

RELEASE DESCRIPTION

Alcatel-Lucent 5620

SERVICE AWARE MANAGER | RELEASE 9.0 R7

LTE LE4.0 RELEASE DESCRIPTION

3HE 06861 AAAA TQZZA Edition 05

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1 Introduction

1.1 Purpose

The purpose of this document is to communicate 5620 SAM feature content for LTE network element management.

The audience for the document is Alcatel-Lucent clients, LTE functional groups, and engineers specialized in OAM.

The high-level feature descriptions provided by this document are intended to provide information to consumers about the content that is planned for a particular release. Each feature description includes the feature title, reference number, and the following information:

- > feature description
- > feature benefits
- > dependencies (hardware, software, feature, inter-working, devices, and standards)
- > impacted systems
- > restrictions and limitations
- > engineering impacts
- > operational requirements (counters, configuration management, parameters, fault management, and alarms)

1.2 New Features

The following table lists LTE-related features or DCR functionality added.

| Rel | Load | Feature # | Feature Name | Status | Node | Node Release |
|-----|------|-----------|--|--------|--------|------------------|
| 9.0 | R5 | NM2455 | Support of eNodeB LA4.0 (eNodeB models) | Basic | eNodeB | LA2/LA3/LA4 |
| 9.0 | R5 | NM2772 | Support of eNodeB TLA4.0.0 (eNodeB release and backward compatibility) | Basic | eNodeB | TLA2.1/TLA3/TLA4 |
| 9.0 | R5 | NM2624 | Support of eNodeB counter selection | Basic | eNodeB | LE2/LE3/LE4 |
| 9.0 | R5 | NM3115 | 5620 SAM framework for data transfer toward WPS external tools | Basic | eNodeB | LE2/LE3/LE4 |

| Rel | Load | Feature # | Feature Name | Status | Node | Node Release |
|-----|------|-----------|--|--------|----------|--------------|
| 9.0 | R5 | NM2463 | Support of IRAT ANR for eNodeB | Basic | eNodeB | LE2/LE3/LE4 |
| 9.0 | R5 | NM2827 | 5620 SAM configuration evolution | Basic | eNodeB | LE2/LE3/LE4 |
| 9.0 | R5 | NM3114 | NEM cross-launch over IPv6 in 5620 SAM | Basic | eNodeB | LE2/LE3/LE4 |
| 9.0 | R5 | NM2458 | eNodeB licensing improvement | Basic | eNodeB | LE2/LE3/LE4 |
| 9.0 | R5 | NM2464 | Wireless equipment management improvement | Basic | eNodeB | LE2/LE3/LE4 |
| 9.0 | R5 | NM2459 | Support of eUTRAN sharing (LTE RAN) | Basic | eNodeB | LE2/LE3/LE4 |
| 9.0 | R5 | NM3116 | 5620 SAM to 5620 SAM rehomings procedure evolution | Basic | eNodeB | LE2/LE3/LE4 |
| 9.0 | R5 | NM2623 | eNodeB scalability tests improvement | Basic | eNodeB | LE2/LE3/LE4 |
| 9.0 | R5 | NM2944 | Support of s-BBU configuration | Basic | eNodeB | LE2/LE3/LE4 |
| 9.0 | R3 | NM2411 | MG bearer list query filtering | Basic | 7750 MG | MG 3.0 R1 |
| 9.0 | R3 | NM2637 | MG bearer stats interface improvements | Basic | 7750 MG | MG 3.0 R5 |
| 9.0 | R3 | NM2457 | MG Peer stats aggregation | Basic | 7750 MG | MG 3.0 R5 |
| 9.0 | R5 | NM2213 | KPI/KCI threshold crossing | Basic | 7750 MG | MG 3.1 R1 |
| 9.0 | R5 | NM3057 | Primary KPI/KCI | Basic | 7750 MG | MG 3.1 R1 |
| 9.0 | R1 | NM2641 | MG 3GPP Lawful Interception | Basic | 7750 MG | MG 3.0 R1 |
| 9.0 | R3 | NM2974 | MG 3GPP Lawful Interception extensions | Basic | 7750 MG | MG 3.0 R1 |
| 9.0 | R3 | NM3004 | MME Netconf support | Basic | 9471 MME | LM 4.0/4.0.2 |
| 9.0 | R5 | NM3009 | NMS-based bulk provisioning | Basic | 9471 MME | LM4.0.2 |
| 9.0 | R5 | NM3010 | EMS-based pool support | Basic | 9471 MME | LM4.0.2 |
| 9.0 | R5 | NM3011 | EMS-based load balancing | Basic | 9471 MME | LM4.0.2 |

2 PLM Functional Requirements

2.1 Release Mapping

The release content for LE4.0 management has been introduced in 5620 SAM 9.0 R5.

2.2 Release Content Status

5620 SAM Release 9.0 R5 is General Availability status (DR4/DR5 stage).

2.3 Nodal Support

| Node | Release |
|---------------------|--|
| 7750 MG (SGW & PGW) | MG 3.1 R1 |
| 9471 MME | LM 4.0, LM4.0.2 |
| 5780 DSC | DSC 4.0 |
| eNodeB | eNodeB LA2.0, LA3.0, LA4.0 eNodeB TLA2.1, TLA3.0, TLA4.0.0 |

3 Feature Descriptions

3.1 5620 SAM Platform Capabilities

5620 SAM supports run-time environments based on Solaris 10 that run on various SUN Intel/AMD/Sparc architectures. Co-located deployments, distributed deployments, and geo-redundancy are supported. The 5620 SAM client can run on Windows-based PCs and Solaris-based platforms. Citrix is supported for the 5620 SAM client.

NM2630 - 5620 SAM scalability tests improvement for eNodeB

Feature Description

This feature describes the 5620 SAM Key Performance Indicators and dimensioning for LTE RAN network management.

| Areas targeted for scale investment | Small | Medium | Large | X-Large |
|---|------------------------|------------------------|-------------------------|---------------------------------|
| Maximum network elements | 150 | 975 | 4500 | 12,000 |
| Maximum number of base stations | 100 | 650 | 3,000 | 8,000 |
| Maximum number of cells/sectors | 300* | 1850* | 9000* | 24,000* |
| Maximum number of managed MDAs | 300 | 1900 | 9000 | 25,000 |
| Concurrent OSS Clients | 30 | 30 | 30 | 30 |
| Concurrent GUI Clients | 15 | 35 | 60 | 150 |
| Simultaneous Active Call Trace sessions | 30 | 30 | 50 | 100 |
| Typical HW Configuration** | Collocated + CT Aux | Collocated + CT Aux | Distributed + CT Aux | Distributed + PM Aux +CT Aux |

* 3 cells per eNodeB supported in LE4.0

** Hardware description for S/M/L/XL configurations are studied and recommended by the Alcatel-Lucent OAM engineering team in order to give the most accurate hardware in function for KPI + number of non-wireless RAN element, network growth forecast. For specific platform sizing recommendations, please refer to the 5620 SAM H/W PLATFORM sizing web tool.

Feature Benefits

This feature guarantees the performance of the overall release.

| Impacted systems | Dependencies | | | | | |
|------------------|--------------|-----------------|---------|--|---------|-----------|
| | Hardware | Software | Feature | Interworking | Devices | Standards |
| 5620 SAM | N/A | 5620 SAM 9.0 R5 | N/A | LA2.x, LA3.x, LA4.0, TLA2.1, TLA3.x, TLA4.0.0 eNodeB | N/A | N/A |

Restrictions/Limitations

A single AUX server is able to support up to 50 simultaneous Call Trace sessions in 5620 SAM Release 9.0 R5.

Engineering Impacts

N/A

Operational Requirements

N/A

3.2 5620 LTE RAN Specific

NM2455 - 5620 SAM support of LA4.0 / NM2772 - Support of eNodeB TLA4.0.0 (eNodeB release and backward compatibility)

Feature Description

The 5620 SAM system supports the following devices and RAN releases:

| eNodeB release | Technology |
|-----------------|------------|
| eNodeB LA2.0 | FDD |
| eNodeB TLA2.1 | TDD |
| eNodeB LA3.x | FDD |
| eNodeB TLA3.x | TDD |
| eNodeB LA4.0 | FDD |
| eNodeB TLA4.0.0 | TDD |

The supported upgrade paths, which require full upgrade at each step, are:

eNodeB LA2 → LA3.0.2 → LA4.0

eNodeB TLA 2.1 → TLA3 → TLA4

Feature Benefits

Allows the support and upgrade of FDD/TDD LA3.0/TLA3 to LA4.0/TLA4.

| Impacted systems | Dependencies | | | | | |
|------------------|--------------|-----------------|---------|--|---------|-----------|
| | Hardware | Software | Feature | Interworking | Devices | Standards |
| 5620 SAM | N/A | 5620 SAM 9.0 R5 | N/A | LA2.x, LA3.x, LA4.0, TLA2.1, TLA3.x, TLA4.0.0 eNodeB | N/A | N/A |

Restrictions/Limitations

N/A

Engineering Impacts

N/A

Operational Requirements

N/A

NM2459 - 5620 SAM support of eUTRAN sharing

Feature Description

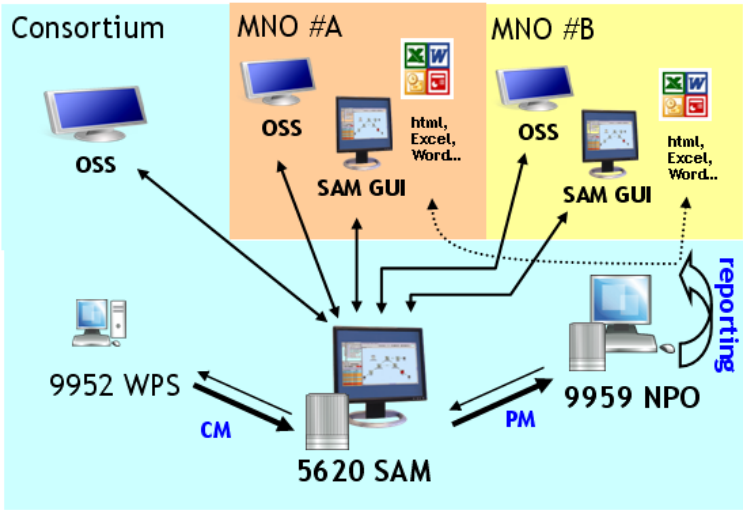
The goal of this feature is to provide the user a way to manage efficiently the RAN sharing feature introduced in LA4.0 that allows an operator to share an entire eNodeB between two Mobile Providers through PLMN_ID management and be able to connect this shared eNodeB to the two ePC networks of those two operators.

In terms of network management, the goal is then to give to a main admin user the capability to manage the permission of access to the data for the shared part of the network according to the PLMN_IDs.

The admin user will then be able to perform some administration operations on the entire network as per the "delegate agreement" between operators and the per-PLMN_ID users will be able to supervise only the part of the network that it is assigned to them and forbid any action that could have impact on other PLMN_ID elements:

- Nodes can be assigned directly to a span/group at discovery level or NE per NE into the GUI.
- Delegate Users can be assigned to a Span and then have only access to the share NEs.

➤ All functions done by this user (OSS export, fault visualization, command application...) are controled towards the Span definition except workorder activation, which is restricted to main consortium user for sharing principles.



Feature Benefits

This new method provides an easy and flexible way to share the information needed for an external MNO based on the sharing agreement between the main operator (consortium) and delegate operators.

| Impacted systems | Dependencies | | | | | |
|------------------|--------------|-----------------|---------|----------------------------|---------|-----------|
| | Hardware | Software | Feature | Interworking | Devices | Standards |
| 5620 SAM | N/A | 5620 SAM 9.0 R5 | N/A | LA2.x, LA3.x, LA4.0 eNodeB | N/A | N/A |

Restrictions/Limitations

Assignment of the eNodeB into a span of control should be done manually either through an assignment of the eNodeB into a dedicated group, or on an eNodeB-by-eNodeB basis into its parameters form.

Workorder activation is restricted to the main consortium user as far as he is the only one with access to WPS tool.

Engineering Impacts

N/A

Operational Requirements

N/A

NM2458 - 5620 SAM eNodeB licensing enhancement**Feature Description**

The goal of this feature is to enhance the functionalities of the RAN licensing framework introduced in LE3.

The following functions have been introduced:

- On the fly computation of capacity licensing: The framework will compute directly within 5620 SAM the number of token for capacity licenses that will be consumed based on the radio configuration. This computation was previously done in off-line and had some limitations in terms of dynamic management of the capacity licensing.
- Alignment management function: In some specific cases, mainly due to discovery management, a difference may happen between the number of tokens consumed and the real need computed and stored into the 5620 SAM DB. So, this function allows an administrator to realign the number of tokens consumed based on the 5620 SAM DB reference.
- Generated Date check: The framework will control the import of a license file based on generated Date of the certified license file. The system will be then protected against old license file import which are out of date and can create some problems on the network due to inaccuracy between token assigned and real needs.

Feature Benefits

Those improvements allow having more flexibility in the management of licenses and protect the network against some specific error case that could occur on the network.

| Impacted systems | Dependencies | | | | | |
|------------------|--------------|-----------------|---------|--|---------|-----------|
| | Hardware | Software | Feature | Interworking | Devices | Standards |
| 5620 SAM | N/A | 5620 SAM 9.0 R5 | N/A | LA2.x, LA3.x, LA4.0, TLA2.1, TLA3.x, TLA4.0.0 eNodeB | N/A | N/A |

Restrictions/Limitations

N/A

Engineering Impacts

N/A

Operational Requirements

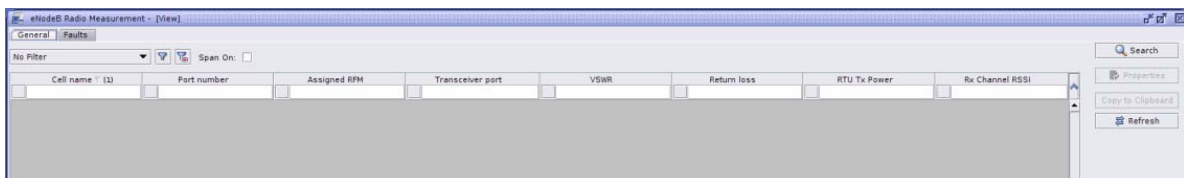
N/A

NM2464 - Wireless Equipment management improvement

Feature Description

The goal of this feature is take into account the new capabilities of the eNodeB to send on demand the value of VSWR, Return Path Loss, RSSI, Tx Power for an eNodeB on a per cell/per antenna port.

The user will be able to launch a dedicated GUI for an eNodeB and request on-demand the retrieval and display of the measurement mentioned above. The eNodeB provides an instantaneous measurement that is retrieved and displayed to the user the following way:



Feature Benefits

This feature enhances the troubleshooting capabilities of the eNodeB towards radio conditions.

| Impacted systems | Dependencies | | | | | |
|------------------|--------------|-----------------|---------|----------------------------|---------|-----------|
| | Hardware | Software | Feature | Interworking | Devices | Standards |
| 5620 SAM | N/A | 5620 SAM 9.0 R5 | N/A | LA2.x, LA3.x, LA4.x eNodeB | N/A | N/A |

Restrictions/Limitations

N/A

Engineering Impacts

N/A

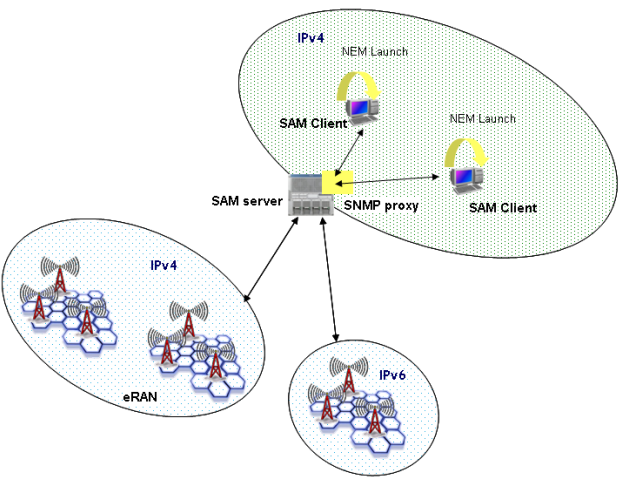
Operational Requirements

N/A

NM3114 - NEM cross-launch over IPV6 in 5620 SAM

Feature Description

The 5620 SAM supports the launch of NEM software from the SAM GUI to access an eNodeB that is located in either the same, or in a different, sub-network based on OAM IPV4 or IPV6 protocols.



Feature Benefits

This feature ensures the correct handling of NEM direct launch from 5620 SAM whatever the OAM link protocol IPV4 or IPV6.

| Impacted systems | Dependencies | | | | | |
|------------------|--------------|-----------------|---------|--|---------|-----------|
| | Hardware | Software | Feature | Interworking | Devices | Standards |
| 5620 SAM | N/A | 5620 SAM 9.0 R5 | N/A | LA2.x, LA3.x, LA4.0, TLA2.1, TLA3.x, TLA4.0.0 eNodeB | N/A | N/A |

Restrictions/Limitations

N/A

Engineering Impacts

N/A

Operational Requirements

N/A

NM2944 - 5620 SAM support of sBBU configuration in Release 9.0 R5

Feature Description

The 5620 SAM supports fully the sBBU configuration into 5620 SAM for TLA4.0 releases.

Feature Benefits

This feature ensures handling the new sBBU HW configuration in TDD showing in 5620 SAM GUI the exact configuration and corresponding model of the HW.

| Impacted systems | Dependencies | | | | | |
|------------------|--------------|-----------------|---------|--|---------|-----------|
| | Hardware | Software | Feature | Interworking | Devices | Standards |
| 5620 SAM | N/A | 5620 SAM 9.0 R5 | N/A | LA2.x, LA3.x, LA4.0, TLA2.1, TLA3.x, TLA4.0.0 eNodeB | N/A | N/A |

Restrictions/Limitations

N/A

Engineering Impacts

N/A

Operational Requirements

N/A

3.3 5620 SAM Fault Management - First Alert

None.

3.4 5620 SAM Configuration Management

NM2827 - 5620 SAM configuration evolution

Feature Description

The goal of this feature is to provide a set of evolutions in the management of eNodeB and the configuration and interaction both from the GUI and from SAM-O.

The following functions have been introduced:

- Dynamic CM snapshot export definition and CM snapshot compression
- ICMP ping of the eNodeB through SAM-O
- eNodeB CLI access through SAM-O
- Dynamic CM snapshot export definition allows the user to create a dynamic filter definition that will be evaluated each time the snapshot export is triggered in order to dynamically include into this export the nodes corresponding to the result of the

filtering. This mechanism is available either for on-demand snapshot exports or for scheduled ones.

It is also possible to choose to compress or not in .gz the snapshot exported either dynamically or classically.

Ex : Snapshot export is defined through a filter on the eNodeB name matching abc_*. If the user introduces a new node on the network named "abc_123", the definition of this node will be exported the next time the snapshot export is required (either manually or on-demand). On the other hand, if the user introduce on the network a new node named "def_123", this node will not be part of the snapshot export matching criteria filter eNBname = abc_*

- ICMP ping of the eNodeB through SAM-O allows the user to define into a SAM-O scripting function the possibility to launch a ping between 5620 SAM and the eNodeB and retrieve the result of the ping, reachable/not reachable. This feature give the possibility to automatically trigger some "node reachability testing" through the NBI of 5620 SAM

It is also possible to launch the ping from the GUI of 5620 SAM.

- eNodeB CLI access through SAM-O allows the user to open a CLI session on the eNodeB and launch some eNodeB commands through the SAM-O interface of 5620 SAM. This feature give the possibility to log on the eNodeB directly from the NBI of 5620 SAM for debugging purposes or in complement of the previous function of reachability testing.

Feature Benefits

This feature ensures a better management of the configuration and access to the eNodeB.

| Impacted systems | Dependencies | | | | | |
|------------------|--------------|-----------------|---------|--|---------|-----------|
| | Hardware | Software | Feature | Interworking | Devices | Standards |
| 5620 SAM | N/A | 5620 SAM 9.0 R5 | N/A | LA2.x, LA3.x, LA4.0, TLA2.1, TLA3.x, TLA4.0.0 eNodeB | N/A | N/A |

Restrictions/Limitations

N/A

Engineering Impacts

N/A

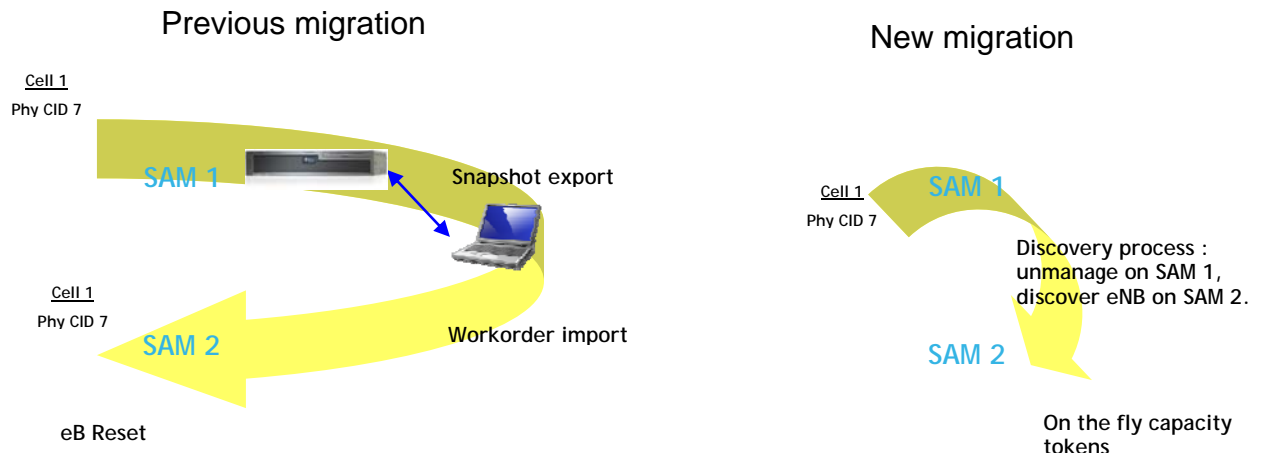
Operational Requirements

N/A

NM3116 - 5620 SAM to 5620 SAM rehomeing procedure evolution

Feature Description

The goal of this feature is to provide the user a smooth way for eNodeB rehomeing from one 5620 SAM to another. All parameters being totally hosted on the eNodeB and not shared between eNodeB and SAM object as per previous version, the user will be able to simply unmanage the NE from the source SAM, create a new discovery rule on the target 5620 SAM and the node with all its information, including RAN licenses will be created automatically on the target 5620 SAM.

**Feature Benefits**

This new method allows having an easy way to rehome eNodeB from one SAM to another one without service impacts and a minimum for manual operations.

| Impacted systems | Dependencies | | | | | |
|------------------|--------------|-----------------|---------|--|---------|-----------|
| | Hardware | Software | Feature | Interworking | Devices | Standards |
| 5620 SAM | N/A | 5620 SAM 9.0 R5 | N/A | LA2.x, LA3.x, LA4.0, TLA2.1, TLA3.x, TLA4.0.0 eNodeB | N/A | N/A |

Restrictions/Limitations

N/A

Engineering Impacts

N/A

Operational Requirements

N/A

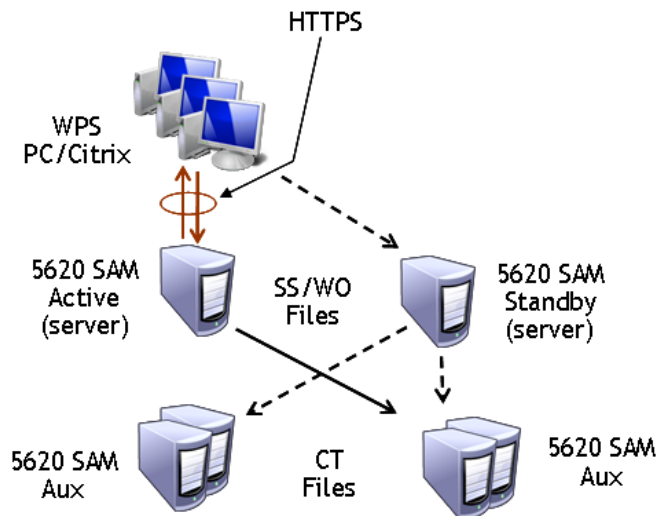
NM3115 - 5620 SAM framework for data transfer toward external tools

Feature Description

The goal of this feature is to provide a way for the user to interact with the 5620 SAM through WPS external tools for file exchanges (snapshot export, workorder) through a secured https connection using SAM user authentication and without any use of UNIX user needs.

The framework provided to external tools is based on WebDAV protocol allowing any webDAV client to access through https protocol on the specific URL (configuration data, traces data...) using already existing and declared SAM GUI users.

The security framework of 5620 SAM will allow to use or not the external access for dedicated users.

**Feature Benefits**

This new mechanism allows to completely rely on SAM application user for data transfer through a secured protocol, avoiding the usage of UNIX user for sFTP manual data transfer.

| Impacted systems | Dependencies | | | | | |
|------------------|--------------|-----------------|---------|--|---------|-----------|
| | Hardware | Software | Feature | Interworking | Devices | Standards |
| 5620 SAM | N/A | 5620 SAM 9.0 R5 | N/A | LA2.x, LA3.x, LA4.0, TLA2.1, TLA3.x, TLA4.0.0 eNodeB | N/A | N/A |

Restrictions/Limitations

WTA access point is not included into LE4 plan.

Engineering Impacts

N/A

Operational Requirements

N/A

NM3004 - MME NetConf Support

Feature Description

On top of the SNMP basic management of the MME, SAM 9.0 R3 introduced support of NetConf mediation interface between SAM and the MME. The new NetConf discovery of the MME will appear when the user selects:

MME → Properties → MME Instance → Properties → Components Tab

Feature Benefits

This feature allows the operator to discover and manage the 9471 MME. It also allows to view, edit and create objects that are mediated via NetConf. All NetConf objects that are contained by the MME Instance object and will be accessible through the “Configuration Components” tree of the MME Instance's display manager.

The MME MI GUI (which can be cross-launched from the 5620 SAM GUI) will continue to be supported in 5620 SAM Release 9.0.

| Impacted systems | Dependencies | | | | | |
|------------------|--------------|-----------------|---------|--------------|---------|-----------|
| | Hardware | Software | Feature | Interworking | Devices | Standards |
| 5620 SAM | N/A | 5620 SAM 9.0 R3 | N/A | LE4.0 | N/A | N/A |

Restrictions/Limitations

N/A

Engineering Impacts

N/A

Operational Requirements

N/A

NM3009 - NMS-Based Bulk Provisioning

Feature Description

This feature will allow users to push multiple changes across a number of MMEs or Tracking Areas in the network. This feature will also allow the creation of TAs, association of multiple eNodeBs with a TA.

Feature Benefits

This feature will allow the user to:

- 1) Create a TA and assign multiple eNodeBs to a TA
- 2) Execute eNodeB re-homing (using RAN S1-MME profiles)
- 3) Perform bulk update of global MME objects
- 4) Create and distribute SCTP and GTP profiles using the 5620 SAM policy framework

| Impacted systems | Dependencies | | | | | |
|------------------|--------------|-----------------|---------|--------------|---------|-----------|
| | Hardware | Software | Feature | Interworking | Devices | Standards |
| 5620 SAM | N/A | 5620 SAM 9.0 R5 | N/A | LE4.0 | N/A | N/A |

Restrictions/Limitations

Requires LM4.0.2

Engineering Impacts

N/A

Operational Requirements

N/A

3.5 5620 SAM Self Organizing & Optimizing Network

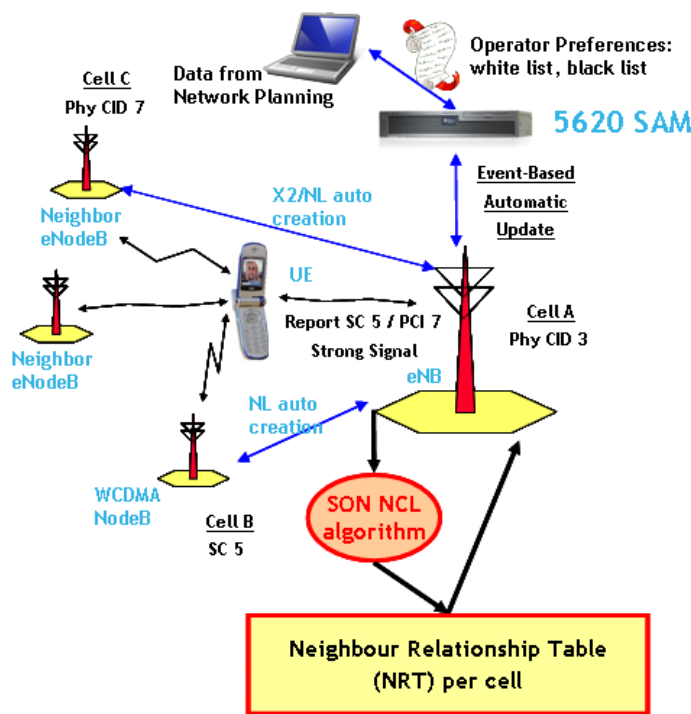
NM2463 - 5620 SAM support of IRAT ANR

Feature Description

The goal of this feature is to be able to support the IRAT ANR function delivers by the eNodeB. It means that the user will be able to set up the different input parameters, list... necessary to the eNodeB to be able to support the ANR.

This feature extends the existing LTE ANR mechanisms introduced in LE3 based on the same 5620 SAM management mechanisms.

In addition any cross-operation checks, management of restrictive actions during ANR support will be implemented into 5620 SAM.



Feature Benefits

This feature extends the ANR mechanisms to WCDMA-LTE neighboring relationship.

| Impacted systems | Dependencies | | | | | |
|------------------|--------------|-----------------|---------|----------------------------|---------|-----------|
| | Hardware | Software | Feature | Interworking | Devices | Standards |
| 5620 SAM | N/A | 5620 SAM 9.0 R5 | N/A | LA2.x, LA3.x, LA4.x eNodeB | N/A | N/A |

Restrictions/Limitations

The feature allows to automatically create the LTE → WCDMA neighboring link on 5620 SAM. The reverse WCDMA→LTE neighboring link is not automatically created.

Engineering Impacts

N/A

Operational Requirements

N/A

NM3010 - EMS-Based Pool Support

Feature Description

The scope of this feature can be split into two categories:

EMS-based pool management

> Pool creation

> Adding an MME to a pool

EMS-based pool monitoring

Providing a GUI representation of performance, health and capacity on the pool level, MME level, and within one MME.

Feature Benefits

This feature allows the user to create an MME pool and add an MME to a pool. The feature also provides the operator with MAF, MME and pool-level stats that can help assess the health of a MAF pair, a certain MME, or a pool of MMEs.

| Impacted systems | Dependencies | | | | | |
|------------------|--------------|-----------------|---------|--------------|---------|-----------|
| | Hardware | Software | Feature | Interworking | Devices | Standards |
| 5620 SAM | N/A | 5620 SAM 9.0 R5 | N/A | LE4.0 | N/A | N/A |

Restrictions/Limitations

Requires LM4.0.2

Engineering Impacts

N/A

Operational Requirements

N/A

NM3011 - EMS-Based Load Balancing

Feature Description

This feature will allow the operator, via SAM, to move a percentage of subscribers from an MME into the Pool. This function would be used (for example) in the scenario where a new MME is introduced into a pool – the ‘natural’ load balancing process which involves the eNodeB selection process will take an extended period of time to complete due to the behavior of this process.

Feature Benefits

This feature allows the user to adjust the weight of an MME within a pool, move subscribers into a MAF pair within one MME, and move subscribers off an MME into the pool. It also allows the user to fully drain an MME, in case that MME is being out of service.

| Impacted systems | Dependencies | | | | | |
|------------------|--------------|-----------------|---------|--------------|---------|-----------|
| | Hardware | Software | Feature | Interworking | Devices | Standards |
| 5620 SAM | N/A | 5620 SAM 9.0 R5 | N/A | LE4.0 | N/A | N/A |

Restrictions/Limitations

Requires LM4.0.2

Engineering Impacts

N/A

Operational Requirements

N/A

3.6 5620 SAM Performance Management Activation, Collection & Mediation

NM2624 - 5620 SAM support of eNodeB Counter selection

Feature Description

The goal of this feature is to be able to select at same level a subset of counters that will be reported by the eNodeB to the 5620 SAM system.

The eNodeB will come with a default mandatory set and SAM user will have the possibility to change it through a simple flag activation/deactivation on a per-eNodeB basis. It is also possible to apply the group selection activation/deactivation on several eNodeB through classical bulk mechanisms (workorders). The level of counter selection is at a group of counters level, with a mandatory group and several custom groups that could be activate only when needed for specific reporting through activation flags.

The following groups are available at eNodeB level :

- > GeranOrUtranReported
- > HRPDor1xRTTReported,
- > SpecificTDDReported,
- > SpecificTDDERABReported,

- > TrafficShapingReported,
- > MobilityFailureReported,
- > RrcConnectionReported,
- > UEContextReported,
- > ULNoiseReported,
- > RFMeasurementReported

Feature Benefits

This new mechanisms allows to activate counters on a per eNodeB/group level in order to reduce the counter computation load on eNodeB for some specific features that don't need a permanent counter reporting.

| Impacted systems | Dependencies | | | | | |
|------------------|--------------|-----------------|---------|----------------------------|---------|-----------|
| | Hardware | Software | Feature | Interworking | Devices | Standards |
| 5620 SAM | N/A | 5620 SAM 9.0 R5 | N/A | LA2.x, LA3.x, LA4.x eNodeB | N/A | N/A |

Restrictions/Limitations

N/A

Engineering Impacts

N/A

Operational Requirements

N/A

NM2411 - 5620 SAM MG Bearer List Query Filtering

Feature Description

The 5620 SAM provides a powerful bearer query feature for MG as of Release 8.0 R3 or later. The 5620 SAM Release 9.0 extends bearer queries with improved filtering. For example, one can scope down to specific bearers, ePC groups, nodes and so on for a more focused view of the session the operator is interested in troubleshooting. Please see 5620 SAM manuals for a complete list of filterable objects in the User Bearer Queries.

Feature Benefits

It can be challenging to discover the location and configuration bearers for a particular UE in the network. The 5620 SAM provides the ability to search multiple nodes to query and display bearer information based on IMSI or other identifier information. This

feature allows the user to define a filter that scopes the nodes searched, reducing query times and increasing overall performance of the UI.

| Impacted systems | Dependencies | | | | | |
|------------------|--------------|-----------------|---------|---------------------|---------|-----------|
| | Hardware | Software | Feature | Interworking | Devices | Standards |
| 5620 SAM | N/A | 5620 SAM 9.0 R3 | N/A | LE2.0, LE3.0, LE4.0 | N/A | N/A |

Restrictions/Limitations

N/A

Engineering Impacts

N/A

Operational Requirements

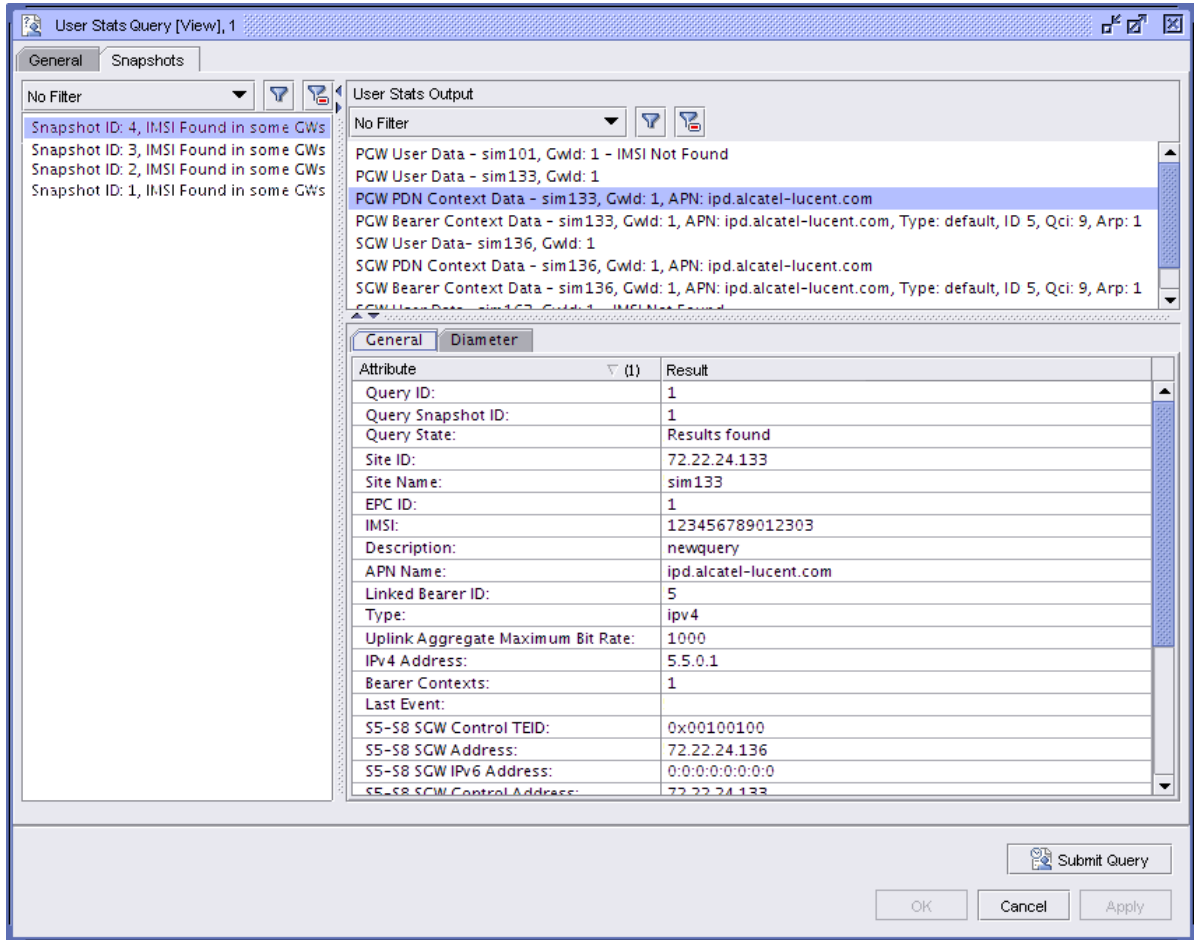
N/A

NM2637 - 5620 SAM MG Bearer Stats Interface Improvements**Feature Description**

The 5620 SAM provides a powerful bearer query feature for MG as of release 8.0 R3 or later. The 5620 SAM 9.0 release improves the usability of the bearer statistics user interface.

Feature Benefits

The user can now easily navigate between different bearer objects – for example, pcc rules or bearer statistics – on the PGW and SGW. This allows the user to rapidly find data during troubleshooting because navigation is consolidated. An additional improvement is grouping navigation and filtering of the various bearer stat captures within the database as part of the new bearer stat interface.



| Impacted systems | Dependencies | | | | | |
|------------------|--------------|-----------------|---------|---------------------|---------|-----------|
| | Hardware | Software | Feature | Interworking | Devices | Standards |
| 5620 SAM | N/A | 5620 SAM 9.0 R3 | N/A | LE2.0, LE3.0, LE4.0 | N/A | N/A |

Restrictions/Limitations

N/A

Engineering Impacts

N/A

Operational Requirements

N/A

NM2457 - 5620 SAM MG Peer Stat Aggregation

Feature Description

The 5620 SAM will provide the total peer statistics for each card in an aggregated stat located directly under the Global stats in the hierarchy. Custom aggregated stats will give the user a global view of session counts, throughput and other performance data across the MG SGW / PGW cards offering improved usability for graphing and TCA. The data will be placed within the MG stats hierarchy along with other KPI/KCI values; for example, MG aggregations will be grouped under MG global card stats at the same hierarchy level as MG card stats. **Note** that MG stat aggregation is a new 5620 SAM statistic and therefore is not available for the real time statistics plotter.

Feature Benefits

It can be very challenging for an operator to gain a view of overall throughput or error counts for an MG instance. For example, finding the error rate toward an MME peer for an MG with four line cards is very hard as is graphing. The aggregated statistic now supported in the MG (table stat row 0) now gives a fully rolled up view of related peer counters on the MG. Users may use this data directly to set thresholds or for trouble shooting activities like graphing.

| Impacted systems | Dependencies | | | | | |
|------------------|--------------|-----------------|---------|--------------|---------|-----------|
| | Hardware | Software | Feature | Interworking | Devices | Standards |
| 5620 SAM | N/A | 5620 SAM 9.0 R5 | N/A | LE4.0 | N/A | N/A |

NM3057 and NM2213 - 5620 SAM Primary KPI/KCI and Threshold Crossing

Feature Description

The 5620 SAM supports the MG 3.0 R5 extensions to primary KPI/KCI along with threshold crossing (TCA) alerting. Primary KPI/KCI are extensions to existing measures and SAM supports them in a consistent manner including support for the aggregation feature delivered in SAM 9.0 R1 for MG 3.0 R1. The new TCA feature for KPI/KCI provides an RMON based configuration of threshold alerts for KPI/KCI. 5620 SAM provides the ability to configure RMON policies in an easy to use revamped policy interface for RMON.

Feature Benefits

Primary KPI/KCI are used to surveil operational health of MG objects such as peers or MG ISA services cards. The user can easily use the 5620 SAM to collect KPI/KCI in a consistent fashion with other stats for troubleshooting, graphing or exporting to other systems. The TCA feature allows the user to receive critical first alerts from the MG that are displayed as 5620 SAM alarms in the normal alarm hierarchy. The key benefit to using 5620 SAM for TCA, however, is that the powerful policy infrastructures make it easy to define common alarm configurations and deploy them consistently to the MGs in the network. This avoids a labor-intensive OID-based configuration that is typical of RMON-based systems.

| Impacted systems | Dependencies | | | | | |
|------------------|--------------|-----------------|---------|--------------|---------|-----------|
| | Hardware | Software | Feature | Interworking | Devices | Standards |
| 5620 SAM | N/A | 5620 SAM 9.0 R5 | N/A | LE4.0 | N/A | N/A |

NM2641 and NM2974 - 5620 SAM MG 3GPP Lawful Interception and LI Extensions

Feature Description

The 5620 SAM supports lawful intercept on the 7750 MG by modeling LI session initiation into the existing 5620 SAM support models for SROS. The LI feature set is split between basic support in 5620 SAM Release 9.0 R1 and extensions in 9.0 R3. In 9.0 R1 users may initiate LI traces through the SAM-O interface or UI while following the standard SAM permissions model. The 9.0 R3 SAM release further extends LI by supporting persistency of sessions across reboot and partitioned view of the LI sessions. The latter two features place 3GPP call trace on MG in a position of being fully compliant with existing Alcatel-Lucent and third party solutions for LI on SROS based platforms.

Feature Benefits

This feature is required for north-bound call lawful intercept tools by sustaining the current integration points and interfaces provided by SROS and 5620 SAM for initiation of intercept sessions. As such, existing integrations will require only minor enhancement to support LI initiation through the SAM-O interface.

| Impacted systems | Dependencies | | | | | |
|------------------|--------------|-----------------|---------|--------------|---------|-----------|
| | Hardware | Software | Feature | Interworking | Devices | Standards |
| 5620 SAM | N/A | 5620 SAM 9.0 R3 | N/A | LE3.0, LE4.0 | N/A | N/A |

4 References

The references always list the latest revision of the documentation applicable to LTE:

- > 5620 SAM LTE Release Description, Release 9.0 R1 3HE 06532 AAAA TQZZA Ed2
- > 5620 SAM Release Description, Release 9.0 R7 3HE 06473 AAAG TQZZA
- > 5620 SAM LTE RAN User Guide, Release 9.0 R7 3HE 06506 AAAG TQZZA
- > 5620 SAM LTE ePC User Guide, Release 9.0 R7 3HE 06503 AAAG TQZZA

5 Glossary

| Term | Expansion |
|----------|---|
| 9952 WPS | Wireless Provisioning System |
| 9458 WTA | Wireless Trace Analyzer |
| 9459 NPO | Network Performance Optimizer |
| BBU | Base Band Unit |
| DCR | Design Change Request |
| eNodeB | Refers to the Base Station of the EUTRAN Network |
| ePC | Evolved Packet Core |
| EUTRAN | Enhanced Universal Terrestrial Radio Access Network |
| LI | Lawful Intercept |
| LTE | Long Term Evolution |
| MME | Mobility Management Entity |
| PGW | PDN Gateway |
| RAN | Radio Access Network |
| RU | Rack Unit |
| SGW | Serving Gateway |
| TA | Tracking Area |