	long	sdpBndMldSnpgRxV2Reports	The value of the object sdpBndMldSnpgRxV2Reports indicates the number of MLDv2 Reports received on this SDP Bind.
sdpBndMldSnpgTxGenQueries	long	sdpBndMldSnpgTxGenQueries	The value of the object sdpBndMldSnpgTxGenQueries indicates the number of MLD General Queries transmitted on this SDP Bind.
sdpBndMldSnpgTxGrpSpecQueries	long	sdpBndMldSnpgTxGrpSpecQueries	The value of the object sdpBndMldSnpgTxGrpSpecQueries indicates the number of MLD Group-Specific Queries transmitted on this SDP Bind.
sdpBndMldSnpgTxSrcSpecQueries	long	sdpBndMldSnpgTxSrcSpecQueries	The value of the object sdpBndMldSnpgTxSrcSpecQueries indicates the number of MLD Group-And-Source-Specific Queries transmitted on this SDP Bind.
sdpBndMldSnpgTxV1Leaves	long	sdpBndMldSnpgTxV1Leaves	The value of the object sdpBndMldSnpgTxV1Leaves indicates the number of MLDv1 Leaves transmitted on this SDP Bind.
sdpBndMldSnpgTxV1Reports	long	sdpBndMldSnpgTxV1Reports	The value of the object sdpBndMldSnpgTxV1Reports indicates the number of MLDv1 Reports transmitted on this SDP Bind.
sdpBndMldSnpgTxV2Reports	long	sdpBndMldSnpgTxV2Reports	The value of the object sdpBndMldSnpgTxV2Reports indicates the number of MLDv2 Reports transmitted on this SDP Bind.

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5620 SAM counter name	Type	MIB counter name	Description
<b>SitePimSnoopingStats</b> MIB table name: TIMETRA-PIM-SNOOPING-MIB.tmnxPimSnpgGenStatsTable Monitored class: vpls.SitePimSnooping			
numSGTypes	long	tmnxPimSnpgGenStatsSGTypes	The value of tmnxPimSnpgGenStatsSGTypes indicates the number of entries in tmnxPimSnpgGrpSrcTable for which the source type is 'sg'.
numStarGTypes	long	tmnxPimSnpgGenStatsStarGTypes	The value of tmnxPimSnpgGenStatsStarGTypes indicates the number of entries in tmnxPimSnpgGrpSrcTable for which the source type is 'starG'.
<b>SiteSourceGroupRecordPimSnoopingStats</b> MIB table name: TIMETRA-PIM-SNOOPING-MIB.tmnxPimSnpgGrpSrcStatsTable Monitored classes: <ul style="list-style-type: none"> <li>vpls.SiteSourceGroupRecord</li> <li>vpls.SitePimSnooping</li> </ul>			
tmnxPimSnpgGrpSrcStatsFwdedOct	long	tmnxPimSnpgGrpSrcStatsFwdedOct	The value of tmnxPimSnpgGrpSrcStatsFwdedOct indicates the number of multicast octets that were forwarded to the interfaces in the outgoing interface list. tmnxPimSnpgGrpSrcIfTable lists all the interfaces in the outgoing interface list.
tmnxPimSnpgGrpSrcStatsFwdedPkts	long	tmnxPimSnpgGrpSrcStatsFwdedPkts	The value of tmnxPimSnpgGrpSrcStatsFwdedPkts indicates the number of multicast packets that were forwarded to the interfaces in the outgoing interface list. tmnxPimSnpgGrpSrcIfTable lists all the interfaces in the outgoing interface list.

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Table A-55 vrrp statistics

5620 SAM counter name	Type	MIB counter name	Description
<b>InstanceAdditionalStats</b> MIB table name: TIMETRA-VRRP-MIB.tmnxVrrpRouterStatsTable Monitored class: vrrp.Instance			
addressListDiscards	long	tmnxVrrpStatsAddressListDiscards	The total number of VRRP advertisement packets discarded because the address list did not match the locally configured list for the virtual router.
advertiseIntervalDiscards	long	tmnxVrrpStatsAdvertiseIntervalDiscards	The total number of VRRP advertisement packets discarded because the advertisement interval in the received packet was different than the one configured for the local virtual router.
advertiseSent	long	tmnxVrrpStatsAdvertiseSent	The total number of VRRP advertisements sent by this virtual router.

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5620 SAM counter name	Type	MIB counter name	Description
masterChanges	long	tmnxVrrpStatsMasterChanges	The value for tmnxVrrpStatsMasterChanges specifies the total number of times the virtual router has seen the master virtual router change.
preemptedEvents	long	tmnxVrrpStatsPreemptedEvents	The value for tmnxVrrpStatsPreemptedEvents specifies the total number of times the virtual router has been preempted by another non-owner master with higher priority.
preemptEvents	long	tmnxVrrpStatsPreemptEvents	The value for tmnxVrrpStatsPreemptEvents specifies the total number of times the virtual router has preempted another non-owner master with lower priority.
totalDiscards	long	tmnxVrrpStatsTotalDiscards	The total number of VRRP advertisement packets discarded for any reason. This includes the packets discarded due to advertise interval mismatch and address list mismatch.
<b>InstanceStats</b> MIB table name: VRRP-MIB.vrrpRouterStatsTable Monitored class: vrrp.Instance			
addressListErrors	long	vrrpStatsAddressListErrors	The total number of packets received for which the address list does not match the locally configured list for the virtual router.
advertiseIntervalErrors	long	vrrpStatsAdvertiseIntervalErrors	The total number of VRRP advertisement packets received for which the advertisement interval is different than the one configured for the local virtual router.
advertiseRcvd	long	vrrpStatsAdvertiseRcvd	The total number of VRRP advertisements received by this virtual router.
authFailures	long	vrrpStatsAuthFailures	The total number of VRRP packets received that do not pass the authentication check.
authTypeMismatch	long	vrrpStatsAuthTypeMismatch	The total number of packets received with 'Auth Type' not equal to the locally configured authentication method ('vrrpOperAuthType').
becomeMaster	long	vrrpStatsBecomeMaster	The total number of times that this virtual router's state has transitioned to MASTER.
invalidAuthType	long	vrrpStatsInvalidAuthType	The total number of packets received with an unknown authentication type.
invalidTypePktsRcvd	long	vrrpStatsInvalidTypePktsRcvd	The number of VRRP packets received by the virtual router with an invalid value in the 'type' field.
ipTtlErrors	long	vrrpStatsIpTtlErrors	The total number of VRRP packets received by the virtual router with IP TTL (Time-To-Live) not equal to 255.

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5620 SAM counter name	Type	MIB counter name	Description
packetLengthErrors	long	vrrpStatsPacketLengthErrors	The total number of packets received with a packet length less than the length of the VRRP header.
priorityZeroPktsRcvd	long	vrrpStatsPriorityZeroPktsRcvd	The total number of VRRP packets received by the virtual router with a priority of '0'.
priorityZeroPktsSent	long	vrrpStatsPriorityZeroPktsSent	The total number of VRRP packets sent by the virtual router with a priority of '0'.
<b>InstanceV6AdditionalStats</b> MIB table name: TIMETRA-VRRP-MIB.tVrrpRtrStatisticsTable Monitored class: vrrp.InstanceV6			
advertiseIntervalDiscards	long	tVrrpStatAdvIntvlDiscards	The value of tVrrpStatAdvIntvlDiscards indicates the total number of VRRP advertisement packets discarded because the advertisement interval in the received packet was different than the one configured for the local virtual router.
advertiseSent	long	tVrrpStatAdvertiseSent	The value of tVrrpStatAdvertiseSent indicates the total number of VRRP advertisements sent by this virtual router.
masterChanges	long	tVrrpStatMasterChanges	The value for tVrrpStatMasterChanges indicates the total number of times the virtual router has seen the master virtual router change.
preemptedEvents	long	tVrrpStatPreemptedEvents	The value for tVrrpStatPreemptedEvents indicates the total number of times the virtual router has been preempted by another non-owner master with higher priority.
preemptEvents	long	tVrrpStatPreemptEvents	The value for tVrrpStatPreemptEvents indicates the total number of times the virtual router has preempted another non-owner master with lower priority.
totalDiscards	long	tVrrpStatTotalDiscards	The value of tVrrpStatTotalDiscards indicates the total number of VRRP advertisement packets discarded for any reason. This includes the packets discarded due to advertise interval mismatch and address list mismatch.
<b>InstanceV6Stats</b> MIB table name: TIMETRA-VRRP-V3-MIB.vrrpRouterStatisticsTable Monitored class: vrrp.InstanceV6			
addressListErrors	long	vrrpStatisticsAddressListErrors	The total number of packets received for which the address list does not match the locally configured list for the virtual router. Discontinuities in the value of this counter can occur at re-initialization of the management system, and at other times as indicated by the value of vrrpStatisticsDiscontinuityTime.

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5620 SAM counter name	Type	MIB counter name	Description
advertiseIntervalErrors	long	vrpStatisticsAdvIntervalErrors	The total number of VRRP advertisement packets received for which the advertisement interval is different than the one configured for the local virtual router. Discontinuities in the value of this counter can occur at re-initialization of the management system, and at other times as indicated by the value of vrrpStatisticsDiscontinuityTime.
advertiseRcvd	long	vrpStatisticsRcvdAdvertisements	The total number of VRRP advertisements received by this virtual router. Discontinuities in the value of this counter can occur at re-initialization of the management system, and at other times as indicated by the value of vrrpStatisticsDiscontinuityTime.
becomeMaster	long	vrpStatisticsMasterTransitions	The total number of times that this virtual router's state has transitioned to MASTER. Discontinuities in the value of this counter can occur at re-initialization of the management system, and at other times as indicated by the value of vrrpStatisticsDiscontinuityTime.
invalidAuthType	long	vrpStatisticsRcvdInvalidAuthentications	The total number of packets received with an unknown authentication type. REFERENCE RFC3768 Section 5.3.6.
invalidTypePktsRcvd	long	vrpStatisticsRcvdInvalidTypePkts	The number of VRRP packets received by the virtual router with an invalid value in the 'type' field. Discontinuities in the value of this counter can occur at re-initialization of the management system, and at other times as indicated by the value of vrrpStatisticsDiscontinuityTime.
ipTtlErrors	long	vrpStatisticsIpTtlErrors	The total number of VRRP packets received by the Virtual router with IPv4 TTL (for VRRP over IPv4) or IPv6 Hop Limit (for VRRP over IPv6) not equal to 255. Discontinuities in the value of this counter can occur at re-initialization of the management system, and at other times as indicated by the value of vrrpStatisticsDiscontinuityTime. REFERENCE RFC3768 Section 5.2.3.
packetLengthErrors	long	vrpStatisticsPacketLengthErrors	The total number of packets received with a packet length less than the length of the VRRP header. Discontinuities in the value of this counter can occur at re-initialization of the management system, and at other times as indicated by the value of vrrpStatisticsDiscontinuityTime.

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5620 SAM counter name	Type	MIB counter name	Description
priorityZeroPktsRcvd	long	vrpStatisticsRcvdPriZero Packets	The total number of VRRP packets received by the virtual router with a priority of '0'. Discontinuities in the value of this counter can occur at re-initialization of the management system, and at other times as indicated by the value of vrrpStatisticsDiscontinuityTime. REFERENCE RFC3768 Section 5.3.4.
priorityZeroPktsSent	long	vrpStatisticsSentPriZero Packets	The total number of VRRP packets sent by the virtual router with a priority of '0'. Discontinuities in the value of this counter can occur at re-initialization of the management system, and at other times as indicated by the value of vrrpStatisticsDiscontinuityTime. REFERENCE RFC3768 Section 5.3.4.

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## ***B. 9471 MME statistics counters***

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### **B.1 9471 MME PM statistics counters    B-2**

## B.1 9471 MME PM statistics counters

This appendix lists in tabular form the PM statistics counters that the 5620 SAM supports for the 9471 MME. Each counter table corresponds to a 5620 SAM Statistics Record form, and contains the counters that are displayed on the form. Each counter table contains the following information:

- 5620 SAM GUI counter names
- 9471 MME 3GPP counter names
- the monitored object class in *package.class* format

In the 5620 SAM schema, 9471 MME PM statistics counters are organized into classes. Use the 3GPP name as listed in this appendix to map 9471 MME PM statistics counters as represented in the 5620 SAM to their equivalents in the device database and documentation. See *9471 Mobility Management Entity | LMx.x Observation Counters 418-111-209* for a detailed listing of 9471 MME PM counters.

Table B-1 lists each statistics class and the associated statistics-counter table.

**Table B-1 Statistics classes and counter tables**

Counter class name	See
CFG Reliable Cluster Computing Virtual Machine Stats	<a href="#">B-2</a>
Card CPU Stats	<a href="#">B-3</a>
HUB CPU Stats	<a href="#">B-4</a>
MAF Authentication Stats	<a href="#">B-5</a>
MAF Bearer Session Management Stats	<a href="#">B-6</a>
MAF Broadcast Warning Message Stats	<a href="#">B-7</a>
MAF CPU Stats	<a href="#">B-8</a>
MAF Capacity Stats	<a href="#">B-9</a>
MAF Connection Stats	<a href="#">B-10</a>
MAF DNS Stats	<a href="#">B-11</a>
MAF Dedicated Bearer Stats	<a href="#">B-12</a>
MAF Handover Stats	<a href="#">B-13</a>
MAF Interface Stats	<a href="#">B-14</a>
MAF Lawful Intercept Stats	<a href="#">B-15</a>
MAF Location Based Services Stats	<a href="#">B-16</a>
MAF Memory Stats	<a href="#">B-17</a>
MAF Mobility Management Stats	<a href="#">B-18</a>
MAF NACC Stats	<a href="#">B-19</a>
MAF Overload Control Stats	<a href="#">B-20</a>
MAF Paging Stats	<a href="#">B-21</a>
MAF Roaming Stats	<a href="#">B-22</a>

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Counter class name	See
MAF System Service Stats	<a href="#">B-23</a>
MI Reliable Cluster Computing Virtual Machine Stats	<a href="#">B-24</a>
MI System Service Stats	<a href="#">B-25</a>
MIF Automated Neighbor Relations	<a href="#">B-26</a>
MIF Broadcast Warning Message Stats	<a href="#">B-27</a>
MIF CPU Stats	<a href="#">B-28</a>
MIF DNS Stats	<a href="#">B-29</a>
MIF Interface Stats	<a href="#">B-30</a>
MIF Lawful Intercept Stats	<a href="#">B-31</a>
MIF Location Based Service Stats	<a href="#">B-32</a>
MIF Memory Stats	<a href="#">B-33</a>
MIF Multimedia Broadcast Service Stats	<a href="#">B-34</a>
MIF Overload Control Stats	<a href="#">B-35</a>
MIF Quality and Reliability Measurements	<a href="#">B-36</a>
MIF System Service Stats	<a href="#">B-37</a>
MPH CPU Stats	<a href="#">B-38</a>
MPH Memory Stats	<a href="#">B-39</a>
MPH System Service Stats	<a href="#">B-40</a>
OAM Card Base CPU Stats	<a href="#">B-41</a>
OAM Card CPU Stats	<a href="#">B-42</a>
OAM Card Disk Stats	<a href="#">B-43</a>
OAM Card Memory Stats	<a href="#">B-44</a>
OAM Card System Service Stats	<a href="#">B-45</a>

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Table B-2 CFG Reliable Cluster Computing Virtual Machine Stats

5620 SAM GUI name	3GPP name
collectionInterval	N/A
act2StbyVMStateChange	VS.Act2StbyVMStateChange
stby2ActVMStateChange	VS.Stby2ActVMStateChange
act2UnavailVMStateChange	VS.Act2UnavailVMStateChange
stby2UnavailVMStateChange	VS.Stby2UnavailVMStateChange
other2UnavailVMStateChange	VS.Other2UnavailVMStateChange
<b>Monitored class:</b> ltemme.MmeServiceMemberCfg	

Table B-3 Card CPU Stats

5620 SAM GUI name	3GPP name
collectionInterval	N/A
aveCpuUsage	VS.aveCpuUsage
peakCpuUsage	VS.peakCpuUsage
<b>Monitored class:</b> equipment.AtcaCard	

Table B-4 HUB CPU Stats

5620 SAM GUI name	3GPP name
collectionInterval	N/A
aveCpuUsage	VS.aveCpuUsage
peakCpuUsage	VS.peakCpuUsage
<b>Monitored class:</b> equipment.AtcaCard	

Table B-5 MAF Authentication Stats

5620 SAM GUI name	3GPP name
collectionInterval	N/A
attemptedAuthenticationRequestsHSS	VS.AttAuthRequestsHSS
numberOfFailedAuthenticationRequestsHSS_Other	VS.NbrFailedAuthRequestsHSS_Other
numberOfSuccessAuthenticationRequestsHSS	VS.NbrSuccessAuthRequestsHSS
attemptedAuthenticationRequestsUE	VS.AttAuthRequestsUE
numberOfFailedAuthenticationRequestsUE_Other	VS.NbrFailedAuthRequestsUE_Other
numberOfSuccessAuthenticationRequestsUE	VS.NbrSuccessAuthRequestsUE
numberOfAuthRequestAbort	VS.NbrAuthRequestAbort
numberOfUEAuthRequestAbort	VS.NbrUEAuthRequestAbort
numberOfUpdateLocationAbort	VS.NbrUpdateLocationAbort
<b>Monitored class:</b> ltemme.MmeServiceMemberMaf	

Table B-6 MAF Bearer Session Management Stats

5620 SAM GUI name	3GPP name
collectionInterval	N/A
attemptedCreateDefaultBearer	VS.AttCreateDefaultBearer

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5620 SAM GUI name	3GPP name
numberOfFailedCreateDefaultBearer_FailureAtPGW	VS.NbrFailedCreateDefaultBearer_FailureAtPGW
numberOfFailedCreateDefaultBearer_FailureAtSGW	VS.NbrFailedCreateDefaultBearer_FailureAtSGW
numberOfFailedCreateDefaultBearer_Other	VS.NbrFailedCreateDefaultBearer_Other
numberOfSuccessCreateDefaultBearer	VS.NbrSuccessCreateDefaultBearer
attemptedUpdateBearerRequests	VS.AttUpdateBearerRequests
numberOfFailedUpdateBearerRequests_Other	VS.NbrFailedUpdateBearerRequests_Other
numberOfSuccessUpdateBearerRequests	VS.NbrSuccessUpdateBearerRequests
attemptedUEContextModReq	VS.AttUEContextModReq
numberOfCreateDefaultBearerAbort	VS.NbrCreateDefaultBearerAbort
numberOfFailedUEContextModReq_Other	VS.NbrFailedUEContextModReq_Other
numberOfFailedUEContextModReq_TimedOut	VS.NbrFailedUEContextModReq_TimedOut
numberOfSuccessUEContextModReq	VS.NbrSuccessUEContextModReq
numberOfUpdateBearerAbort	VS.NbrUpdateBearerAbort
attBearerResourceModReq	VS.AttBearerResourceModReq
numberFailBearerResourceModReq_NoResources	VS.NbrFailBearerResourceModReq_NoResources
numberFailBearerResourceModReq_RejectAtSGW	VS.NbrFailBearerResourceModReq_RejectAtSGW
numberFailBearerResourceModReq_SubscripError	VS.NbrFailBearerResourceModReq_SubscripError
numberFailBearerResourceModReq_Other	VS.NbrFailBearerResourceModReq_Other
numberSuccessBearerResourceModReq	VS.NbrSuccessBearerResourceModReq
numberSuccessDeleteDefaultBearer	VS.NbrSuccessDeleteDefaultBearer
numberFailureDeleteDefaultBearer_Other	VS.NbrFailureDeleteDefaultBearer_Other
attDeleteDefaultBearer	VS.AttDeleteDefaultBearer
numberCreateSessionRespWithPiggyBacking	VS.NbrCreateSessionRespWithPiggyBacking
<b>Monitored class:</b> Itemme.MmeServiceMemberMaf	

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Table B-7 MAF Broadcast Warning Message Stats

5620 SAM GUI name	3GPP name
collectionInterval	N/A
nbrEmergencyAttachMsgsRejected	VS.NbrEmergencyAttachMsgsRejected
nbrEmergencyPDNConnectMsgsRejected	VS.NbrEmergencyPDNConnectMsgsRejected
nbrEmergencyServiceReqMsgsRejected	VS.NbrEmergencyServiceReqMsgsRejected
<b>Monitored class:</b> Itemme.MmeServiceMemberMaf	

Table B-8 MAF CPU Stats

5620 SAM GUI name	3GPP name
collectionInterval	N/A
aveBaseCpuUsage	VS.aveBaseCpuUsage
peakBaseCpuUsage	VS.peakBaseCpuUsage
avePerSICpuUsage	VS.avePerSICpuUsage
peakPerSICpuUsage	VS.peakPerSICpuUsage
<b>Monitored class:</b> Itemme.MmeServiceMemberMaf	

Table B-9 MAF Capacity Stats

5620 SAM GUI name	3GPP name
collectionInterval	N/A
uECapacityUsage	VS.UECapacityUsage
<b>Monitored class:</b> Itemme.MmeServiceMemberMaf	

Table B-10 MAF Connection Stats

5620 SAM GUI name	3GPP name
collectionInterval	N/A
aveNumOfDefaultBearers	VS.AveNumOfDefaultBearers
maxNumOfDefaultBearers	VS.MaxNumOfDefaultBearers
aveNumOfDedicatedBearers	VS.AveNumOfDedicatedBearers
maxNumOfDedicatedBearers	VS.MaxNumOfDedicatedBearers
aveNbrOfIdleUE	VS.AveNbrOfIdleUE
maxNbrOfIdleUE	VS.MaxNbrOfIdleUE
aveNbrOfRegisteredUE	VS.AveNbrOfRegisteredUE
maxNbrOfRegisteredUE	VS.MaxNbrOfRegisteredUE
aveConnectedUE	VS.AveConnectedUE
maxConnectedUE	VS.MaxConnectedUE
aveNbrOfEmergencyUE	VS.AveNbrOfEmergencyUE
maxNbrOfEmergencyUE	VS.MaxNbrOfEmergencyUE
<b>Monitored class:</b> Itemme.MmeServiceMemberMaf	

Table B-11 MAF DNS Stats

5620 SAM GUI name	3GPP name
collectionInterval	N/A
nbrServerQueries	VS.NbrServerQueries
nbrResolveByNetworkService	VS.NbrResolveByNetworkService
nbrRequestsTimedOut	VS.NbrRequestsTimedOut
nbrRequestsInternalFailure	VS.NbrRequestsInternalFailure
nbrResponsesSentToAppl	VS.NbrResponsesSentToAppl
nbrResponsesReceived	VS.NbrResponsesReceived
nbrResponsesWithProblem	VS.NbrResponsesWithProblem
nbrProbeResponsesRcvd	VS.NbrProbeResponsesRcvd
nbrResponsesRcvdLate	VS.NbrResponsesRcvdLate
nbrDNSConnClosed	VS.NbrDNSConnClosed
nbrResolveHostByName	VS.NbrResolveHostByName
nbrProbeQueries	VS.NbrProbeQueries
<b>Monitored class:</b> ltemme.MmeServiceMemberMaf	

Table B-12 MAF Dedicated Bearer Stats

5620 SAM GUI name	3GPP name
collectionInterval	N/A
attemptedCreateDedicatedBearerSum	VS.AttCreateDedicatedBearer_sum
numberOfCreateDedicatedBearerAbort	VS.NbrCreateDedicatedBearerAbort
numberOfFailedCreateDedicatedBearer_QCI_1	VS.NbrFailedCreateDedicatedBearer_QCI_1
numberOfFailedCreateDedicatedBearer_QCI_2	VS.NbrFailedCreateDedicatedBearer_QCI_2
numberOfFailedCreateDedicatedBearer_QCI_3	VS.NbrFailedCreateDedicatedBearer_QCI_3
numberOfFailedCreateDedicatedBearer_QCI_4	VS.NbrFailedCreateDedicatedBearer_QCI_4
numberOfFailedCreateDedicatedBearer_QCI_5	VS.NbrFailedCreateDedicatedBearer_QCI_5
numberOfFailedCreateDedicatedBearer_QCI_6	VS.NbrFailedCreateDedicatedBearer_QCI_6
numberOfFailedCreateDedicatedBearer_QCI_7	VS.NbrFailedCreateDedicatedBearer_QCI_7
numberOfFailedCreateDedicatedBearer_QCI_8	VS.NbrFailedCreateDedicatedBearer_QCI_8
numberOfFailedCreateDedicatedBearer_QCI_9	VS.NbrFailedCreateDedicatedBearer_QCI_9
numberOfFailedCreateDedicatedBearer_Other	VS.NbrFailedCreateDedicatedBearer_Other
numberOfFailedCreateDedicatedBearer_BadQCI	VS.NbrFailedCreateDedicatedBearer_BadQCI
numberOfSuccessCreateDedicatedBearer	VS.NbrSuccessCreateDedicatedBearer
attemptedCreateDedicatedBearer_QCI_1	VS.AttCreateDedicatedBearer_QCI_1
attemptedCreateDedicatedBearer_QCI_2	VS.AttCreateDedicatedBearer_QCI_2

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5620 SAM GUI name	3GPP name
attemptedCreateDedicatedBearer_QCI_3	VS.AttCreateDedicatedBearer_QCI_3
attemptedCreateDedicatedBearer_QCI_4	VS.AttCreateDedicatedBearer_QCI_4
attemptedCreateDedicatedBearer_QCI_5	VS.AttCreateDedicatedBearer_QCI_5
attemptedCreateDedicatedBearer_QCI_6	VS.AttCreateDedicatedBearer_QCI_6
attemptedCreateDedicatedBearer_QCI_7	VS.AttCreateDedicatedBearer_QCI_7
attemptedCreateDedicatedBearer_QCI_8	VS.AttCreateDedicatedBearer_QCI_8
attemptedCreateDedicatedBearer_QCI_9	VS.AttCreateDedicatedBearer_QCI_9
attemptedUpdateDedicatedBearer_QCI_1	VS.AttUpdateDedicatedBearer_QCI_1
attemptedUpdateDedicatedBearer_QCI_2	VS.AttUpdateDedicatedBearer_QCI_2
attemptedUpdateDedicatedBearer_QCI_3	VS.AttUpdateDedicatedBearer_QCI_3
attemptedUpdateDedicatedBearer_QCI_4	VS.AttUpdateDedicatedBearer_QCI_4
attemptedUpdateDedicatedBearer_QCI_5	VS.AttUpdateDedicatedBearer_QCI_5
attemptedUpdateDedicatedBearer_QCI_6	VS.AttUpdateDedicatedBearer_QCI_6
attemptedUpdateDedicatedBearer_QCI_7	VS.AttUpdateDedicatedBearer_QCI_7
attemptedUpdateDedicatedBearer_QCI_8	VS.AttUpdateDedicatedBearer_QCI_8
attemptedUpdateDedicatedBearer_QCI_9	VS.AttUpdateDedicatedBearer_QCI_9
attemptedUpdateDedicatedBearer_Sum	VS.AttUpdateDedicatedBearer_sum
numberOfSuccessUpdateDedicatedBearer	VS.NbrSuccessUpdateDedicatedBearer
numberOfUpdateDedicatedBearerAbort	VS.NbrUpdateDedicatedBearerAbort
numberOfFailedUpdateDedicatedBearer_QCI_1	VS.NbrFailedUpdateDedicatedBearer_QCI_1
numberOfFailedUpdateDedicatedBearer_QCI_2	VS.NbrFailedUpdateDedicatedBearer_QCI_2
numberOfFailedUpdateDedicatedBearer_QCI_3	VS.NbrFailedUpdateDedicatedBearer_QCI_3
numberOfFailedUpdateDedicatedBearer_QCI_4	VS.NbrFailedUpdateDedicatedBearer_QCI_4
numberOfFailedUpdateDedicatedBearer_QCI_5	VS.NbrFailedUpdateDedicatedBearer_QCI_5
numberOfFailedUpdateDedicatedBearer_QCI_6	VS.NbrFailedUpdateDedicatedBearer_QCI_6
numberOfFailedUpdateDedicatedBearer_QCI_7	VS.NbrFailedUpdateDedicatedBearer_QCI_7
numberOfFailedUpdateDedicatedBearer_QCI_8	VS.NbrFailedUpdateDedicatedBearer_QCI_8
numberOfFailedUpdateDedicatedBearer_QCI_9	VS.NbrFailedUpdateDedicatedBearer_QCI_9
numberOfFailedUpdateDedicatedBearer_BadQCI	VS.NbrFailedUpdateDedicatedBearer_BadQCI
attemptedDeactDedicatedBearer_QCI_1	VS.AttDeactDedBearer_QCI_1
attemptedDeactDedicatedBearer_QCI_2	VS.AttDeactDedBearer_QCI_2
attemptedDeactDedicatedBearer_QCI_3	VS.AttDeactDedBearer_QCI_3
attemptedDeactDedicatedBearer_QCI_4	VS.AttDeactDedBearer_QCI_4
attemptedDeactDedicatedBearer_QCI_5	VS.AttDeactDedBearer_QCI_5
attemptedDeactDedicatedBearer_QCI_6	VS.AttDeactDedBearer_QCI_6
attemptedDeactDedicatedBearer_QCI_7	VS.AttDeactDedBearer_QCI_7
attemptedDeactDedicatedBearer_QCI_8	VS.AttDeactDedBearer_QCI_8

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5620 SAM GUI name	3GPP name
attemptedDeactDedicatedBearer_QCI_9	VS.AttDeactDedBearer_QCI_9
numberOfDeactDedBearerAbort	VS.NbrDeactDedBearerAbort
attemptedDeactDedicatedBearer_Sum	VS.AttDeactivateDedBearer_sum
numberOfFailedDeactDedicatedBearer_QCI_1	VS.NbrFailedDeactDedBearer_QCI_1
numberOfFailedDeactDedicatedBearer_QCI_2	VS.NbrFailedDeactDedBearer_QCI_2
numberOfFailedDeactDedicatedBearer_QCI_3	VS.NbrFailedDeactDedBearer_QCI_3
numberOfFailedDeactDedicatedBearer_QCI_4	VS.NbrFailedDeactDedBearer_QCI_4
numberOfFailedDeactDedicatedBearer_QCI_5	VS.NbrFailedDeactDedBearer_QCI_5
numberOfFailedDeactDedicatedBearer_QCI_6	VS.NbrFailedDeactDedBearer_QCI_6
numberOfFailedDeactDedicatedBearer_QCI_7	VS.NbrFailedDeactDedBearer_QCI_7
numberOfFailedDeactDedicatedBearer_QCI_8	VS.NbrFailedDeactDedBearer_QCI_8
numberOfFailedDeactDedicatedBearer_QCI_9	VS.NbrFailedDeactDedBearer_QCI_9
numberOfFailedDeactDedBearer_BadQCI	VS.NbrFailedDeactDedBearer_BadQCI
numberOfDroppedDedicatedBearer_QCI_1	VS.NbrDroppedDedBearer_QCI_1
numberOfDroppedDedicatedBearer_QCI_2	VS.NbrDroppedDedBearer_QCI_2
numberOfDroppedDedicatedBearer_QCI_3	VS.NbrDroppedDedBearer_QCI_3
numberOfDroppedDedicatedBearer_QCI_4	VS.NbrDroppedDedBearer_QCI_4
numberOfDroppedDedicatedBearer_QCI_5	VS.NbrDroppedDedBearer_QCI_5
numberOfDroppedDedicatedBearer_QCI_6	VS.NbrDroppedDedBearer_QCI_6
numberOfDroppedDedicatedBearer_QCI_7	VS.NbrDroppedDedBearer_QCI_7
numberOfDroppedDedicatedBearer_QCI_8	VS.NbrDroppedDedBearer_QCI_8
numberOfDroppedDedicatedBearer_QCI_9	VS.NbrDroppedDedBearer_QCI_9
numberOfDroppedDedBearer_BadQCI	VS.NbrDroppedDedBearer_BadQCI
numberOfDroppedDefaultBearer	VS.NbrDroppedDefaultBearer
numberFailedUpdateDedicatedBearer_Other	VS.NbrFailedUpdateDedicatedBearer_Other
numberSuccessDeactDedBearer	VS.NbrSuccessDeactDedBearer
numberFailedDeactDedBearer_Other	VS.NbrFailedDeactDedBearer_Other
numberDroppedDedBearer_sum	VS.NbrDroppedDedBearer_sum
<b>Monitored class:</b> ltemme.MmeServiceMemberMaf	

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Table B-13 MAF Handover Stats

5620 SAM GUI name	3GPP name
collectionInterval	N/A
attemptedNbrNoPSHOSv	VS.AttNbrNoPSHOSv
attemptedResumeRequests	VS.AttResumeRequests

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5620 SAM GUI name	3GPP name
attemptedSuspendRequests	VS.AttSuspendRequests
numberOfFailedResumeReq_Other	VS.NbrFailedResumeReq_Other
numberOfFailedResumeReq_TimedOut	VS.NbrFailedResumeReq_TimedOut
numberOfFailedSuspendReq_Other	VS.NbrFailedSuspendReq_Other
numberOfFailedSuspendReq_TimedOut	VS.NbrFailedSuspendReq_TimedOut
numberOfHOpathSwitchSameSGWAbort	VS.NbrHOpathSwitchSameSGWAbort
numberOfHOto3G2GGnAbort	VS.NbrHOto3G2GGnAbort
numberOfHOto3G2GSuccessGn	VS.NbrHOto3G2GSuccessGn
numberOfNoPSHOSuccessSv	VS.NbrNoPSHOSuccessSv
numberOfNoPSHOSvAbort	VS.NbrNoPSHOSvAbort
numberOfSuccessResumeReq	VS.NbrSuccessResumeReq
numberOfSuccessSuspendReq	VS.NbrSuccessSuspendReq
attNbrHOpathSwitchNewSGW	VS.AttNbrHOpathSwitchNewSGW
numberHOfailuresPathSwitchNewSGW_Other	VS.NbrHOfailuresPathSwitchNewSGW_Other
numberHOfailuresPathSwitchNewSGW_UpdateBearerFailure	VS.NbrHOfailuresPathSwitchNewSGW_UpdateBearerFailure
numberHOSuccessPathSwitchNewSGW	VS.NbrHOSuccessPathSwitchNewSGW
attNbrHOreqdNoRelocation	VS.AttNbrHOreqdNoRelocation
numberHOfailHOreqdNoReloc_Other	VS.NbrHOfailHOreqdNoReloc_Other
numberHOfailHOreqdNoReloc_UpdateBearerFail	VS.NbrHOfailHOreqdNoReloc_UpdateBearerFail
numberHOSuccessHOreqdNoRelocation	VS.NbrHOSuccessHOreqdNoRelocation
attS1HOSameMMEnnewSGW	VS.AttS1HOSameMMEnnewSGW
numberHOfailHOreqdSameMMEnnewSGW_UpdBearFail	VS.NbrHOfailHOreqdSameMMEnnewSGW_UpdBearFail
numberS1HOSuccessSameMMEnnewSGW	VS.NbrS1HOSuccessSameMMEnnewSGW
attNbrHOrequiredMMEReloc	VS.AttNbrHOrequiredMMEReloc
numberHOfailuresFwdReloc_Other	VS.NbrHOfailuresFwdReloc_Other
numberHOfailuresFwdReloc_UpdateBearerFailure	VS.NbrHOfailuresFwdReloc_UpdateBearerFailure
numberHOfailuresHOreqdReloc_Other	VS.NbrHOfailuresHOreqdReloc_Other
numberHOSuccessFwdReloc	VS.NbrHOSuccessFwdReloc
numberHOSuccessHOreqdMMEReloc	VS.NbrHOSuccessHOreqdMMEReloc
attS1HOTargetNewMMEnnewSGW	VS.AttS1HOTargetNewMMEnnewSGW
numberS1HOFailSourceNewMMEnnewSGW_Other	VS.NbrS1HOFailSourceNewMMEnnewSGW_Other
numberS1HOFailTargetNewMMEnnewSGW_Other	VS.NbrS1HOFailTargetNewMMEnnewSGW_Other
numberS1HOFailTargetNewMMEnnewSGW_UpdateBearerFailure	VS.NbrS1HOFailTargetNewMMEnnewSGW_UpdateBearerFailure
numberS1HOSuccessSourceNewMMEnnewSGW	VS.NbrS1HOSuccessSourceNewMMEnnewSGW
numberS1HOSuccessTargetNewMMEnnewSGW	VS.NbrS1HOSuccessTargetNewMMEnnewSGW
attNbrHOtoLTEGn	VS.AttNbrHOtoLTEGn

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5620 SAM GUI name	3GPP name
numberHOtoLTEFailureGn_Other	VS.NbrHOtoLTEFailureGn_Other
numberHOtoLTESuccessGn	VS.NbrHOtoLTESuccessGn
attCreateIndirectDataFwd	VS.AttCreateIndirectDataFwd
numberCreateIndirectDataFwdSuccess	VS.NbrCreateIndirectDataFwdSuccess
attNbrHOFwdReloc	VS.AttNbrHOFwdReloc
numberHOfailHOreqdSameMMenewSGW_Other	VS.NbrHOfailHOreqdSameMMenewSGW_Other
numberHOpathSwitchNewSGWAbort	VS.NbrHOpathSwitchNewSGWAbort
numberHOto3G2GFailureGn_AccessRestriction	VS.NbrHOto3G2GFailureGn_AccessRestriction
numberHOto3G2GFailureGn_CtxtRspRejected	VS.NbrHOto3G2GFailureGn_CtxtRspRejected
numberHOto3G2GFailureGn_DNSfailure	VS.NbrHOto3G2GFailureGn_DNSfailure
numberHOto3G2GFailureGn_FwdRelocRejected	VS.NbrHOto3G2GFailureGn_FwdRelocRejected
numberHOto3G2GFailureGn_Linkproblem	VS.NbrHOto3G2GFailureGn_Linkproblem
numberHOto3G2GFailureGn_PTMSISigMismatch	VS.NbrHOto3G2GFailureGn_PTMSISigMismatch
numberHOto3G2GFailureGn_RelocCompleteTO	VS.NbrHOto3G2GFailureGn_RelocCompleteTO
numberHOtoLTEFailureGn_AuthFailure	VS.NbrHOtoLTEFailureGn_AuthFailure
numberHOtoLTEFailureGn_CtxtReqRejected	VS.NbrHOtoLTEFailureGn_CtxtReqRejected
numberHOtoLTEFailureGn_DNSfailure	VS.NbrHOtoLTEFailureGn_DNSfailure
numberHOtoLTEFailureGn_InvalidTAUReq	VS.NbrHOtoLTEFailureGn_InvalidTAUReq
numberHOtoLTEFailureGn_Linkproblem	VS.NbrHOtoLTEFailureGn_Linkproblem
numberHOtoLTEGnAbort	VS.NbrHOtoLTEGnAbort
attNbrHOpathSwitchSameSGW	VS.AttNbrHOpathSwitchSameSGW
attNbrHOto3G2GGn	VS.AttNbrHOto3G2GGn
numberHOfailuresPathSwitchSameSGW_Other	VS.NbrHOfailuresPathSwitchSameSGW_Other
numberHOfailuresPathSwitchSameSGW_UpdateBearerFailure	VS.NbrHOfailuresPathSwitchSameSGW_UpdateBearerFailure
numberHOSuccessPathSwitchSameSGW	VS.NbrHOSuccessPathSwitchSameSGW
numberHOto3G2GFailureGn_Other	VS.NbrHOto3G2GFailureGn_Other
numberHOtoLTEFailureGn_HoNotifyTimeout	VS.NbrHOtoLTEFailureGn_HoNotifyTimeout
numberHOtoLTEFailureGn_HoReqFailure	VS.NbrHOtoLTEFailureGn_HoReqFailure
numberHOtoLTEFailureGn_NoTauAfterHo	VS.NbrHOtoLTEFailureGn_NoTauAfterHo
numberNoPSHOFailureSv_Other	VS.NbrNoPSHOFailureSv_Other
numberPSHOFailureSv_Other	VS.NbrPSHOFailureSv_Other
numberPSHOSuccessSv	VS.NbrPSHOSuccessSv
attHOfrom3G2GS3	VS.AttHOfrom3G2GS3
attHOfromGERANS3	VS.AttHOfromGERANS3
attHOfromUTRANS3	VS.AttHOfromUTRANS3
attHOtoGERAN	VS.AttHOtoGERAN

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5620 SAM GUI name	3GPP name
attHOtoGERANS3	VS.AttHOtoGERANS3
attHOtoUTRAN	VS.AttHOtoUTRAN
attHOtoUTRANS3	VS.AttHOtoUTRANS3
attNbrPSHOSv	VS.AttNbrPSHOSv
attS1HOSourceNewMMEnesGW	VS.AttS1HOSourceNewMMEnesGW
nbrHOfrom3G2GS3reject_Linkproblem	VS.NbrHOfrom3G2GS3reject_Linkproblem
nbrHOfrom3G2GS3reject_Other	VS.NbrHOfrom3G2GS3reject_Other
nbrHOfrom3G2GS3reject_RATtypeUnknown	VS.NbrHOfrom3G2GS3reject_RATtypeUnknown
nbrHOfromGERANcanceledS3	VS.NbrHOfromGERANcanceledS3
nbrHOfromGERANfailureS3_HoNotifyTO	VS.NbrHOfromGERANfailureS3_HoNotifyTO
nbrHOfromGERANfailureS3_HOReqTO	VS.NbrHOfromGERANfailureS3_HOReqTO
nbrHOfromGERANfailureS3_Linkproblem	VS.NbrHOfromGERANfailureS3_Linkproblem
nbrHOfromGERANfailureS3_noTargResources	VS.NbrHOfromGERANfailureS3_noTargResources
nbrHOfromGERANfailureS3_NoTauAfterHo	VS.NbrHOfromGERANfailureS3_NoTauAfterHo
nbrHOfromGERANfailureS3_Other	VS.NbrHOfromGERANfailureS3_Other
nbrHOfromGERANS3abort	VS.NbrHOfromGERANS3abort
nbrHOfromGERANSsuccessS3	VS.NbrHOfromGERANSsuccessS3
nbrHOfromUTRANcanceledS3	VS.NbrHOfromUTRANcanceledS3
nbrHOfromUTRANfailureS3_HoNotifyTO	VS.NbrHOfromUTRANfailureS3_HoNotifyTO
nbrHOfromUTRANfailureS3_HOReqTO	VS.NbrHOfromUTRANfailureS3_HOReqTO
nbrHOfromUTRANfailureS3_Linkproblem	VS.NbrHOfromUTRANfailureS3_Linkproblem
nbrHOfromUTRANfailureS3_noTargResources	VS.NbrHOfromUTRANfailureS3_noTargResources
nbrHOfromUTRANfailureS3_NoTauAfterHo	VS.NbrHOfromUTRANfailureS3_NoTauAfterHo
nbrHOfromUTRANfailureS3_Other	VS.NbrHOfromUTRANfailureS3_Other
nbrHOfromUTRANS3abort	VS.NbrHOfromUTRANS3abort
nbrHOfromUTRANSsuccessS3	VS.NbrHOfromUTRANSsuccessS3
nbrHOtoGERANabort	VS.NbrHOtoGERANabort
nbrHOtoGERANcanceledS3	VS.NbrHOtoGERANcanceledS3
nbrHOtoGERANfailure_AccessRestriction	VS.NbrHOtoGERANfailure_AccessRestriction
nbrHOtoGERANfailure_noSGSNfound	VS.NbrHOtoGERANfailure_noSGSNfound
nbrHOtoGERANfailure_Other	VS.NbrHOtoGERANfailure_Other
nbrHOtoGERANfailureS3_FwdRelocRespTO	VS.NbrHOtoGERANfailureS3_FwdRelocRespTO
nbrHOtoGERANfailureS3_LinkProblem	VS.NbrHOtoGERANfailureS3_LinkProblem
nbrHOtoGERANfailureS3_noTargResources	VS.NbrHOtoGERANfailureS3_noTargResources
nbrHOtoGERANfailureS3_Other	VS.NbrHOtoGERANfailureS3_Other
nbrHOtoGERANfailureS3_RelocCompleteTO	VS.NbrHOtoGERANfailureS3_RelocCompleteTO
nbrHOtoGERANS3abort	VS.NbrHOtoGERANS3abort

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5620 SAM GUI name	3GPP name
nbrH0toGERANsuccessS3	VS.NbrH0toGERANsuccessS3
nbrH0toUTRANabort	VS.NbrH0toUTRANabort
nbrH0toUTRANCanceledS3	VS.NbrH0toUTRANCanceledS3
nbrH0toUTRANfailure_AccessRestriction	VS.NbrH0toUTRANfailure_AccessRestriction
nbrH0toUTRANfailure_noSGSNfound	VS.NbrH0toUTRANfailure_noSGSNfound
nbrH0toUTRANfailure_Other	VS.NbrH0toUTRANfailure_Other
nbrH0toUTRANfailureS3_FwdRelocRespTO	VS.NbrH0toUTRANfailureS3_FwdRelocRespTO
nbrH0toUTRANfailureS3_LinkProblem	VS.NbrH0toUTRANfailureS3_LinkProblem
nbrH0toUTRANfailureS3_noTargResources	VS.NbrH0toUTRANfailureS3_noTargResources
nbrH0toUTRANfailureS3_Other	VS.NbrH0toUTRANfailureS3_Other
nbrH0toUTRANfailureS3_RelocCompleteTO	VS.NbrH0toUTRANfailureS3_RelocCompleteTO
nbrH0toUTRANS3abort	VS.NbrH0toUTRANS3abort
nbrH0toUTRANsuccessS3	VS.NbrH0toUTRANsuccessS3
<b>Monitored class:</b> ltemme.MmeServiceMemberMaf	

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Table B-14 MAF Interface Stats

5620 SAM GUI name	3GPP name
collectionInterval	N/A
numberOfBadSeqRespPktsS11	VS.NbrBadSeqRespPktsS11
numberOfBadSeqRespPktsGn	VS.NbrBadSeqRespPktsGn
numberSuccessSGsSignalingProcedures	VS.NbrSuccessSGsSignalingProcedures
attSGsSignalingProcedures	VS.AttSGsSignalingProcedures
numberSGsReleaseRequestRcvd	VS.NbrSGsReleaseRequestRcvd
numberSGsUplinkUnitDataSucc	VS.NbrSGsUplinkUnitDataSucc
numberSGsDownlinkUnitDataSucc	VS.NbrSGsDownlinkUnitDataSucc
numberSGsRcvdMsgTooShort	VS.NbrSGsRcvdMsgTooShort
numberSGsRcvdRepeatedIE	VS.NbrSGsRcvdRepeatedIE
numberSGsRcvdUnknownIE	VS.NbrSGsRcvdUnknownIE
numberSGsRcvdUnknownMsgType	VS.NbrSGsRcvdUnknownMsgType
numberSGsRcvdMissingMandatoryIE	VS.NbrSGsRcvdMissingMandatoryIE
numberSGsRcvdOutOfSequenceIE	VS.NbrSGsRcvdOutOfSequenceIE
numberSGsRcvdSyntaxIncorrectMandIE	VS.NbrSGsRcvdSyntaxIncorrectMandIE
numberSGsRcvdSyntaxIncorrectOptionalIE	VS.NbrSGsRcvdSyntaxIncorrectOptionalIE
numberSGsRcvdConditionalIEerrDetected	VS.NbrSGsRcvdConditionalIEerrDetected
numberSGsRcvdSemanticIncorrectIE	VS.NbrSGsRcvdSemanticIncorrectIE

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5620 SAM GUI name	3GPP name
numberSGsRcvdMsgIncompatProtocolState	VS.NbrSGsRcvdMsgIncompatProtocolState
numberSGsRcvdCauseUnknownMsg	VS.NbrSGsRcvdCauseUnknownMsg
numberSGsRcvdCauseMissingMandIE	VS.NbrSGsRcvdCauseMissingMandIE
numberSGsRcvdCauseConditionalIEError	VS.NbrSGsRcvdCauseConditionalIEError
numberSGsRcvdCauseInvalidMandIE	VS.NbrSGsRcvdCauseInvalidMandIE
numberSGsRcvdCauseSemanticErrorInMsg	VS.NbrSGsRcvdCauseSemanticErrorInMsg
numberSGsRcvdCauseIncompatProtocolState	VS.NbrSGsRcvdCauseIncompatProtocolState
numberSGsPagingReject_RejectByUser	VS.NbrSGsPagingReject_RejectByUser
numberSGsPagingReject_IMSIunknown	VS.NbrSGsPagingReject_IMSIunknown
numberSGsPagingReject_Other	VS.NbrSGsPagingReject_Other
numberSGsIMSIdetach_Implicit	VS.NbrSGsIMSIdetach_Implicit
numberSGsIMSIdetach_Explicit	VS.NbrSGsIMSIdetach_Explicit
aveNumUESGsAssociated	VS.AveNumUESGsAssociated
maxNumUESGsAssociated	VS.MaxNumUESGsAssociated
aveNumUESGsNull	VS.AveNumUESGsNull
maxNumUESGsNull	VS.MaxNumUESGsNull
aveNumUESGsLAupdateRequested	VS.AveNumUESGsLAupdateRequested
maxNumUESGsLAupdateRequested	VS.MaxNumUESGsLAupdateRequested
numberSGsUplinkUnitDataRcvd	VS.NbrSGsUplinkUnitDataRcvd
numberSGsDownlinkUnitDataRcvd	VS.NbrSGsDownlinkUnitDataRcvd
attSGsAlert	VS.AttSGsAlert
attSGsEPSdetach	VS.AttSGsEPSdetach
attSGsIMSIdetach	VS.AttSGsIMSIdetach
attSGsLocationUpdate	VS.AttSGsLocationUpdate
attSGsMMInfo	VS.AttSGsMMInfo
attSGsPageCSbySTMSI	VS.AttSGsPageCSbySTMSI
attSGsPageIMSIandLAI	VS.AttSGsPageIMSIandLAI
attSGsPageIMSIandVLR	VS.AttSGsPageIMSIandVLR
attSGsPagePSbySTMSI	VS.AttSGsPagePSbySTMSI
attSGsPageWithNAS	VS.AttSGsPageWithNAS
numberSGsLocationUpdateAbort	VS.NbrSGsLocationUpdateAbort
numberSuccessSGsEPSdetach	VS.NbrSuccessSGsEPSdetach
numberSuccessSGsIMSIdetach	VS.NbrSuccessSGsIMSIdetach
numberSuccessSGsLocationUpdate	VS.NbrSuccessSGsLocationUpdate
numberSuccessSGsMMInfo	VS.NbrSuccessSGsMMInfo
numberSuccessSGsPageCSbySTMSI	VS.NbrSuccessSGsPageCSbySTMSI
numberSuccessSGsPageIMSIandLAI	VS.NbrSuccessSGsPageIMSIandLAI

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5620 SAM GUI name	3GPP name
numberSuccessSGsPageIMSIandVLR	VS.NbrSuccessSGsPageIMSIandVLR
numberSuccessSGsPagePSbySTMSI	VS.NbrSuccessSGsPagePSbySTMSI
numberSuccessSGsPageWithNAS	VS.NbrSuccessSGsPageWithNAS
numberSGsReleaseRequestSucc	VS.NbrSGsReleaseRequestSucc
numberSuccessSGsAlert	VS.NbrSuccessSGsAlert
numberOfBadSeqRespPktsS10	VS.NbrBadSeqRespPktsS10
numberOfBadSeqRespPktsSv	VS.NbrBadSeqRespPktsSv
numberOfBadSeqRespPktsS3	VS.NbrBadSeqRespPktsS3
nbrSGsPagingReject_RoamingRestriction	VS.NbrSGsPagingReject_RoamingRestriction
nbrFailedExtServiceRequests_InvalidMandIE	VS.NbrFailedExtServiceRequests_InvalidMandIE
<b>Monitored class:</b> ltemme.MmeServiceMemberMaf	

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Table B-15 MAF Lawful Intercept Stats

5620 SAM GUI name	3GPP name
collectionInterval	N/A
aveNbrRequestedLltargets	VS.AveNbrRequestedLltargets
aveNbrAttachedLltargets	VS.AveNbrAttachedLltargets
maxNbrAttachedLltargets	VS.MaxNbrAttachedLltargets
maxNbrRequestedLltargets	VS.MaxNbrRequestedLltargets
nbrInterceptedAttach	VS.NbrInterceptedAttach
nbrInterceptedDetach	VS.NbrInterceptedDetach
nbrInterceptedPDNconnect	VS.NbrInterceptedPDNconnect
nbrInterceptedPDNdisconnect	VS.NbrInterceptedPDNdisconnect
nbrInterceptedTAU	VS.NbrInterceptedTAU
<b>Monitored class:</b> ltemme.MmeServiceMemberMaf	

Table B-16 MAF Location Based Services Stats

5620 SAM GUI name	3GPP name
collectionInterval	N/A
nbrNetwkInducedLocRequest_LastKnownLocSent	VS.NbrNetwkInducedLocRequest_LastKnownLocSent
nbrFailedNetwkInducedLocRequest_Other	VS.NbrFailedNetwkInducedLocRequest_Other
nbrUEassociatedPositioningMsgsRcvd_ENB	VS.NbrUEassociatedPositioningMsgsRcvd_ENB
nbrNetwkInducedLocRequest_CurrentLocNotObtained	VS.NbrNetwkInducedLocRequest_CurrentLocNotObtained

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5620 SAM GUI name	3GPP name
abortMobileTermLocRequest_HO	VS.AbortMobileTermLocRequest_HO
nbrFailedMobileTermLocRequest_LocNotReturned	VS.NbrFailedMobileTermLocRequest_LocNotReturned
attNetwkInducedLocRequests	VS.AttNetwkInducedLocRequests
abortMobileTermLocRequest_MMEReloc	VS.AbortMobileTermLocRequest_MMEReloc
abortMobileTermLocRequest_Other	VS.AbortMobileTermLocRequest_Other
abortMobileTermLocRequest_UEdetach	VS.AbortMobileTermLocRequest_UEdetach
abortNetwkInducedLocRequest_HO	VS.AbortNetwkInducedLocRequest_HO
abortNetwkInducedLocRequest_MMEReloc	VS.AbortNetwkInducedLocRequest_MMEReloc
abortNetwkInducedLocRequest_Other	VS.AbortNetwkInducedLocRequest_Other
abortNetwkInducedLocRequest_UEdetach	VS.AbortNetwkInducedLocRequest_UEdetach
attMobileTermLocRequests	VS.AttMobileTermLocRequests
nbrFailedMobileTermLocRequest_LCSnotSupported	VS.NbrFailedMobileTermLocRequest_LCSnotSupported
nbrFailedMobileTermLocRequest_Other	VS.NbrFailedMobileTermLocRequest_Other
nbrFailedMobileTermLocRequest_UEdetached	VS.NbrFailedMobileTermLocRequest_UEdetached
nbrFailedNetwkInducedLocRequest_LocNotReturned	VS.NbrFailedNetwkInducedLocRequest_LocNotReturned
nbrMobileTermLocRequest_CurrentLocNotObtained	VS.NbrMobileTermLocRequest_CurrentLocNotObtained
nbrMobileTermLocRequest_LastKnownLocSent	VS.NbrMobileTermLocRequest_LastKnownLocSent
nbrMobileTermLocRequest_TOforLocData	VS.NbrMobileTermLocRequest_TOforLocData
nbrNetwkInducedLocRequest_TOforLocData	VS.NbrNetwkInducedLocRequest_TOforLocData
nbrSuccessMobileTermLocRequests	VS.NbrSuccessMobileTermLocRequests
nbrSuccessNetwkInducedLocRequests	VS.NbrSuccessNetwkInducedLocRequests
nbrUEassociatedPositioningMsgsSent_ENB	VS.NbrUEassociatedPositioningMsgsSent_ENB
nbrUEassociatedPositioningMsgsSent_ESMLC	VS.NbrUEassociatedPositioningMsgsSent_ESMLC
<b>Monitored class:</b> Itemme.MmeServiceMemberMaf	

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Table B-17 MAF Memory Stats

5620 SAM GUI name	3GPP name
collectionInterval	N/A
memUsage	VS.memUsage
allocableMemResrvd	VS.allocableMemResrvd
maxNEmemUsage	VS.maxNEmemUsage
<b>Monitored class:</b> Itemme.MmeServiceMemberMaf	

Table B-18 MAF Mobility Management Stats

5620 SAM GUI name	3GPP name
collectionInterval	N/A
attemptedUpdateLocationRequest	VS.AttUpdateLocationRequest
numberOfFailedUpdateLocationRequest_Other	VS.NbrFailedUpdateLocationRequest_Other
numberOfSuccessUpdateLocationRequest	VS.NbrSuccessUpdateLocationRequest
attemptedCancelLocationRequest	VS.AttCancelLocationRequest
numberOfFailedCancelLocationRequest_Other	VS.NbrFailedCancelLocationRequest_Other
numberOfSuccessCancelLocationRequest	VS.NbrSuccessCancelLocationRequest
attemptedDeleteSubscriberDataRequest	VS.AttDeleteSubscriberDataRequest
numberOfFailedDeleteSubscriberDataRequest_Other	VS.NbrFailedDeleteSubscriberDataRequest_Other
numberOfSuccessDeleteSubscriberDataRequest	VS.NbrSuccessDeleteSubscriberDataRequest
attemptedPurgeUERequest	VS.AttPurgeUERequest
numberOfFailedPurgeUERequest_Other	VS.NbrFailedPurgeUERequest_Other
numberOfSuccessPurgeUERequest	VS.NbrSuccessPurgeUERequest
attemptedResetRequest	VS.AttResetRequest
numberOfFailedResetRequest_Other	VS.NbrFailedResetRequest_Other
numberOfSuccessResetRequest	VS.NbrSuccessResetRequest
attemptedNotifyRequest	VS.AttNotifyRequest
numberOfFailedNotifyRequest_Other	VS.NbrFailedNotifyRequest_Other
numberOfSuccessNotifyRequest	VS.NbrSuccessNotifyRequest
attemptedAttachRequests	VS.AttAttachRequests
numberOfFailedAttachRequestsNotSysRelated_sum	VS.NbrFailedAttachRequestsNotSysRelated_sum
numberOfFailedAttachRequests_Other	VS.NbrFailedAttachRequests_Other
numberOfSuccessAttachRequests	VS.NbrSuccessAttachRequests
attemptedServiceRequests	VS.AttServiceRequests
numberOfFailedServiceRequestsNotSysRelated_sum	VS.NbrFailedServiceRequestsNotSysRelated_sum
numberOfFailedServiceRequests_IllegalQCI	VS.NbrFailedServiceRequests_IllegalQCI
numberOfFailedServiceRequests_Other	VS.NbrFailedServiceRequests_Other
numberOfSuccessServiceRequests	VS.NbrSuccessServiceRequests
attemptedInsertSubscriberData	VS.AttInsertSubscriberData
numberOfFailedInsertSubscriberData_Other	VS.NbrFailedInsertSubscriberData_Other
numberOfSuccessInsertSubscriberData	VS.NbrSuccessInsertSubscriberData
attemptedS1Release	VS.AttS1Release
numberOfS1Release_AuthenticationFailure	VS.NbrS1Release_AuthFailure
numberOfS1Release_CSFBDR	VS.NbrS1Release_CSFBDR
numberOfS1Release_FBhandover	VS.NbrS1Release_FBhandover

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5620 SAM GUI name	3GPP name
numberOfS1Release_IMSIunknown	VS.NbrS1Release_IMSIunknown
numberOfS1Release_IntegrityCheckFailure	VS.NbrS1Release_IntegrityCheckFailure
numberOfS1Release_NASDetach	VS.NbrS1Release_NASDetach
numberOfS1Release_NASNormalRelease	VS.NbrS1Release_NASNormalRelease
numberOfS1Release_NoUEcontext	VS.NbrS1Release_NoUEcontext
numberOfS1Release_OAMintervention	VS.NbrS1Release_OAMintervention
numberOfS1Release_Other	VS.NbrS1Release_Other
numberOfS1Release_RFproblem	VS.NbrS1Release_RFproblem
numberOfS1Release_UEinactivity	VS.NbrS1Release_UEinactivity
numberOfS1Release_UErelease	VS.NbrS1Release_UErelease
eNBreqS1Release	VS.ENBreqS1Release
numberOfSuccessS1Release	VS.NbrSuccessS1Release
attemptedTAU	VS.AttTAU
numberOfFailedTAUnotSysRelated_sum	VS.NbrFailedTAUnotSysRelated_sum
numberOfFailedTAU_IllegalME	VS.NbrFailedTAU_IllegalME
numberOfFailedTAU_IllegalPLMN	VS.NbrFailedTAU_IllegalPLMN
numberOfFailedTAU_InvalidMandatoryInfo	VS.NbrFailedTAU_InvalidMandatoryInfo
numberOfFailedTAU_Other	VS.NbrFailedTAU_Other
numberOfSuccessTAU	VS.NbrSuccessTAU
numberOfAttachAcceptSent	VS.NbrAttachAcceptSent
numberOfAttachCompleteRcvd	VS.NbrAttachCompleteRcvd
epsDetachMMEAtt	VS.EpsDetachMMEAtt
epsDetachUeAtt	VS.EpsDetachUeAtt
epsDetachMMESucc	VS.EpsDetachMMESucc
epsDetachUeSucc	VS.EpsDetachUeSucc
numberOfFailedIdentityRequests_Other	VS.NbrFailedIdentityRequests_Other
numberOfSuccessIdentityRequests	VS.NbrSuccessIdentityRequests
attemptedIdentityRequests	VS.AttIdentityRequests
numberOfAttachReqAbortAfter	VS.NbrAttachReqAbortAfter
numberOfAttachReqAbortBefore	VS.NbrAttachReqAbortBefore
numberOfEpsDetachAbort	VS.NbrEpsDetachAbort
numberOfIdentityRequestAbort	VS.NbrIdentityRequestAbort
numberOfServiceReqAbort	VS.NbrServiceReqAbort
numberOfTAUAbort	VS.NbrTAUAbort
taulInterSgwAtt	VS.TaulInterSgwAtt
taulInterSgwFail_Other	VS.TaulInterSgwFail_Other
taulInterSgwSucc	VS.TaulInterSgwSucc

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5620 SAM GUI name	3GPP name
taulInterMmeAtt	VS.TaulInterMmeAtt
taulInterMmeFail_IllegalME	VS.TaulInterMmeFail_IllegalME
taulInterMmeFail_IllegalPLMN	VS.TaulInterMmeFail_IllegalPLMN
taulInterMmeFail_InvalidMandatoryInfo	VS.TaulInterMmeFail_InvalidMandatoryInfo
taulInterMmeFail_Other	VS.TaulInterMmeFail_Other
taulInterMmeSucc	VS.TaulInterMmeSucc
numberSuccessExtServiceRequests	VS.NbrSuccessExtServiceRequests
attExtServiceRequests	VS.AttExtServiceRequests
numberExtServiceReqAbort	VS.NbrExtServiceReqAbort
numberExtServiceReqFailureSysRelatedMME	VS.NbrExtServiceReqFailureSysRelatedMME
numberExtServiceReqFailureSysRelatedSGW	VS.NbrExtServiceReqFailureSysRelatedSGW
numberExtServiceReqFailureSysRelatedENB	VS.NbrExtServiceReqFailureSysRelatedENB
attMEidentityChecksS13	VS.AttMEidentityChecksS13
numberFailedMEidentityChecksS13_LostComms	VS.NbrFailedMEidentityChecksS13_LostComms
numberFailedMEidentityChecksS13_Other	VS.NbrFailedMEidentityChecksS13_Other
numberSuccessMEidentityChecksS13	VS.NbrSuccessMEidentityChecksS13
epsDetachMMEimplicitAtt	VS.EpsDetachMMEimplicitAtt
epsDetachMMEimplicitSucc	VS.EpsDetachMMEimplicitSucc
numberAttachFailureSysRelated_sum	VS.NbrAttachFailureSysRelated_sum
numberAttachFailureSysRelatedENB	VS.NbrAttachFailureSysRelatedENB
numberAttachFailureSysRelatedMME	VS.NbrAttachFailureSysRelatedMME
numberAttachFailureSysRelatedSGW	VS.NbrAttachFailureSysRelatedSGW
numberFailedSGsAlert_Other	VS.NbrFailedSGsAlert_Other
numberFailedSGsEPSdetach_Other	VS.NbrFailedSGsEPSdetach_Other
numberFailedSGsIMSIdetach_Other	VS.NbrFailedSGsIMSIdetach_Other
numberFailedSGsLocationUpdate_Other	VS.NbrFailedSGsLocationUpdate_Other
numberFailedSGsMMInfo_Other	VS.NbrFailedSGsMMInfo_Other
numberFailedSGsPageCSbySTMSI_Other	VS.NbrFailedSGsPageCSbySTMSI_Other
numberFailedSGsPageIMSlandLAI_Other	VS.NbrFailedSGsPageIMSlandLAI_Other
numberFailedSGsPageIMSlandVLR_Other	VS.NbrFailedSGsPageIMSlandVLR_Other
numberFailedSGsPagePSbySTMSI_Other	VS.NbrFailedSGsPagePSbySTMSI_Other
numberFailedSGsPageWithNAS_Other	VS.NbrFailedSGsPageWithNAS_Other
numberServiceReqFailureSysRelated_sum	VS.NbrServiceReqFailureSysRelated_sum
numberServiceReqFailureSysRelatedENB	VS.NbrServiceReqFailureSysRelatedENB
numberServiceReqFailureSysRelatedMME	VS.NbrServiceReqFailureSysRelatedMME
numberServiceReqFailureSysRelatedSGW	VS.NbrServiceReqFailureSysRelatedSGW
taulInterMmeInterSgwAtt	VS.TaulInterMmeInterSgwAtt

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5620 SAM GUI name	3GPP name
taulInterMmeInterSgwFail_Other	VS.TaulInterMmeInterSgwFail_Other
taulInterMmeInterSgwSucc	VS.TaulInterMmeInterSgwSucc
numberSuccessAttachNoGUTIInoMmeChange	VS.NbrSuccessAttachNoGUTIInoMMEchange
numberSuccessAttachUsingGUTIwithMMEchange	VS.NbrSuccessAttachUsingGUTIwithMMEchange
numberSuccessAttachUsingGUTIInoMMEchange	VS.NbrSuccessAttachUsingGUTIInoMMEchange
numberS1Release_InterRATredirection	VS.NbrS1Release_InterRATredirection
attUEattachHO	VS.AttUEattachHO
numberPDNConnReqwithHO	VS.NbrPDNConnReqwithHO
numberFailedPDNConnReqwithHO_PGWInfoDoesNotExist	VS.NbrFailedPDNConnReqwithHO_PGWInfoDoesNotExist
numberFailedExtSvcRequestsNotSysRelated_sum	VS.NbrFailedExtSvcRequestsNotSysRelated_sum
numberFailedExtServiceRequests_Other	VS.NbrFailedExtServiceRequests_Other
numberFailedTAU_NoCellsInTA	VS.NbrFailedTAU_NoCellsInTA
nbrFailedTAUinterRAT_CtxtReqRejected	VS.NbrFailedTAUinterRAT_CtxtReqRejected
nbrFailedTAUinterRAT_DNSfailNoSGSN	VS.NbrFailedTAUinterRAT_DNSfailNoSGSN
nbrFailedTAUinterRAT_HSSauthFail	VS.NbrFailedTAUinterRAT_HSSauthFail
nbrFailedTAUinterRAT_InvalidTAUReq	VS.NbrFailedTAUinterRAT_InvalidTAUReq
nbrFailedTAUinterRAT_LinkProblem	VS.NbrFailedTAUinterRAT_LinkProblem
nbrFailedTAUinterRAT_Other	VS.NbrFailedTAUinterRAT_Other
nbrFailedTAUinterRAT_SGSNauthFail	VS.NbrFailedTAUinterRAT_SGSNauthFail
nbrFailedTAUinterRAT_UEauthFail	VS.NbrFailedTAUinterRAT_UEauthFail
nbrRejectedTAUinterRAT_accessRestricted	VS.NbrRejectedTAUinterRAT_accessRestricted
nbrRejectedTAUinterRAT_NoCellsInTA	VS.NbrRejectedTAUinterRAT_NoCellsInTA
nbrRejectedTAUinterRAT_regionalSubscript	VS.NbrRejectedTAUinterRAT_regionalSubscript
nbrRejectedTAUinterRAT_roamingRestricted	VS.NbrRejectedTAUinterRAT_roamingRestricted
rauAbortS3	VS.RauAbortS3
rauAttS3	VS.RauAttS3
rauFailS3_CtxtRespRejected	VS.RauFailS3_CtxtRespRejected
rauFailS3_LinkProblem	VS.RauFailS3_LinkProblem
rauFailS3_Other	VS.RauFailS3_Other
rauFailS3_PTMSISigMismatch	VS.RauFailS3_PTMSISigMismatch
rauFailS3_unknownUE	VS.RauFailS3_unknownUE
rauInterSgwAbortS3	VS.RauInterSgwAbortS3
rauInterSgwAttS3	VS.RauInterSgwAttS3
rauInterSgwFailS3_Other	VS.RauInterSgwFailS3_Other
rauInterSgwSuccS3	VS.RauInterSgwSuccS3
rauIntraSgwAbortS3	VS.RauIntraSgwAbortS3
rauIntraSgwAttS3	VS.RauIntraSgwAttS3

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5620 SAM GUI name	3GPP name
raulIntraSgwFailS3_Other	VS.RaulIntraSgwFailS3_Other
raulIntraSgwSuccS3	VS.RaulIntraSgwSuccS3
tauAttGn	VS.TauAttGn
tauAttS3	VS.TauAttS3
tauFailGn_Other	VS.TauFailGn_Other
tauFailS3_Other	VS.TauFailS3_Other
tauInterSgwAttS3	VS.TauInterSgwAttS3
tauInterSgwFailS3_Other	VS.TauInterSgwFailS3_Other
tauInterSgwSuccS3	VS.TauInterSgwSuccS3
tauIntraSgwAttS3	VS.TauIntraSgwAttS3
tauIntraSgwFailS3_Other	VS.TauIntraSgwFailS3_Other
tauIntraSgwSuccS3	VS.TauIntraSgwSuccS3
tauSuccGn	VS.TauSuccGn
tauSuccS3	VS.TauSuccS3
nbrFailedMobileOrigCSFB51APreq_UnspecifiedRadioNet	VS.NbrFailedMobileOrigCSFB51APreq_UnspecifiedRadioNet
nbrFailedMobileOrigCSFBextServiceReq_EPSandNonEPSNotAllowed	VS.NbrFailedMobileOrigCSFBextServiceReq_EPSandNonEPSNotAllowed
nbrFailedMobileOrigCSFB51APreq_UnspecifiedProtErr	VS.NbrFailedMobileOrigCSFB51APreq_UnspecifiedProtErr
nbrFailedMobileOrigCSFB51APreq_SemanticErr	VS.NbrFailedMobileOrigCSFB51APreq_SemanticErr
nbrFailedMobileOrigCSFBextServiceReq_CSnotAvailable	VS.NbrFailedMobileOrigCSFBextServiceReq_CSnotAvailable
nbrFailedMobileOrigCSFB51APreq_CellNotAvail	VS.NbrFailedMobileOrigCSFB51APreq_CellNotAvail
attEmergencyAttachRequests_UEauthFailed	VS.AttEmergencyAttachRequests_UEauthFailed
nbrExtServiceReqCSFBresponse_Reject	VS.NbrExtServiceReqCSFBresponse_Reject
nbrFailedExtServiceRequests_ProtErr	VS.NbrFailedExtServiceRequests_ProtErr
nbrMobileOrigCSFBextServiceReq	VS.NbrMobileOrigCSFBextServiceReq
nbrMobileTermCSFB51APreqMsgsSent	VS.NbrMobileTermCSFB51APreqMsgsSent
nbrFailedMobileOrigCSFBextServiceReq_ImplicitDetach	VS.NbrFailedMobileOrigCSFBextServiceReq_ImplicitDetach
nbrFailedExtSvcRequestsSysRelated_sum	VS.NbrFailedExtSvcRequestsSysRelated_sum
attEmergencyPDNConnReq	VS.AttEmergencyPDNConnReq
nbrRejectedPDNConnReqwithAPNWildcard	VS.NbrRejectedPDNConnReqwithAPNWildcard
nbrFailedMobileOrigCSFB51APreq_Other	VS.NbrFailedMobileOrigCSFB51APreq_Other
nbrFailedMobileOrigCSFB51APreq_UnknownERABid	VS.NbrFailedMobileOrigCSFB51APreq_UnknownERABid
nbrFailedMobileOrigCSFBextServiceReq_NoCellsInTA	VS.NbrFailedMobileOrigCSFBextServiceReq_NoCellsInTA
attEmergencyAttachRequests	VS.AttEmergencyAttachRequests
attEmergencyAttachRequests_NoIMSI	VS.AttEmergencyAttachRequests_NoIMSI
attEmergencyAttachRequests_UEauth	VS.AttEmergencyAttachRequests_UEauth
attEmergencyServiceReq	VS.AttEmergencyServiceReq

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5620 SAM GUI name	3GPP name
attPDNConnReqwithAPNWildcard	VS.AttPDNConnReqwithAPNWildcard
nbrAPNWildcardRequests	VS.NbrAPNWildcardRequests
nbrAPNWildcardRequestsRejected	VS.NbrAPNWildcardRequestsRejected
nbrExtServiceReqCSFBresponse_Accept	VS.NbrExtServiceReqCSFBresponse_Accept
nbrFailedExtServiceRequests_CondIError	VS.NbrFailedExtServiceRequests_CondIError
nbrFailedExtServiceRequests_NonCompatibleMsg	VS.NbrFailedExtServiceRequests_NonCompatibleMsg
nbrFailedExtServiceRequests_NonCompatibleMsgType	VS.NbrFailedExtServiceRequests_NonCompatibleMsgType
nbrFailedExtServiceRequests_SemanticErr	VS.NbrFailedExtServiceRequests_SemanticErr
nbrFailedExtServiceRequests_UnknownIE	VS.NbrFailedExtServiceRequests_UnknownIE
nbrFailedExtServiceRequests_UnknownMsgType	VS.NbrFailedExtServiceRequests_UnknownMsgType
nbrFailedMobileOrigCSFBextServiceReq_Congestion	VS.NbrFailedMobileOrigCSFBextServiceReq_Congestion
nbrFailedMobileOrigCSFBextServiceReq_CStempNotAvailable	VS.NbrFailedMobileOrigCSFBextServiceReq_CStempNotAvailable
nbrFailedMobileOrigCSFBextServiceReq_EPSnotAllowedInPLMN	VS.NbrFailedMobileOrigCSFBextServiceReq_EPSnotAllowedInPLMN
nbrFailedMobileOrigCSFBextServiceReq_EPSnotAllowed	VS.NbrFailedMobileOrigCSFBextServiceReq_EPSnotAllowed
nbrFailedMobileOrigCSFBextServiceReq_MSCnotReachable	VS.NbrFailedMobileOrigCSFBextServiceReq_MSCnotReachable
nbrFailedMobileOrigCSFBextServiceReq_NetwkFailure	VS.NbrFailedMobileOrigCSFBextServiceReq_NetwkFailure
nbrFailedMobileOrigCSFBextServiceReq_PLMNnotAllowed	VS.NbrFailedMobileOrigCSFBextServiceReq_PLMNnotAllowed
nbrFailedMobileOrigCSFBextServiceReq_RoamingNotAllowed	VS.NbrFailedMobileOrigCSFBextServiceReq_RoamingNotAllowed
nbrFailedMobileOrigCSFBextServiceReq_TAnotAllowed	VS.NbrFailedMobileOrigCSFBextServiceReq_TAnotAllowed
nbrFailedMobileOrigCSFB51APreq_AbsSyntaxErrBadMsg	VS.NbrFailedMobileOrigCSFB51APreq_AbsSyntaxErrBadMsg
nbrFailedMobileOrigCSFB51APreq_AbsSyntaxErrRej	VS.NbrFailedMobileOrigCSFB51APreq_AbsSyntaxErrRej
nbrFailedMobileOrigCSFB51APreq_ControlProcOvld	VS.NbrFailedMobileOrigCSFB51APreq_ControlProcOvld
nbrFailedMobileOrigCSFB51APreq_ENBS1apIdError	VS.NbrFailedMobileOrigCSFB51APreq_ENBS1apIdError
nbrFailedMobileOrigCSFB51APreq_HardwareFailure	VS.NbrFailedMobileOrigCSFB51APreq_HardwareFailure
nbrFailedMobileOrigCSFB51APreq_MmeS1apIdError	VS.NbrFailedMobileOrigCSFB51APreq_MmeS1apIdError
nbrFailedMobileOrigCSFB51APreq_MsgNotCompatible	VS.NbrFailedMobileOrigCSFB51APreq_MsgNotCompatible
nbrFailedMobileOrigCSFB51APreq_MultiERABid	VS.NbrFailedMobileOrigCSFB51APreq_MultiERABid
nbrFailedMobileOrigCSFB51APreq_NoPsService	VS.NbrFailedMobileOrigCSFB51APreq_NoPsService
nbrFailedMobileOrigCSFB51APreq_NoRadioResources	VS.NbrFailedMobileOrigCSFB51APreq_NoRadioResources
nbrFailedMobileOrigCSFB51APreq_OMIntervention	VS.NbrFailedMobileOrigCSFB51APreq_OMIntervention
nbrFailedMobileOrigCSFB51APreq_TransSyntaxErr	VS.NbrFailedMobileOrigCSFB51APreq_TransSyntaxErr
nbrFailedMobileOrigCSFB51APreq_Unspecified	VS.NbrFailedMobileOrigCSFB51APreq_Unspecified
nbrMobileOrigCSFBextServiceReq_Emergency	VS.NbrMobileOrigCSFBextServiceReq_Emergency
nbrMobileOrigCSFB51APreqMsgsSent	VS.NbrMobileOrigCSFB51APreqMsgsSent

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5620 SAM GUI name	3GPP name
nbrMobileOrigCSFB51APreq_ProcInteractionAbort	VS.NbrMobileOrigCSFB51APreq_ProcInteractionAbort
nbrMobileTermCSFB51APreq_ProcInteractionAbort	VS.NbrMobileTermCSFB51APreq_ProcInteractionAbort
nbrSuccessEmergencyAttachRequests	VS.NbrSuccessEmergencyAttachRequests
nbrSuccessEmergencyPDNConnReq	VS.NbrSuccessEmergencyPDNConnReq
nbrSuccessEmergencyServiceReq	VS.NbrSuccessEmergencyServiceReq
nbrPDNConnRequests_StandalonePGW	VS.NbrPDNConnRequests_StandalonePGW
nbrAttachRequests_StandalonePGW	VS.NbrAttachRequests_StandalonePGW
<b>Monitored class:</b> ltemme.MmeServiceMemberMaf	

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Table B-19 MAF NACC Stats

5620 SAM GUI name	3GPP name
collectionInterval	N/A
nbrRIMmsgsFailed_locateENBfailed	VS.NbrRIMmsgsFailed_locateENBfailed
nbrRIMmsgsFailed_locateSGSNfailed	VS.NbrRIMmsgsFailed_locateSGSNfailed
nbrRIMmsgsFailed_Other	VS.NbrRIMmsgsFailed_Other
nbrRIMmsgsRelayedSuccessfully	VS.NbrRIMmsgsRelayedSuccessfully
<b>Monitored class:</b> ltemme.MmeServiceMemberMaf	

Table B-20 MAF Overload Control Stats

5620 SAM GUI name	3GPP name
collectionInterval	N/A
numberAttachMsgsRejected	VS.NbrAttachMsgsRejected
numberDeactDedBearerMsgsRejected	VS.NbrDeactDedBearerMsgsRejected
numberDLdataNotifyMsgsRejected	VS.NbrDLdataNotifyMsgsRejected
numberGUTIreallocMsgsRejected	VS.NbrGUTIreallocMsgsRejected
numberPDNconnectMsgsRejected	VS.NbrPDNconnectMsgsRejected
numberPDNDisconnectMsgsRejected	VS.NbrPDNDisconnectMsgsRejected
numberS1HOMsgsRejected	VS.NbrS1HOMsgsRejected
numberS1ReleaseMsgsDropped	VS.NbrS1ReleaseMsgsDropped
numberServiceReqMsgsRejected	VS.NbrServiceReqMsgsRejected
numberTAUMsgsRejected	VS.NbrTAUMsgsRejected
numberX2HOMsgsRejected	VS.NbrX2HOMsgsRejected
numberSGsPagingReqMsgsRejected	VS.NbrSGsPagingReqMsgsRejected

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5620 SAM GUI name	3GPP name
numberInterRatHOGnMsgsRejected	VS.NbrInterRatHOGnMsgsRejected
numberBearerResourceAllocMsgsRejected	VS.NbrBearerResourceAllocMsgsRejected
numberBearerResourceModifyMsgsRejected	VS.NbrBearerResourceModifyMsgsRejected
numberContextRequestMsgsRejected	VS.NbrContextRequestMsgsRejected
numberCreateBearerMsgsRejected	VS.NbrCreateBearerMsgsRejected
numberFwdRelocationReqMsgsRejected	VS.NbrFwdRelocationReqMsgsRejected
numberHandoverRequiredMsgsRejected	VS.NbrHandoverRequiredMsgsRejected
numberUpdateBearerMsgsRejected	VS.NbrUpdateBearerMsgsRejected
numberDetachDropped	VS.NbrDetachDropped
nbrInterRatHOS3GERANMsgsRejected	VS.NbrInterRatHOS3GERANMsgsRejected
nbrInterRatHOS3UtranMsgsRejected	VS.NbrInterRatHOS3UtranMsgsRejected
nbrLocReqMsgsRejected	VS.NbrLocReqMsgsRejected
nbrUEassociatedPositioningMsgsRcvd_ESMLC	VS.NbrUEassociatedPositioningMsgsRcvd_ESMLC
<b>Monitored class:</b> ltemme.MmeServiceMemberMaf	

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Table B-21 MAF Paging Stats

5620 SAM GUI name	3GPP name
collectionInterval	N/A
attemptedPaging_1stAttempt	VS.AttPaging_FirstAttempt
attemptedPaging_2ndAttempt	VS.AttPaging_SecondAttempt
attemptedPaging_3rdAttempt	VS.AttPaging_ThirdAttempt
attemptedPaging_4thAttempt	VS.AttPaging_FourthAttempt
attemptedPaging	VS.AttPaging
numberOfPagingTO_1stAttempt	VS.NbrPagingTO_FirstAttempt
numberOfPagingTO_2ndAttempt	VS.NbrPagingTO_SecondAttempt
numberOfPagingTO_3rdAttempt	VS.NbrPagingTO_ThirdAttempt
numberOfPagingTO_4thAttempt	VS.NbrPagingTO_FourthAttempt
numberOfPagingFailures_NonSystemRelated	VS.NbrPagingFailures_NonSystemRelated
numberOfPagingFailures_SystemRelated	VS.NbrPagingFailures_SystemRelated
numberOfPagingFailures_Timeout	VS.NbrPagingFailures_Timeout
<b>Monitored class:</b> ltemme.MmeServiceMemberMaf	

Table B-22 MAF Roaming Stats

5620 SAM GUI name	3GPP name
collectionInterval	N/A
nbrHomeUEsNotAllowed_TACnotAllowed	VS.NbrHomeUEsNotAllowed_TACnotAllowed
nbrRoamersNotAllowed_Other	VS.NbrRoamersNotAllowed_Other
nbrRoamersNotAllowed_TACnotAllowed	VS.NbrRoamersNotAllowed_TACnotAllowed
nbrRoamersNotAllowed_UnknPLMN	VS.NbrRoamersNotAllowed_UnknPLMN
<b>Monitored class:</b> Itemme.MmeServiceMemberMaf	

Table B-23 MAF System Service Stats

5620 SAM GUI name	3GPP name
collectionInterval	N/A
reInitServiceSelf	VS.reInitServiceSelf
reInitServiceManual	VS.reInitServiceManual
restartTask	VS.restartTask
alarmCritical	VS.alarmCritical
alarmMajor	VS.alarmMajor
alarmMinor	VS.alarmMinor
asrtNonESCCritical	VS.asrtNonESCCritical
asrtNonESCMajor	VS.asrtNonESCMajor
asrtESC	VS.asrtESC
asrtNonESCMinor	VS.asrtNonESCMinor
memAllocFail	VS.memAllocFail
<b>Monitored class:</b> Itemme.MmeServiceMemberMaf	

Table B-24 MI Reliable Cluster Computing Virtual Machine Stats

5620 SAM GUI name	3GPP name
collectionInterval	N/A
act2StbyVMStateChange	VS.Act2StbyVMStateChange
stby2ActVMStateChange	VS.Stby2ActVMStateChange
act2UnavailVMStateChange	VS.Act2UnavailVMStateChange
stby2UnavailVMStateChange	VS.Stby2UnavailVMStateChange
other2UnavailVMStateChange	VS.Other2UnavailVMStateChange
<b>Monitored class:</b> Itemme.MmeServiceMemberMi	

Table B-25 MI System Service Stats

5620 SAM GUI name	3GPP name
collectionInterval	N/A
globalDiscExec	VS.globalDiscExec
eventsAddedtoMldb	VS.eventsAddedtoMldb
newAlarms	VS.newAlarms
chgAlarms	VS.chgAlarms
snmpCountsCollected	VS.snmpCountsCollected
nbiGetBulkRequests	VS.nbiGetBulkRequests
nbiGetNextRequests	VS.nbiGetNextRequests
nbiGetRequests	VS.nbiGetRequests
<b>Monitored class:</b> ltemme.MmeHost	

Table B-26 MIF Automated Neighbor Relations

5620 SAM GUI name	3GPP name
collectionInterval	N/A
numberENBconfigTransferRcvd	VS.NbrENBconfigTransferRcvd
numberMMEconfigTransferSent	VS.NbrMMEconfigTransferSent
numberConfigTransferTunnelRcvd	VS.NbrConfigTransferTunnelRcvd
numberConfigTransferTunnelSent	VS.NbrConfigTransferTunnelSent
numberANRmsgsNotSent	VS.NbrANRmsgsNotSent
<b>Monitored class:</b> ltemme.MmeServiceMemberMif	

Table B-27 MIF Broadcast Warning Message Stats

5620 SAM GUI name	3GPP name
collectionInterval	N/A
attStopWarnMsgDeliveryS1MME	VS.AttStopWarnMsgDeliveryS1MME
attStopWarnMsgDeliverySBc	VS.AttStopWarnMsgDeliverySBc
attWarnMsgDeliveryS1MME	VS.AttWarnMsgDeliveryS1MME
attWarnMsgDeliverySBc	VS.AttWarnMsgDeliverySBc
nbrFailedStopWarnMsgDeliveryS1MME_Other	VS.NbrFailedStopWarnMsgDeliveryS1MME_Other
nbrFailedStopWarnMsgDeliveryS1MME_Timeout	VS.NbrFailedStopWarnMsgDeliveryS1MME_Timeout
nbrFailedStopWarnMsgDeliverySBc_Other	VS.NbrFailedStopWarnMsgDeliverySBc_Other
nbrFailedStopWarnMsgDeliverySBc_RequestMsgErr	VS.NbrFailedStopWarnMsgDeliverySBc_RequestMsgErr

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5620 SAM GUI name	3GPP name
nbrFailedStopWarnMsgDeliverySBc_UnknownTAI	VS.NbrFailedStopWarnMsgDeliverySBc_UnknownTAI
nbrFailedWarnMsgDeliveryS1MME_eNBnBroadcast	VS.NbrFailedWarnMsgDeliveryS1MME_eNBnBroadcast
nbrFailedWarnMsgDeliveryS1MME_Other	VS.NbrFailedWarnMsgDeliveryS1MME_Other
nbrFailedWarnMsgDeliveryS1MME_Timeout	VS.NbrFailedWarnMsgDeliveryS1MME_Timeout
nbrFailedWarnMsgDeliverySBc_Other	VS.NbrFailedWarnMsgDeliverySBc_Other
nbrFailedWarnMsgDeliverySBc_RequestMsgErr	VS.NbrFailedWarnMsgDeliverySBc_RequestMsgErr
nbrFailedWarnMsgDeliverySBc_UnknownTAI	VS.NbrFailedWarnMsgDeliverySBc_UnknownTAI
nbrSuccessStopWarnMsgDeliveryS1MME	VS.NbrSuccessStopWarnMsgDeliveryS1MME
nbrSuccessStopWarnMsgDeliverySBc	VS.NbrSuccessStopWarnMsgDeliverySBc
nbrSuccessWarnMsgDeliveryS1MME	VS.NbrSuccessWarnMsgDeliveryS1MME
nbrSuccessWarnMsgDeliverySBc	VS.NbrSuccessWarnMsgDeliverySBc
<b>Monitored class:</b> ltemme.MmeServiceMemberMif	

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Table B-28 MIF CPU Stats

5620 SAM GUI name	3GPP name
collectionInterval	N/A
aveBaseCpuUsage	VS.aveBaseCpuUsage
peakBaseCpuUsage	VS.peakBaseCpuUsage
avePerSICpuUsage	VS.avePerSICpuUsage
peakPerSICpuUsage	VS.peakPerSICpuUsage
<b>Monitored class:</b> ltemme.MmeServiceMemberMif	

Table B-29 MIF DNS Stats

5620 SAM GUI name	3GPP name
collectionInterval	N/A
nbrServerQueries	VS.NbrServerQueries
nbrResolveByNetworkService	VS.NbrResolveByNetworkService
nbrRequestsTimedOut	VS.NbrRequestsTimedOut
nbrRequestsInternalFailure	VS.NbrRequestsInternalFailure
nbrResponsesSentToAppl	VS.NbrResponsesSentToAppl
nbrResponsesReceived	VS.NbrResponsesReceived
nbrResponsesWithProblem	VS.NbrResponsesWithProblem
nbrProbeResponsesRcvd	VS.NbrProbeResponsesRcvd

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5620 SAM GUI name	3GPP name
nbrResponsesRcvdLate	VS.NbrResponsesRcvdLate
nbrDNSConnClosed	VS.NbrDNSConnClosed
nbrResolveHostByName	VS.NbrResolveHostByName
nbrProbeQueries	VS.NbrProbeQueries
<b>Monitored class:</b> ltemme.MmeServiceMemberMif	

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Table B-30 MIF Interface Stats

5620 SAM GUI name	3GPP name
collectionInterval	N/A
attemptedS1MMEConnEst	VS.AttS1MMEConnEst
numberOfFailedS1MMEConnEst_Other	VS.NbrFailedS1MMEConnEst_Other
numberOfMissed_S11gtpEcho	VS.NbrMissed_S11gtpEcho
numSuccessS1MMEConnEst	VS.NumSuccessS1MMEConnEst
numberOfTO_S11gtpc	VS.NbrTO_S11gtpc
total_S11gtpEcho	VS.Total_S11gtpEcho
totalReqSent_S11gtpc	VS.TotalReqSent_S11gtpc
totalReqRcvdS11	VS.TotalReqRcvdS11
numberBadSeqRespPktsS11	VS.NbrBadSeqRespPktsS11
totalReqRcvdS10	VS.TotalReqRcvdS10
numberOfBadSeqRespPktsSv	VS.NbrBadSeqRespPktsSv
numberOfMissed_GnGtpEcho	VS.NbrMissed_GnGtpEcho
numberOfMissed_SvGtpEcho	VS.NbrMissed_SvGtpEcho
totalReqRcvdGn	VS.TotalReqRcvdGn
totalReqRcvdSv	VS.TotalReqRcvdSv
numberOfTO_GnGtpc	VS.NbrTO_GnGtpc
numberOfTO_SvGtpc	VS.NbrTO_SvGtpc
totalReqSent_GnGtpc	VS.TotalReqSent_GnGtpc
totalReqSent_SvGtpc	VS.TotalReqSent_SvGtpc
total_GnGtpEcho	VS.Total_GnGtpEcho
total_SvGtpEcho	VS.Total_SvGtpEcho
numberMissed_S10gtpEcho	VS.NbrMissed_S10gtpEcho
total_S10gtpEcho	VS.Total_S10gtpEcho
numberTO_S10gtpc	VS.NbrTO_S10gtpc
totalReqSent_S10gtpc	VS.TotalReqSent_S10gtpc
numberBadSeqRespPktsS10	VS.NbrBadSeqRespPktsS10

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5620 SAM GUI name	3GPP name
total_S3GtpEcho	VS.Total_S3GtpEcho
nbrRexmit_GnGtpc	VS.NbrRexmit_GnGtpc
totalReqRcvdS3	VS.TotalReqRcvdS3
nbrBadSeqRespPktsS3	VS.NbrBadSeqRespPktsS3
nbrRexmit_S3Gtpc	VS.NbrRexmit_S3Gtpc
nbrRexmit_SvGtpc	VS.NbrRexmit_SvGtpc
nbrRexmit_S11Gtpc	VS.NbrRexmit_S11Gtpc
totalReqSent_S3Gtpc	VS.TotalReqSent_S3Gtpc
nbrRexmit_S10Gtpc	VS.NbrRexmit_S10Gtpc
nbrMissed_S3GtpEcho	VS.NbrMissed_S3GtpEcho
nbrTO_S3Gtpc	VS.NbrTO_S3Gtpc
nbrBadSeqRespPktsGn	VS.NbrBadSeqRespPktsGn
nbrBadSeqRespPktsSm	VS.NbrBadSeqRespPktsSm
nbrMissed_SmGtpEcho	VS.NbrMissed_SmGtpEcho
nbrTO_SmGtpc	VS.NbrTO_SmGtpc
totalReqRcvdSm	VS.TotalReqRcvdSm
totalReqSent_SmGtpc	VS.TotalReqSent_SmGtpc
total_SmGtpEcho	VS.Total_SmGtpEcho
<b>Monitored class:</b> Itemme.MmeServiceMemberMif	

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Table B-31 MIF Lawful Intercept Stats

5620 SAM GUI name	3GPP name
collectionInterval	N/A
nbrInterceptedAttachDropped	VS.NbrInterceptedAttachDropped
nbrInterceptedDetachDropped	VS.NbrInterceptedDetachDropped
nbrInterceptedPDNconnectDropped	VS.NbrInterceptedPDNconnectDropped
nbrInterceptedPDNdisconnectDropped	VS.NbrInterceptedPDNdisconnectDropped
nbrInterceptedTAUDropped	VS.NbrInterceptedTAUDropped
<b>Monitored class:</b> Itemme.MmeServiceMemberMif	

Table B-32 MIF Location Based Service Stats

5620 SAM GUI name	3GPP name
collectionInterval	N/A

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5620 SAM GUI name	3GPP name
nbrNonUEassociatedPositioningMsgsRcvd_ENB	VS.NbrNonUEassociatedPositioningMsgsRcvd_ENB
nbrNonUEassociatedPositioningMsgsRcvd_ESMLC	VS.NbrNonUEassociatedPositioningMsgsRcvd_ESMLC
nbrNonUEassociatedPositioningMsgsSent_ENB	VS.NbrNonUEassociatedPositioningMsgsSent_ENB
nbrNonUEassociatedPositioningMsgsSent_ESMLC	VS.NbrNonUEassociatedPositioningMsgsSent_ESMLC
<b>Monitored class:</b> ltemme.MmeServiceMemberMif	

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Table B-33 MIF Memory Stats

5620 SAM GUI name	3GPP name
collectionInterval	N/A
memUsage	VS.memUsage
allocableMemResrvd	VS.allocableMemResrvd
maxNEmemUsage	VS.maxNEmemUsage
<b>Monitored class:</b> ltemme.MmeServiceMemberMif	

Table B-34 MIF Multimedia Broadcast Service Stats

5620 SAM GUI name	3GPP name
collectionInterval	N/A
abortMBMSsessionStartM3	VS.AbortMBMSsessionStartM3
abortMBMSsessionStopM3	VS.AbortMBMSsessionStopM3
abortMBMSsessionUpdateM3	VS.AbortMBMSsessionUpdateM3
attMBMSsessionStartM3	VS.AttMBMSsessionStartM3
attMBMSsessionStartSm	VS.AttMBMSsessionStartSm
attMBMSsessionStopM3	VS.AttMBMSsessionStopM3
attMBMSsessionStopSm	VS.AttMBMSsessionStopSm
attMBMSsessionUpdateM3	VS.AttMBMSsessionUpdateM3
attMBMSsessionUpdateSm	VS.AttMBMSsessionUpdateSm
nbrFailedMBMSsessionStartM3_M3APIDproblem	VS.NbrFailedMBMSsessionStartM3_M3APIDproblem
nbrFailedMBMSsessionStartM3_Other	VS.NbrFailedMBMSsessionStartM3_Other
nbrFailedMBMSsessionStartM3_ProtocolErr	VS.NbrFailedMBMSsessionStartM3_ProtocolErr
nbrFailedMBMSsessionStartM3_QoSproblem	VS.NbrFailedMBMSsessionStartM3_QoSproblem
nbrFailedMBMSsessionStartM3_ResourcesUnavail	VS.NbrFailedMBMSsessionStartM3_ResourcesUnavail
nbrFailedMBMSsessionStartM3_Timeout	VS.NbrFailedMBMSsessionStartM3_Timeout
nbrFailedMBMSsessionStartSm_Other	VS.NbrFailedMBMSsessionStartSm_Other

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5620 SAM GUI name	3GPP name
nbrFailedMBMSsessionStartSm_RequestMsgErr	VS.NbrFailedMBMSsessionStartSm_RequestMsgErr
nbrFailedMBMSsessionStartSm_ResourcesUnavail	VS.NbrFailedMBMSsessionStartSm_ResourcesUnavail
nbrFailedMBMSsessionStartSm_SystemFailure	VS.NbrFailedMBMSsessionStartSm_SystemFailure
nbrFailedMBMSsessionStopM3_M3APIDproblem	VS.NbrFailedMBMSsessionStopM3_M3APIDproblem
nbrFailedMBMSsessionStopM3_Other	VS.NbrFailedMBMSsessionStopM3_Other
nbrFailedMBMSsessionStopM3_ResourcesUnavail	VS.NbrFailedMBMSsessionStopM3_ResourcesUnavail
nbrFailedMBMSsessionStopM3_Timeout	VS.NbrFailedMBMSsessionStopM3_Timeout
nbrFailedMBMSsessionStopSm_ContextNotFound	VS.NbrFailedMBMSsessionStopSm_ContextNotFound
nbrFailedMBMSsessionStopSm_Other	VS.NbrFailedMBMSsessionStopSm_Other
nbrFailedMBMSsessionStopSm_RequestMsgErr	VS.NbrFailedMBMSsessionStopSm_RequestMsgErr
nbrFailedMBMSsessionStopSm_SystemFailure	VS.NbrFailedMBMSsessionStopSm_SystemFailure
nbrFailedMBMSsessionUpdateM3_M3APIDproblem	VS.NbrFailedMBMSsessionUpdateM3_M3APIDproblem
nbrFailedMBMSsessionUpdateM3_Other	VS.NbrFailedMBMSsessionUpdateM3_Other
nbrFailedMBMSsessionUpdateM3_ProtocolErr	VS.NbrFailedMBMSsessionUpdateM3_ProtocolErr
nbrFailedMBMSsessionUpdateM3_QoSproblem	VS.NbrFailedMBMSsessionUpdateM3_QoSproblem
nbrFailedMBMSsessionUpdateM3_ResourcesUnavail	VS.NbrFailedMBMSsessionUpdateM3_ResourcesUnavail
nbrFailedMBMSsessionUpdateM3_Timeout	VS.NbrFailedMBMSsessionUpdateM3_Timeout
nbrFailedMBMSsessionUpdateSm_ContextNotFound	VS.NbrFailedMBMSsessionUpdateSm_ContextNotFound
nbrFailedMBMSsessionUpdateSm_Other	VS.NbrFailedMBMSsessionUpdateSm_Other
nbrFailedMBMSsessionUpdateSm_RequestMsgErr	VS.NbrFailedMBMSsessionUpdateSm_RequestMsgErr
nbrFailedMBMSsessionUpdateSm_SystemFailure	VS.NbrFailedMBMSsessionUpdateSm_SystemFailure
nbrMBMSmsgsRcvdServiceDisabled	VS.NbrMBMSmsgsRcvdServiceDisabled
nbrMBMSReset_MCEinitiated	VS.NbrMBMSReset_MCEinitiated
nbrMBMSReset_MMEinitiated	VS.NbrMBMSReset_MMEinitiated
nbrSuccessMBMSsessionStartM3	VS.NbrSuccessMBMSsessionStartM3
nbrSuccessMBMSsessionStartSm	VS.NbrSuccessMBMSsessionStartSm
nbrSuccessMBMSsessionStopM3	VS.NbrSuccessMBMSsessionStopM3
nbrSuccessMBMSsessionStopSm	VS.NbrSuccessMBMSsessionStopSm
nbrSuccessMBMSsessionUpdateM3	VS.NbrSuccessMBMSsessionUpdateM3
nbrSuccessMBMSsessionUpdateSm	VS.NbrSuccessMBMSsessionUpdateSm
<b>Monitored class:</b> ltemme.MmeServiceMemberMif	

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Table B-35 MIF Overload Control Stats

5620 SAM GUI name	3GPP name
collectionInterval	N/A

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5620 SAM GUI name	3GPP name
numberS1HOMsgsRejected	VS.NbrS1HOMsgsRejected
numberGnmsgsDropped	VS.NbrGnmsgsDropped
numberS10msgsDropped	VS.NbrS10msgsDropped
numberS11msgsDropped	VS.NbrS11msgsDropped
numberS1msgsDropped	VS.NbrS1msgsDropped
numberS6amsgsDropped	VS.NbrS6amsgsDropped
numberSGsmmsgsDropped	VS.NbrSGsmmsgsDropped
numberX1_1msgsDropped	VS.NbrX1_1msgsDropped
numberX2msgsDropped	VS.NbrX2msgsDropped
numberS13msgsDropped	VS.NbrS13msgsDropped
numberSvmsgsDropped	VS.NbrSvmsgsDropped
nbrM3msgsDropped	VS.NbrM3msgsDropped
nbrSmmsgsDropped	VS.NbrSmmsgsDropped
<b>Monitored class:</b> ltemme.MmeServiceMemberMif	

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Table B-36 MIF Quality and Reliability Measurements

5620 SAM GUI name	3GPP name
collectionInterval	N/A
numberOfTimesLinkIsDown_S11	VS.NbrTimesLinkIsDown_S11
numberOfTimesLinkIsDown_S1MME	VS.NbrTimesLinkIsDown_S1MME
numberOfTimesLinkIsDown_S6a	VS.NbrTimesLinkIsDown_S6a
numberOfTimesLinkIsDown_Gn	VS.NbrTimesLinkIsDown_Gn
numberOfTimesLinkIsDown_Sv	VS.NbrTimesLinkIsDown_Sv
numberTimesLinkIsDown_S10	VS.NbrTimesLinkIsDown_S10
numberTimesLinkIsDown_SGs	VS.NbrTimesLinkIsDown_SGs
numberTimesLinkIsDown_S13	VS.NbrTimesLinkIsDown_S13
numberTimesLinkIsDown_S3	VS.NbrTimesLinkIsDown_S3
nbrTimesLinkIsDown_M3	VS.NbrTimesLinkIsDown_M3
nbrTimesLinkIsDown_SBC	VS.NbrTimesLinkIsDown_SBC
nbrTimesLinkIsDown_SLg	VS.NbrTimesLinkIsDown_SLg
nbrTimesLinkIsDown_SLs	VS.NbrTimesLinkIsDown_SLs
nbrTimesLinkIsDown_Sm	VS.NbrTimesLinkIsDown_Sm
<b>Monitored class:</b> ltemme.MmeServiceMemberMif	

Table B-37 MIF System Service Stats

5620 SAM GUI name	3GPP name
collectionInterval	N/A
reInitServiceSelf	VS.reInitServiceSelf
reInitServiceManual	VS.reInitServiceManual
restartTask	VS.restartTask
alarmCritical	VS.alarmCritical
alarmMajor	VS.alarmMajor
alarmMinor	VS.alarmMinor
asrtNonESCCritical	VS.asrtNonESCCritical
asrtNonESCMajor	VS.asrtNonESCMajor
asrtESC	VS.asrtESC
asrtNonESCMinor	VS.asrtNonESCMinor
memAllocFail	VS.memAllocFail
<b>Monitored class:</b> ltemme.MmeServiceMemberMif	

Table B-38 MPH CPU Stats

5620 SAM GUI name	3GPP name
collectionInterval	N/A
aveBaseCpuUsage	VS.aveBaseCpuUsage
peakBaseCpuUsage	VS.peakBaseCpuUsage
avePerSICpuUsage	VS.avePerSICpuUsage
peakPerSICpuUsage	VS.peakPerSICpuUsage
<b>Monitored class:</b> ltemme.MmeServiceMemberMph	

Table B-39 MPH Memory Stats

5620 SAM GUI name	3GPP name
collectionInterval	N/A
memUsage	VS.memUsage
allocableMemResrvd	VS.allocableMemResrvd
maxNEmemUsage	VS.maxNEmemUsage
<b>Monitored class:</b> ltemme.MmeServiceMemberMph	

Table B-40 MPH System Service Stats

5620 SAM GUI name	3GPP name
collectionInterval	N/A
reInitServiceSelf	VS.reInitServiceSelf
reInitServiceManual	VS.reInitServiceManual
restartTask	VS.restartTask
alarmCritical	VS.alarmCritical
alarmMajor	VS.alarmMajor
alarmMinor	VS.alarmMinor
asrtNonESCCritical	VS.asrtNonESCCritical
asrtNonESCMajor	VS.asrtNonESCMajor
asrtESC	VS.asrtESC
asrtNonESCMinor	VS.asrtNonESCMinor
memAllocFail	VS.memAllocFail
audErrCount	VS.audErrCount
audManAc	VS.audManAct
audNewEvent	VS.audNewEvent
exceptionService	VS.exceptionService
alarmWarning	VS.alarmWarning
<b>Monitored class:</b> ltemme.MmeServiceMemberMph	

Table B-41 OAM Card Base CPU Stats

5620 SAM GUI name	3GPP name
collectionInterval	N/A
aveBaseCpuUsage	VS.aveBaseCpuUsage
peakBaseCpuUsage	VS.peakBaseCpuUsage
<b>Monitored class:</b> equipment.AtcaCard	

Table B-42 OAM Card CPU Stats

5620 SAM GUI name	3GPP name
collectionInterval	N/A
aveCpuUsage	VS.aveCpuUsage
peakCpuUsage	VS.peakCpuUsage
<b>Monitored class:</b> equipment.AtcaCard	

Table B-43 OAM Card Disk Stats

5620 SAM GUI name	3GPP name
collectionInterval	N/A
diskIOReadRate	VS.diskIOReadRate
diskIOWriteRate	VS.diskIOWriteRate
<b>Monitored class:</b> equipment.AtcaCard	

Table B-44 OAM Card Memory Stats

5620 SAM GUI name	3GPP name
collectionInterval	N/A
memUsage	VS.memUsage
maxNEmemUsage	VS.maxNEmemUsage
<b>Monitored class:</b> equipment.AtcaCard	

Table B-45 OAM Card System Service Stats

5620 SAM GUI name	3GPP name
collectionInterval	N/A
alarmCritical	VS.alarmCritical
alarmMajor	VS.alarmMajor
alarmMinor	VS.alarmMinor
asrtNonESCCritical	VS.asrtNonESCCritical
asrtNonESCMajor	VS.asrtNonESCMajor
asrtESC	VS.asrtESC
asrtNonESCMinor	VS.asrtNonESCMinor
<b>Monitored class:</b> equipment.AtcaCard	





# Customer documentation and product support



## Customer documentation

<http://www.alcatel-lucent.com/myaccess>

Product manuals and documentation updates are available at [alcatel-lucent.com](http://www.alcatel-lucent.com). If you are a new user and require access to this service, please contact your Alcatel-Lucent sales representative.



## Technical Support

<http://support.alcatel-lucent.com>



## Documentation feedback

[documentation.feedback@alcatel-lucent.com](mailto:documentation.feedback@alcatel-lucent.com)

