NOKIA

5620 SAM and 1350 OMS IP Optics Management 14.0 R3

Optical Integration Module User Guide

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Issue 1

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Contents

About this document

Purpose

This guide describes how to perform the 5620 SAM and 1350 OMS integration for an 1830 PSS based OTN network that includes:

- Photonic and electrical switching
- Photonic and electrical GMPLS
- SDH aggregation and switching
- L2/Ethernet-over-WDM switching functions embedded with 1830 PSS

Safety information

For your safety, this document contains safety statements. Safety statements are given at points where risks of damage to personnel, equipment, and operation may exist. Failure to follow the directions in a safety statement may result in serious consequences.

Document support

Customer documentation and product support URLs:

- Customer documentation welcome page
- Technical support

How to comment

Documentation feedback

1 What's new?

1.1 Overview

1.1.1 Purpose

This chapter highlights new features for the 5620 SAM Release 14.0 and provides references to the specific feature content. Feature lists and high-level feature descriptions are also available in the *5620 SAM Release Description*.

1.1.2 Contents

1.2 What's new in 5620 SAM Release 14.0 for OIM

1.2.1 Maintenance releases

Some releases may not be listed in this section, either because no new OIM features are introduced, or the features introduced do not require documentation.

1.2.2 What's new in 5620 SAM Release 14.0 R3 for OIM

Table 1, "5620 SAM Release 14.0 R3 1830 PSS features" (p. 8), lists the features and functions added in 5620 SAM Release 14.0 R3 for 1830 PSS support. See the *5620 SAM User Guide* for more information about non-1830 PSS features and functions.

Table 1 5620 SAM Release 14.0 R3 1830 PSS features

Feature	Description and Reference
SAM-82617 — Additional features for OMS integration	The additional features include: • allow non-HIP NEs in an EMS group • link URL is displayed in the Physical Link (Edit) form and in the Manage→Equipment→Equipment→Physical Link (Network) inventory list. • link URL configuration during the physical link creation between the SR node and the HIP node allows you to navigate to the 1350 OMS user interface. • navigation to the 1350 OMS Equipment View from the 5620 SAM equipment tree objects: shelf, card, and port. • MPLS link navigation from MPLS adjacency link between SRs to the corresponding DSR path in 1350 OMS 4.3.2 "EMS equipment group" (p. 30) "Link navigation URL — Physical link — syntax" (p. 33) 4.18 "To create a link between a 7750 SR and 1350 OMS node" (p. 58) "Card, shelf, and port navigation" (p. 53) 4.12.3 "MPLS link navigation" (p. 52)
SAM-83974 — HIP NE version and location	You can view the HIP NE version and location on the Network Element (Edit) form and in the Manage→Equipment→Equipment→Network Element (Network) inventory list. See 4.3.3 "HIP NE version and location" (p. 31)
SAM-83976 — Names of the optical node inventory	The names of the objects in the optical node inventory in 5620 SAM are consistent with the 1350 OMS. 4.9 "Optical node navigation" (p. 43)

2 Platform architecture

2.1 Overview

2.1.1 Purpose

This chapter provides information about the OIM platform architecture.

2.1.2 Contents

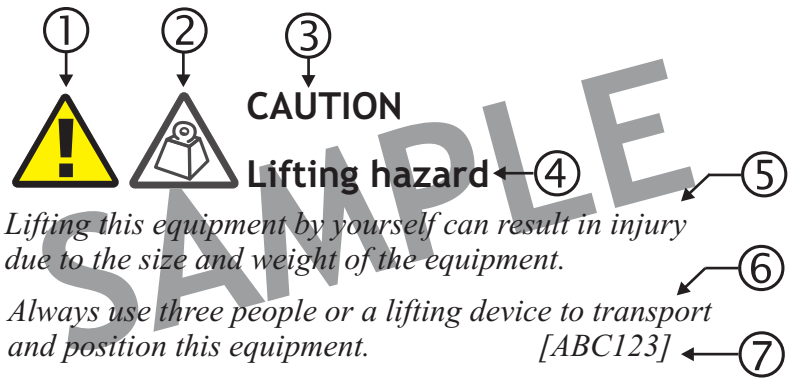
2.2 Structure of safety statements

2.2.1 Overview

This topic describes the components of safety statements that appear in this document.

2.2.2 General structure

Safety statements include the following structural elements:



SAMPLE

Item	Structure element	Purpose
1	Safety alert symbol	Indicates the potential for personal injury (optional)
2	Safety symbol	Indicates hazard type (optional)
3	Signal word	Indicates the severity of the hazard
4	Hazard type	Describes the source of the risk of damage or injury
5	Safety message	Consequences if protective measures fail
6	Avoidance message	Protective measures to take to avoid the hazard
7	Identifier	The reference ID of the safety statement (optional)

2.2.3 Signal words

The signal words identify the hazard severity levels as follows:

Signal word	Meaning
DANGER	Indicates an extremely hazardous situation which, if not avoided, will result in death or serious injury.
WARNING	Indicates a hazardous situation which, if not avoided, could result in death or serious injury.
CAUTION	Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.
NOTICE	Indicates a hazardous situation not related to personal injury.

2.3 Introduction

2.3.1 Functional description

The 1350 OMS is a management and provisioning solution for optical networks that the 5620 SAM can manage as an EMS with the following functionality:

- Discovery of optical nodes managed by the 1350 OMS as EMS NEs in the 5620 SAM.
- Display of physical connectivity between EMS NEs on the network topology map.
- Fault management and display of alarms from EMS NEs, HIP links, and the 1350 OMS platform.
- Cross-launch of 1350 OMS web GUI for nodes, physical links (external optical links), alarms, and from the 5620 SAM FM application.

2.3.2 1350 OMS integration with the 5620 SAM

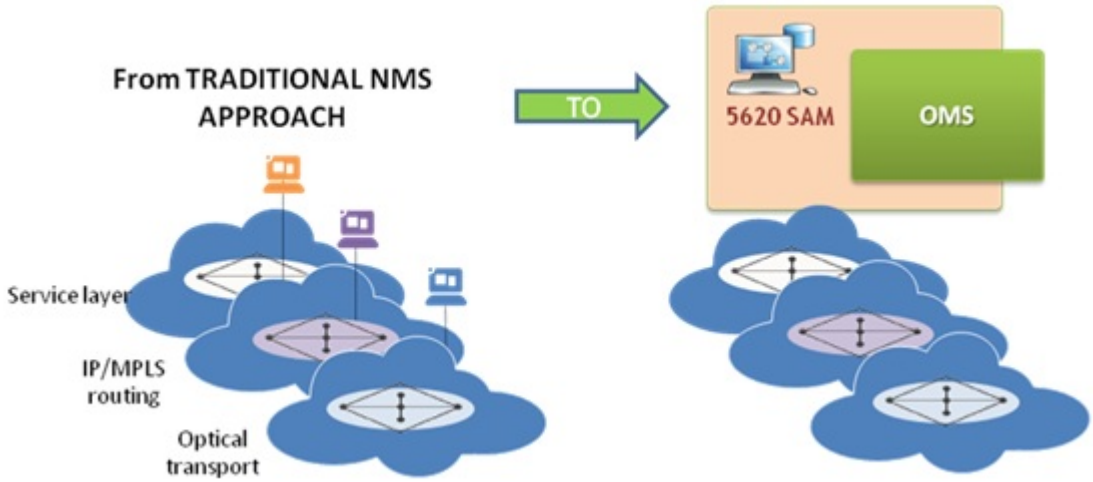
The 5620 SAM and 1350 OMS integration for an 1830 PSS based OTN network includes the following objectives:

- Photonic and electrical switching (L0 and L1 OTN)
- Photonic and electrical GMPLS
- SDH aggregation and switching
- L2/Ethernet-over-WDM switching functions embedded with 1830 PSS

The 1350 OMS and the 5620 SAM are installed on the same server as coresidents. The integrated network management system functions along with the rest of the 5620 SAM software when IP and optical convergence is required. The integrated network management system can function standalone when it is associated with optical network management.

The 1350 OMS and the 5620 SAM integration is also supported when the 1350 OMS and the 5620 SAM are on different servers.

Figure 1 1350 OMS integration with the 5620 SAM



The 1350 OMS shares the following with the 5620 SAM applications:

- Infrastructure (VMWare)
- Common FM application
- Common Network Inventories
- NBI (5620 SAM-O) for common functions (Alarms/Events and Inventory)

The 1350 OMS is compatible with the standard hardware platform of the 5620 SAM and the required middleware.

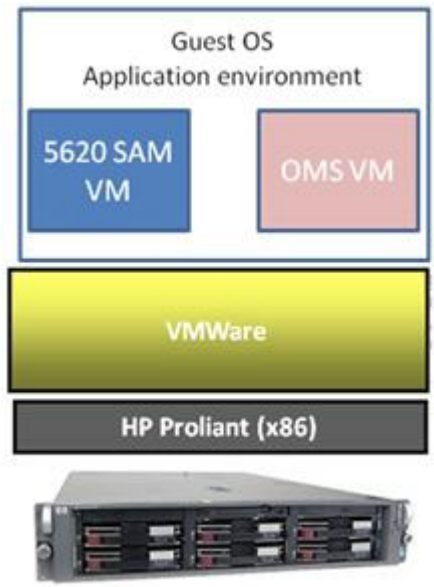
2.4 Single hardware infrastructure

2.4.1 Single hardware platform

The hardware server that is supported is the HP-based x86 server (HP Proliant line) running RHEL.

The 1350 OMS and the 5620 SAM are installed on a single virtualized machine, where all the software components supporting the HIP solution are integrated as per the following figure.

Figure 2 Coresident platform architecture



2.4.2 High availability

The 5620 SAM and the 1350 OMS support redundant configurations. The active and spare servers host both 5620 SAM and 1350 OMS components; that is, different VMs are coresident in the same machine.

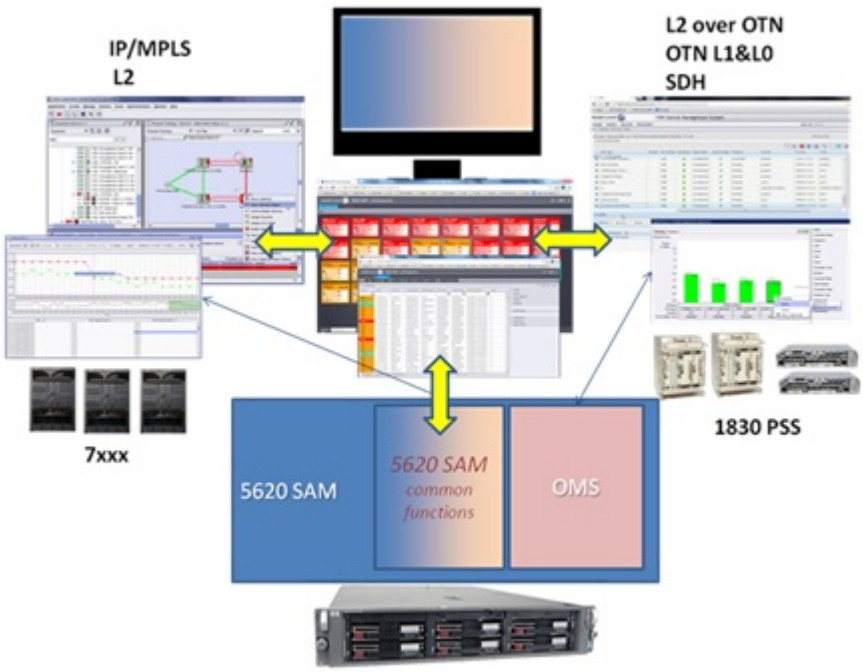
After a switchover occurs from the active (main) server to the spare (DRC) server site, the 5620 SAM and 1350 OMS integration works the same way as with the main before the switchover occurred. You need to configure HIP again after a switchover occurs from the main to the DRC server site. See 3.2 “Workflow for configuring HIP on the 1350 OMS” (p. 18) for more information about HIP configuration on 1350 OMS.

2.4.3 System layout

The 5620 SAM and the 1350 OMS integration is performed for the overall IP/OTN/SDH management in a unified operational environment where the different tasks and processes are carried out on different technologies—IP/MPLS, Ethernet L2, OTN L1 and L0, and SDH.

The 5620 SAM users access the native user interface to perform all the end-to-end operations in the IP/MPLS and L2 Ethernet domains running on the 7X50 router product families. The 1350 OMS users access the web GUI to perform all the end-to-end operations across Ethernet, electrical and photonic switching, and TDM switching domains implemented with the 1830 PSS product family.

Figure 3 System layout



3 User and HIP configuration in the 1350 OMS

3.1 Overview

3.1.1 Purpose

This chapter describes how to configure the user and HIP in the 1350 OMS.

3.1.2 Contents

3.2 Workflow for configuring HIP on the 1350 OMS

3.2.1 Introduction

The HIP is implemented in the HI component embedded in the 1350 OMS OTN package. HIP is not automatically configured during the 1350 OMS installation or upgrade. HIP is not included as a process or services in the System Monitor application. You need to configure HIP on the 1350 OMS OTN VM after the first installation. See the *1350 OMS Installation Guide* for more information about the VM installation.

3.2.2 User activity

The 5620 SAM logs each GUI and OSS user action, such as a system access attempt or the configuration of an object, in the 5620 SAM database. The GUI actions performed using the 1350 OMS NEs are also logged in the User Activity form. See “User activity logging” in the *5620 SAM System Administrator Guide* for more information.

3.2.3 Stages

The following are the stages for the HIP installation:

1

Configure a new user as “samviewer” user on the 1350 OMS platform of the OTN virtual machine. See 3.3 “To configure the “samviewer” user on the 1350 OMS” (p. 19).

2

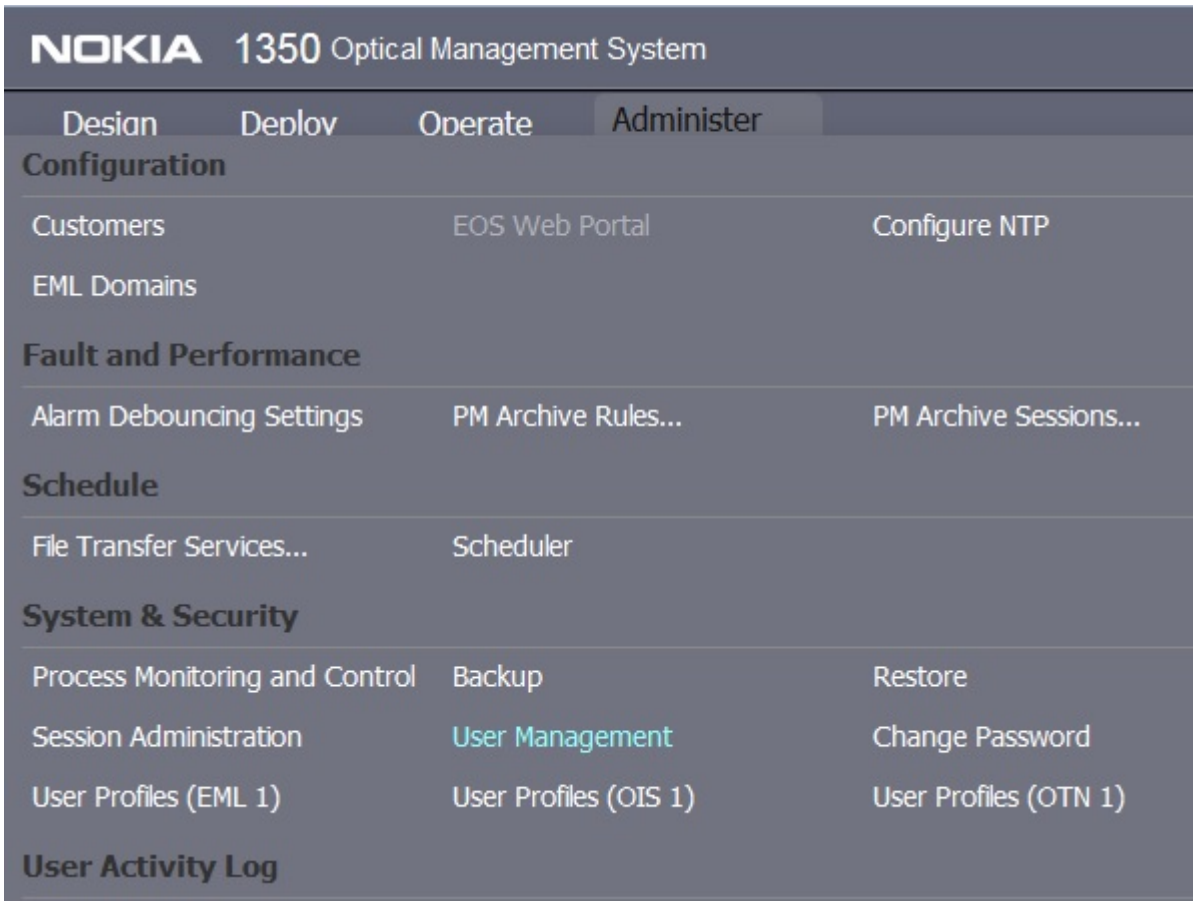
Configure HIP on the 1350 OMS platform of the OTN virtual machine. See 3.4 “To configure HIP on the 1350 OMS” (p. 24).

3.3 To configure the “samviewer” user on the 1350 OMS

3.3.1 Steps

1

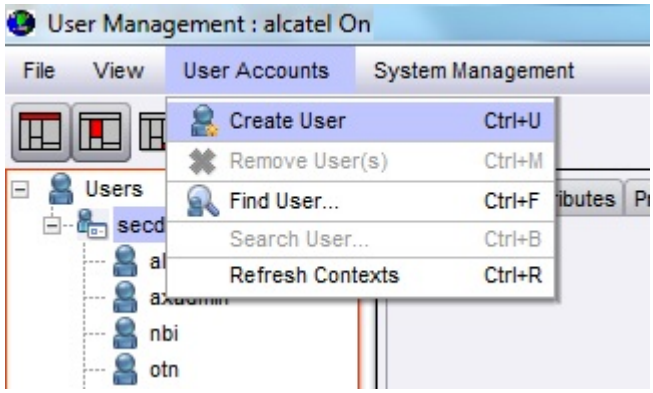
Log in to the 1350 OMS Presentation and choose Administer→User Management from the web GUI main menu.



Result: The User Management application opens.

2

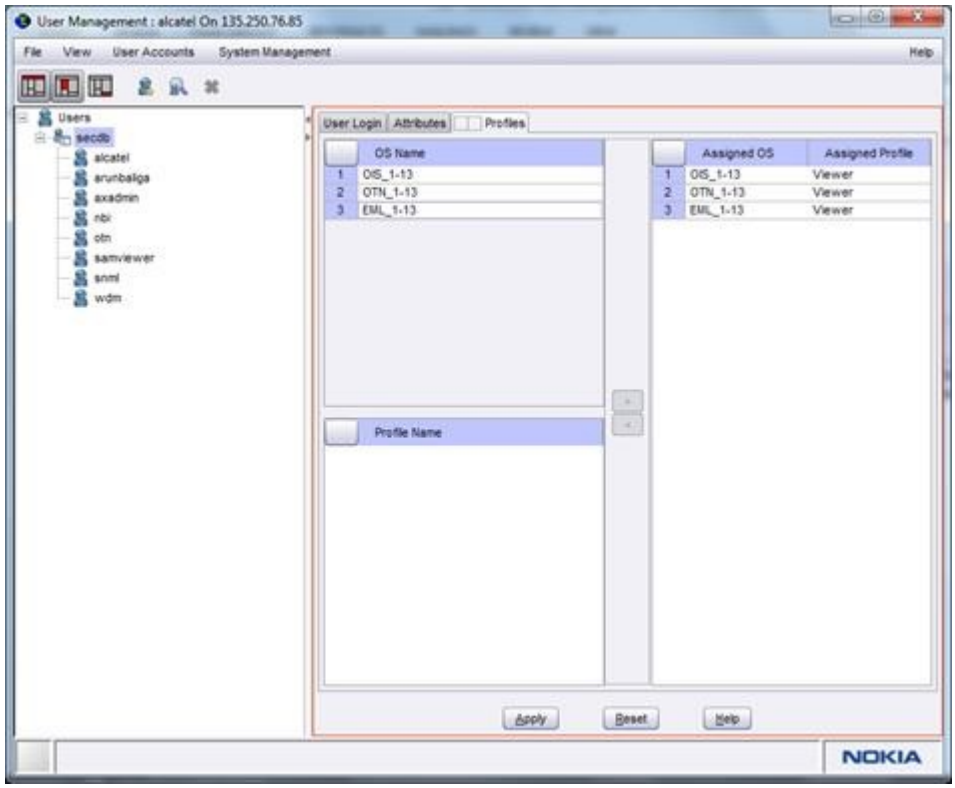
On the navigation tree, expand secdb and choose User Accounts→Create User from the User Management main menu. The Login Info form appears.



3

Configure the following parameters:

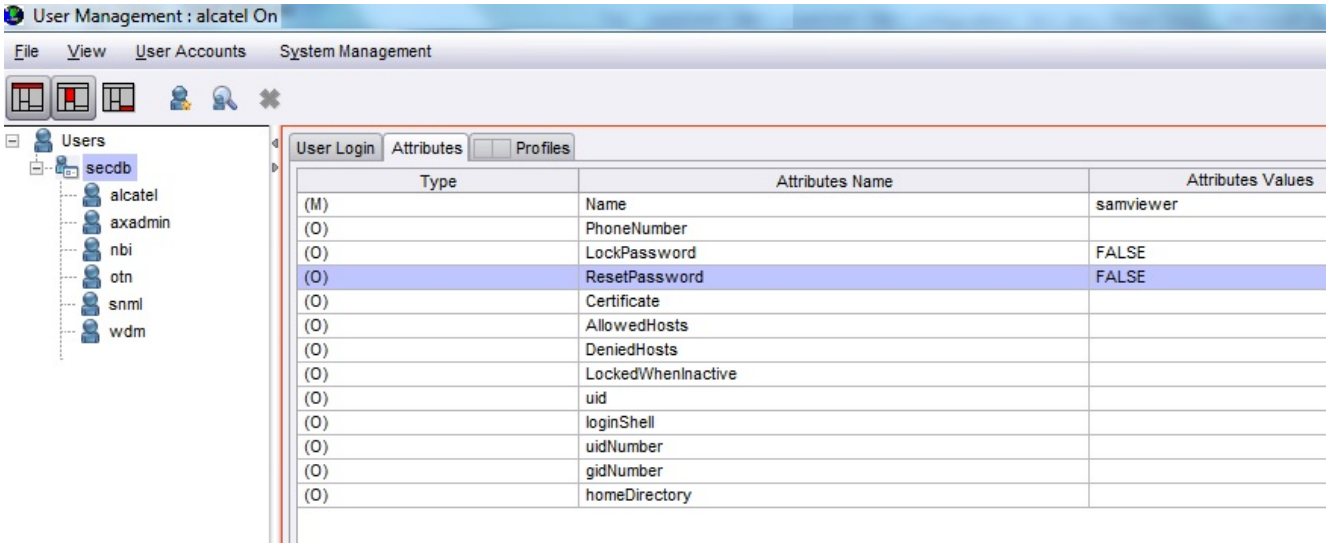
- Login: *samviewer*
- New Password
- Confirm Password



4

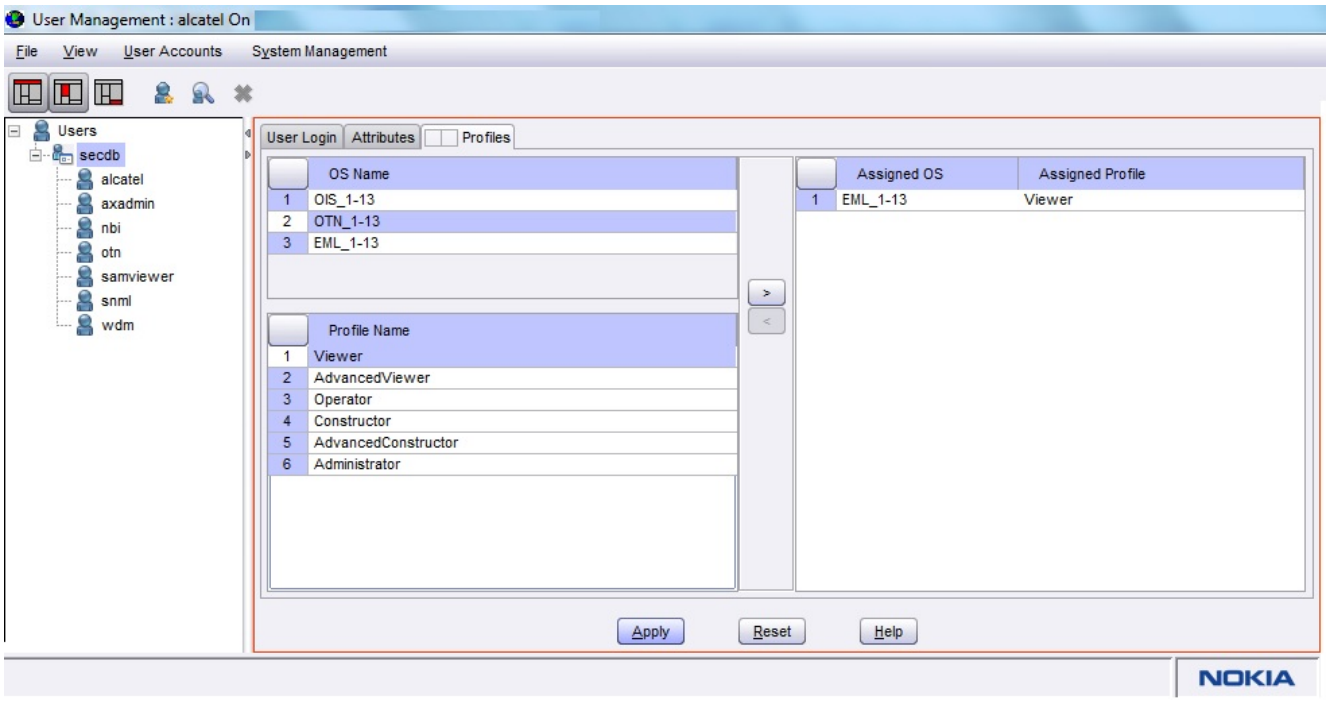
Click on the Attributes tab and configure the following parameters:

- Name: *samviewer*
- LockPassword: *FALSE*
- ResetPassword: *FALSE*



5

Click on the Profiles tab, choose the specific 1350 OMS package in the OS Name panel, then choose the Viewer parameter in the Profile Name panel, and click on the arrow icon to assign the Viewer profile to the specific 1350 OMS package.



Result: The samviewer user is listed in the Users navigation tree.

6

Save your changes and close the forms.

END OF STEPS

3.4 To configure HIP on the 1350 OMS

3.4.1 Steps

1

Log in to the 1350 OMS-OTN Virtual Machine as root and enter the following:

/usr/Systems/OTN_1_13_Master/WDM_APPL/config/IntegrationDetails

2

Enter the following:

hipUser=*SAMINT*

hipPassword=*SAMINT123*

hipPort=*the value assigned to the 'OTN_HIP_PORT' in the file /etc/services on the 1350OMS-OTN Virtual Machine*

oisIp=*the 1350OMS-OIS VM IP address*

oisPort=*the value assigned to 'nspCorbaPort_Global_Instance-13' in the file /etc/services on the 1350OMS-OIS Virtual Machine*

bindName=*alu/nbi/EmsSessionFactory_I*

nameContext=*DefaultNamingContext*

ems=*ALU/the 1350OMS-OIS VM hostname*

emsUserName=*alcatel*

emsPassword=*alcatel*

3

Perform the following to enable HIP:

1. Log in to the OTN VM as user otn.
2. Enter the following:

   /usr/Systems/OTN*Master/WDM_PLATFORM/script/lt_param_reconfig
3. Select 6 (FM Variables).
4. Select 1 (Enable HIP).
5. Set the Enable HIP parameter to Yes.

4

Enter the following to start the OIM application:

```
...,root,root # nohup /usr/Systems/OTN*Master/WDM_APPL/script/
hip_start  &
```

Result:

When the OIM application starts, the OIM-server:

- establishes connection with the 1350 OMS-OIS Virtual Machine (unbi) for retrieving 1350 OMS objects (that is, alarms, NE, remote inventory, and physical connections) and notifications
- accepts any requests from the 5620 SAM (OIM-Client) based on HIP.

5

Enter the following to stop the OIM application, If required:

```
..,root,root # /usr/Systems/OTN*Master/WDM_APPL/bin/hip_stop
```

Note: When you restart the OIM application, the 5620 SAM resynchronizes the inventory by retrieving all objects from the OIM. The operation can take a long time to complete depending on the size of the 1350 OMS network.

END OF STEPS

4 Network topology and inventory

4.1 Overview

4.1.1 Purpose

This chapter provides information about the network topology and inventory.

4.1.2 Contents

1350 OMS management as an EMS

4.2 Overview

4.2.1 Purpose

This section describes how to manage the 1350 OMS as an EMS in the 5620 SAM.

4.2.2 Contents

4.3 Managing the 1350 OMS as an EMS in the 5620 SAM

4.3.1 Introduction

The 1350 OMS integration with the 5620 SAM supports synchronization of the following objects between the two applications:

- Optical Node directory
- Nodal Equipment Inventory
- Optical Nodes in Map
- Optical Links Inventory (Map)

4.3.2 EMS equipment group

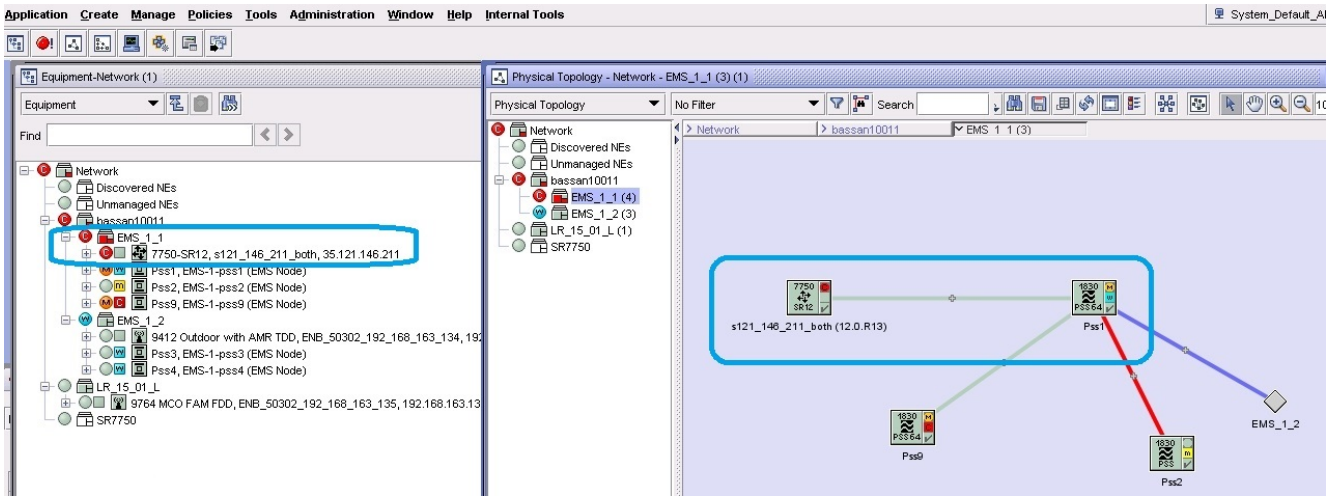
Equipment groups allow you to organize the network into logical groupings of NEs, for example, in a geographical area, or by equipment type. An equipment group is sometimes called a topology group. Some of the views in the view selector, for example the Equipment view, allow you to use the navigation tree to create and manage equipment groups.

The EMS equipment group is an equipment group created to organize the 1350 OMS and the NEs managed by the 1350 OMS. See 4.5 “To manage the 1350 OMS as an EMS in the 5620 SAM” (p. 36) for more information about creating an EMS equipment group.

You can move the non-HIP NEs to and from the EMS equipment groups by clicking and dragging icons on the navigation tree or topology map. Moving the HIP NEs out of the EMS equipment group is not allowed.

Alternatively, non-Hip NEs can be added to an EMS group by selecting the group name as the name of the EMS group during the discovery rule configuration of the non-Hip NEs.

Figure 4 EMS equipment group



4.3.3 HIP NE version and location

You can view the HIP NE version from the HIP NE properties form and the inventory list.

See 4.6 “To view location and version of HIP-NE from the equipment tree” (p. 38) for more information about how to view the NE version and location from the equipment tree.

See 4.7 “To view the HIP-NE version and location from the inventory list” (p. 40) for more information about how to view the NE version and location from the inventory list.

4.3.4 Configuring navigation URLs

The navigation URLs must be defined in the EM System object when configuring the discovery rule for 1350 OMS management by the 5620 SAM. The URL configuration is different for NEs and links.

The three different navigation URLs are:

- NE URL — syntax is set at the EM System creation
- Link URL — syntax is set at the EM System creation
- Link URL — syntax is set at the Physical Link level

NE navigation URL syntax

```
https://135.250.76.83:8443/oms1350/mainOtn/extNav?entity=
node&nern=$rn&displayName=$displayedName&typeDescription=
```

```
$typeDescription&timestamps=$timestamps&samServerAddress=
$samServerAddress&userName=$userName&userGroup=
$userGroup&tokenId=$token
```

The URL is displayed in the Element Manager (Edit) form.

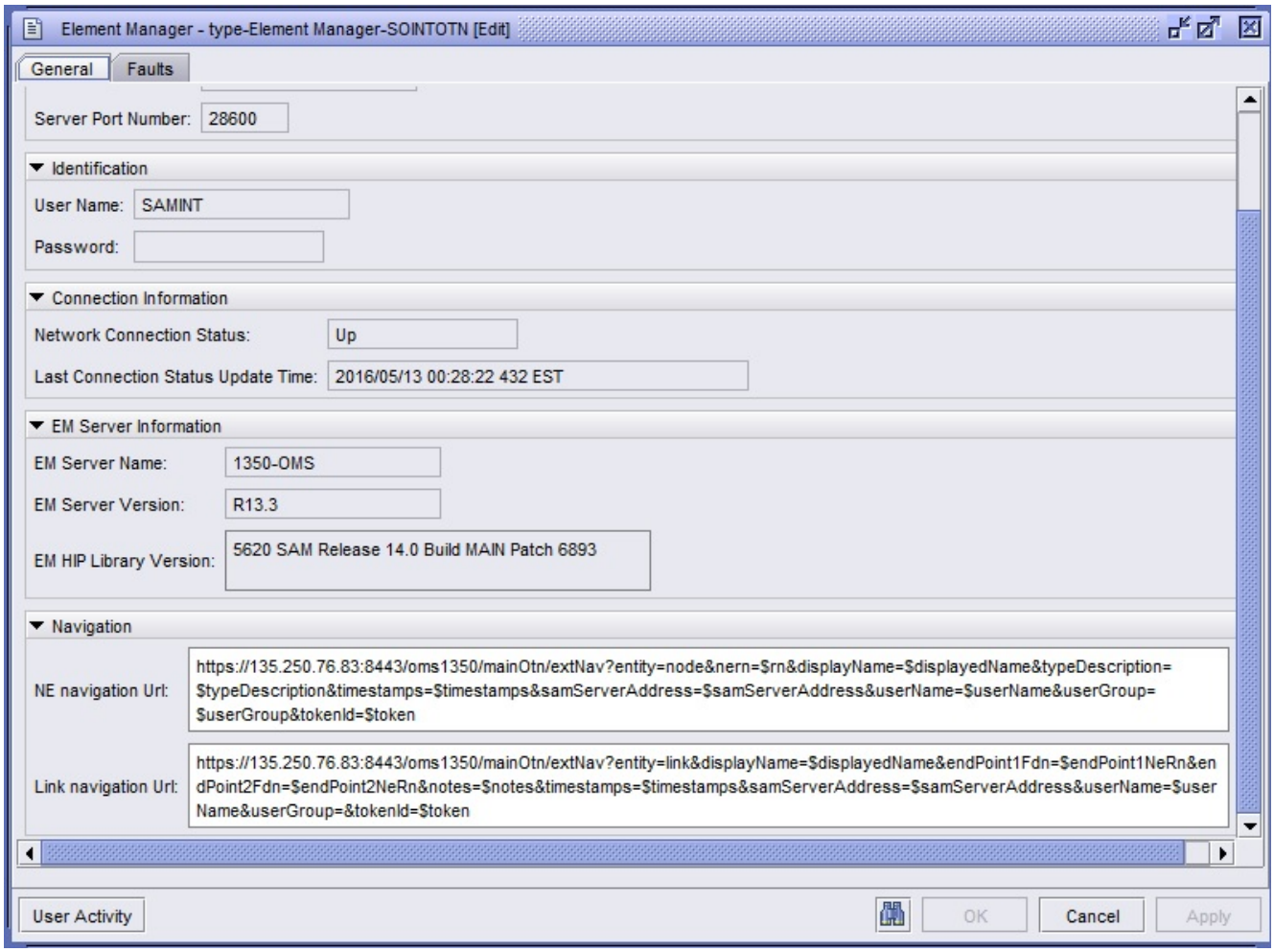
See Figure 5, “Link URL — Element manager” (p. 31)

Link navigation URL — Element manager — syntax

```
https://135.250.76.83:8443/oms1350/mainOtn/extNav?entity=
link&displayName=$displayedName&endPoint1Fdn=
$endPoint1NeRn&endPoint2Fd=$endPoint2NeRn&notes=
$notes&timestamps=$timestamps&samServerAddress=
$samServerAddress&userName=$userName&userGroup=&tokenId=$token
```

The URL is displayed in the Element Manager (Edit) form.

Figure 5 Link URL — Element manager

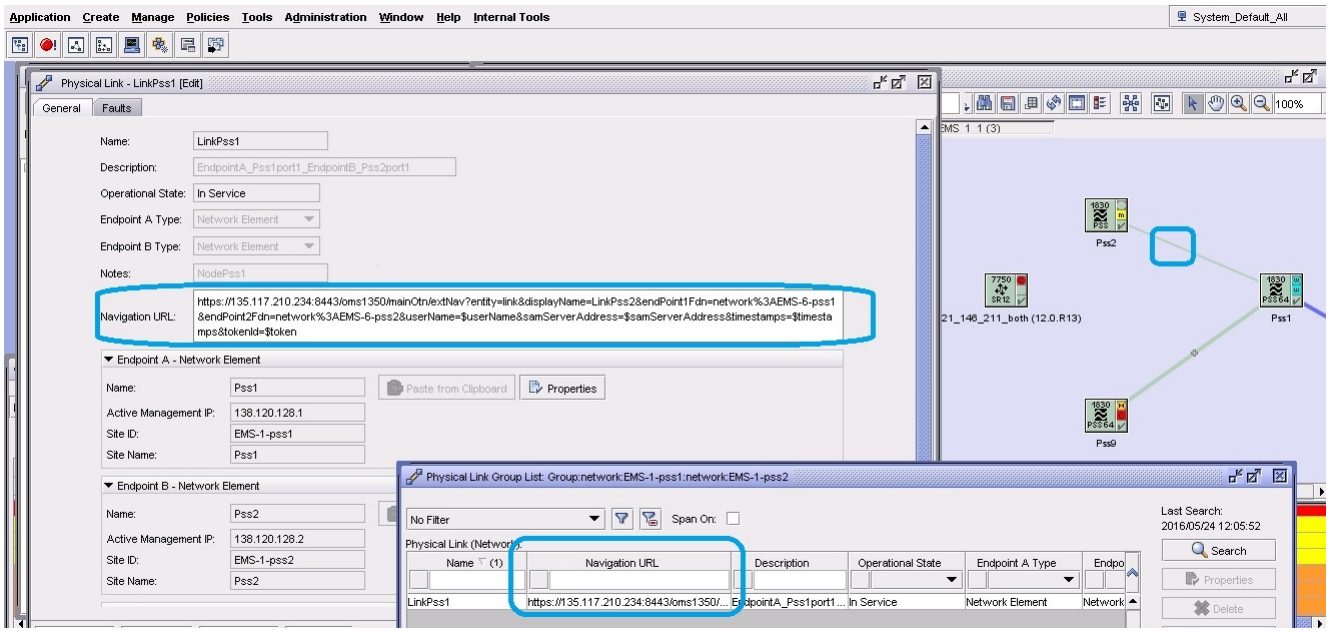


Link navigation URL — Physical link — syntax

```
https://oms_server_IP:port/oms1350/mainOtn/extNav?entity=
link&displayName=LinkPss2&endPoint1Fdn=network%3AEMS-6-
pss1&endPoint2Fdn=network%3AEMS-6-pss2&userName=
$userName&samServerAddress=$samServerAddress&timestamps=
$timestamps&tokenId=$token
```

The URL is displayed in the Physical Link (Edit) form and in the Manage→Equipment→Equipment→Physical Link (Network) inventory list.

Figure 6 Link URL — Physical link



Mandatory attributes

The mandatory attributes are the following:

- oms_server_IP and port
- timestamps
- samServerAddress
- userName
- tokenId

All other attributes are optional in the URL.

4.4 OIM considerations and limitations

4.4.1 General information

Table 2, “OIM considerations and limitations” (p. 35) lists the notable considerations and limitation for OIM.

Table 2 OIM considerations and limitations

Type	Considerations/limitation
Links	• Modification of link is not supported by HIP • The physical link display name size should not exceed 121 characters.
Alarms	• Unackowledge is not supported for the 1350 OMS alarms in the 5620 SAM alarm display. • Some alarms are listed with probable cause displayed unknown in 5620 SAM. • Acknowledge and then purge alarm is not supported for the 1350 OMS alarms in the 5620 SAM.
Objects	• Modification of HIP-node name is not supported. • Equipment name with more than 15 characters is not supported. • Compound node is displayed as two NEs in the 5620 SAM. • Shelf, slot and port objects are not displayed in order in the equipment tree.
Synchronization	• Pack create and delete notifications are not sent by the 1646 SM. You should perform manual synchronization. All create tasks are handled as DBCHG in the node. • If the link, equipment, or alarm is not as per HIP guidelines, all of the further synchronizations for specific type is skipped.
Navigation	• All navigations from the 5620 SAM takes more than 10 s. • You cannot disable Opt_Connection navigation from the 5620 SAM to the 1350 OMS using the 5620 SAM.
User	• You cannot use the same browser to login to the 1350 OMS as alcatel and samviewer user simultaneously. One of the users will be logged off.
Status	• Port administrative state will always be shown as “UP” as part of notification. You need to perform manual synchronization to update the status.

4.5 To manage the 1350 OMS as an EMS in the 5620 SAM

Note: You must specify an equipment group other than the default Discovered NEs group when discovering an EMS. Step 1 of this procedure describes a basic process for creating an equipment group. See the *5620 SAM User Guide* for more information about creating and populating equipment groups.

4.5.1 Steps

1

Create an equipment group for the EMS:

1. Choose Create→Equipment→Group from the 5620 SAM main menu. The Group (New Instance) (Create) form opens.
2. Configure the required parameters.
3. Click OK. The form closes and the equipment group is displayed in the navigation tree and topology map.

2

Choose Administration→Discovery Manager from the 5620 SAM main menu. The Discovery Manager (Edit) form opens.

3

Click Create. The Create Discovery Rule form opens with the Specify General Attributes step displayed.

4

Click Select for the Group Name, select the equipment group created in Step 1, and click OK. The form is updated with the group name.

5

Click Next until the Add EM Systems step is displayed.

6

Complete the Add EM Systems step:

1. Click Create. The EM System (Create) form opens.
2. Configure the required parameters.
3. Click on the Element Managers tab.
4. Click Create. The Element Manager (Create) form opens.

5. Configure the parameters as follows:
   - Host Name — Enter the OTN host name

   Communication panel parameters
   - Server IP Address — Enter the IP Address entered in Step 2 of 3.4 “To configure HIP on the 1350 OMS” (p. 24).
   - Server Port Number — Enter the port number entered in Step 2 of 3.4 “To configure HIP on the 1350 OMS” (p. 24).

   Identification panel parameters
   - User Name — Enter the user name entered in Step 2 of 3.4 “To configure HIP on the 1350 OMS” (p. 24).
   - Password — Enter the password entered in Step 2 of 3.4 “To configure HIP on the 1350 OMS” (p. 24).

   Navigation panel parameters
   - NE navigation URL — See 4.3.4 “Configuring navigation URLs” (p. 31)
   - Link navigation URL — See 4.3.4 “Configuring navigation URLs” (p. 31)
6. Save the changes and return to the Create Discovery Rule form.
7. Click Finish.
8. Save the changes to the discovery rule.

7

Activate the EMS discovery:

1. In the Discovery Manager (Edit) form, click on the EM Systems tab.
2. Select the EM system that you created in Step 6 and click Properties. The EM System (Edit) form opens.
3. Set the Administrative State parameter to Up.
4. Save the changes. The 5620 SAM attempts to discover the EM system.

Note: The 5620 SAM does not discover an EMS until you set the Administrative State parameter of the EMS object to Up and save the changes in the Discovery Manager.

END OF STEPS

4.6 To view location and version of HIP-NE from the equipment tree

4.6.1 Steps

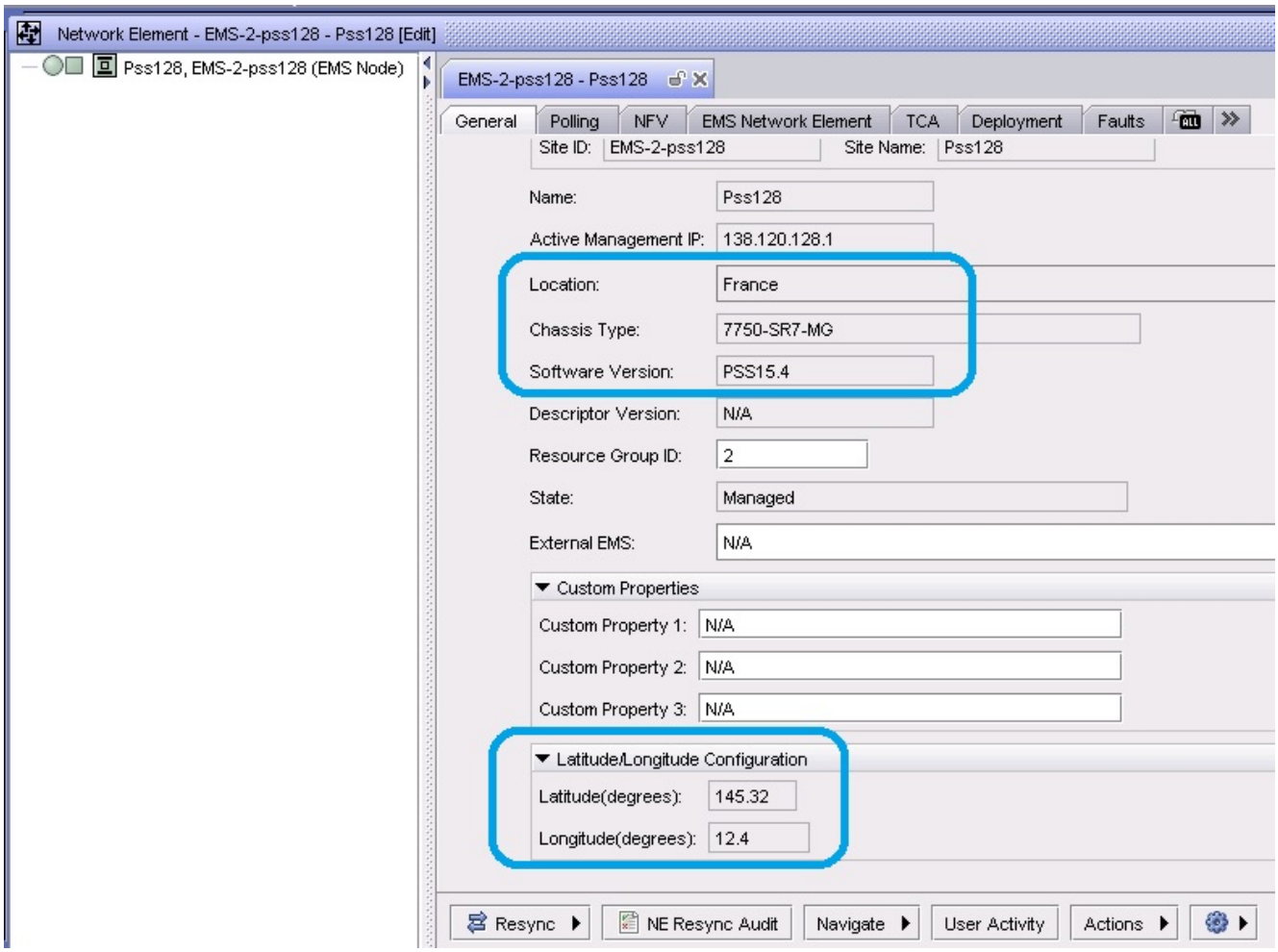
1

Expand Network→1350 OMS→EMS→HIP-NE from the 5620 SAM equipment tree.

2

Right-click on the NE object and choose properties. The Network Element (Edit) form opens displaying the location and version information.

Figure 7 HIP-NE properties



END OF STEPS

4.7 To view the HIP-NE version and location from the inventory list

4.7.1 Steps

1

Choose Manage→Equipment→Equipment from the 5620 SAM main menu. The Manage Equipment form opens.

2

Choose Network Element (Network) from the object drop-down menu. Click Search and the network element inventory list appears.

3

Right-click on the column heading and choose Column Display. The Column Display form opens.

4

Select the columns to remove from the Displayed on Table list, then click on the left arrow. The columns move to the Available for Table list.

5

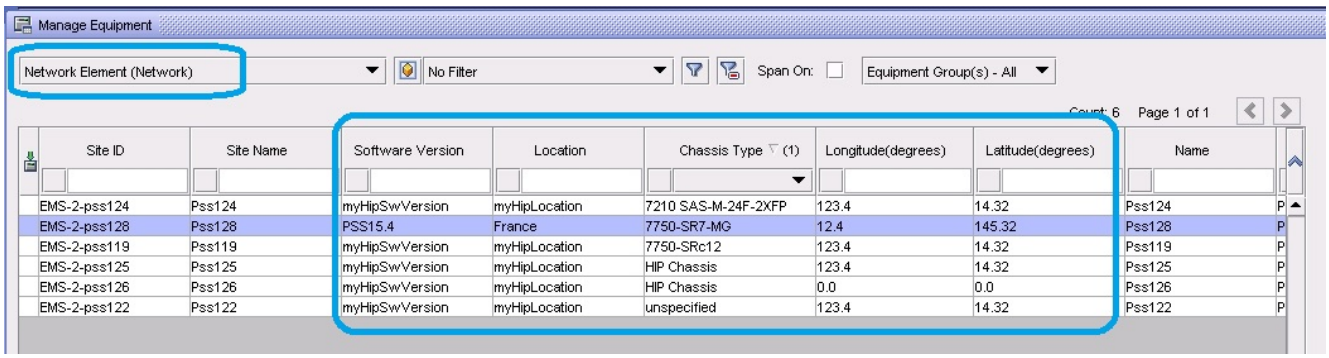
Select the following properties in the Available for Sorting panel:

- Location
- Software Version
- Chassis Type
- Latitude
- Longitude

6

Click on the right arrow button and the properties move to the Used for Sorting panel. Click OK to display the location and version information of the network elements.

Figure 8 Inventory list



END OF STEPS

Node navigation

4.8 Overview

4.8.1 Purpose

This section provides information about node navigation.

4.8.2 Contents

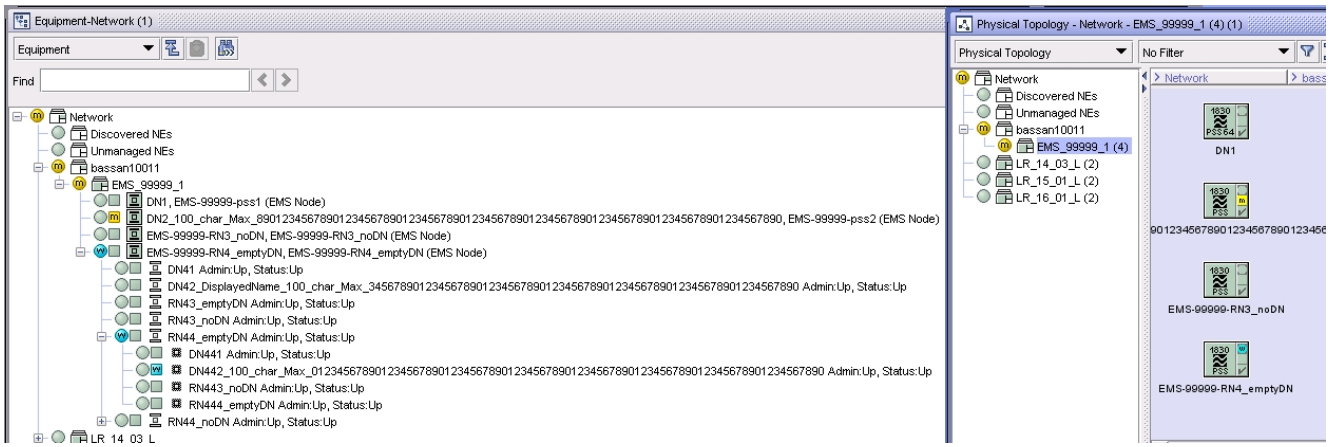
4.9 Optical node navigation

4.9.1 Introduction

The 1350 OMS sends node list data to the 5620 SAM and keeps the node data synchronized both on 1350 OMS and 5620 SAM. The 5620 SAM receives the node list on initial discovery of the 1350 OMS as a managed EMS, and the 1350 OMS keeps the list synchronized, based on object creation/deletion events and state changes using HIP notifications.

Figure 9, “1350 OMS-based optical node display in the 5620 SAM” (p. 43) shows the optical node inventory and hardware.

Figure 9 1350 OMS-based optical node display in the 5620 SAM



4.9.2 Node navigation

You can navigate to the 1350 OMS EQM from the 5620 SAM equipment tree or topology map when the selected NE is a photonic or OCS node. When the 1646 SMC is selected, the 1646 SMC user interface opens. See 4.10 “To cross-launch the 1350 OMS web GUI from an optical node or a link context” (p. 46) for more information about cross launch from the 5620 SAM to the 1350 OMS.

Figure 10 Navigation from the 5620 SAM

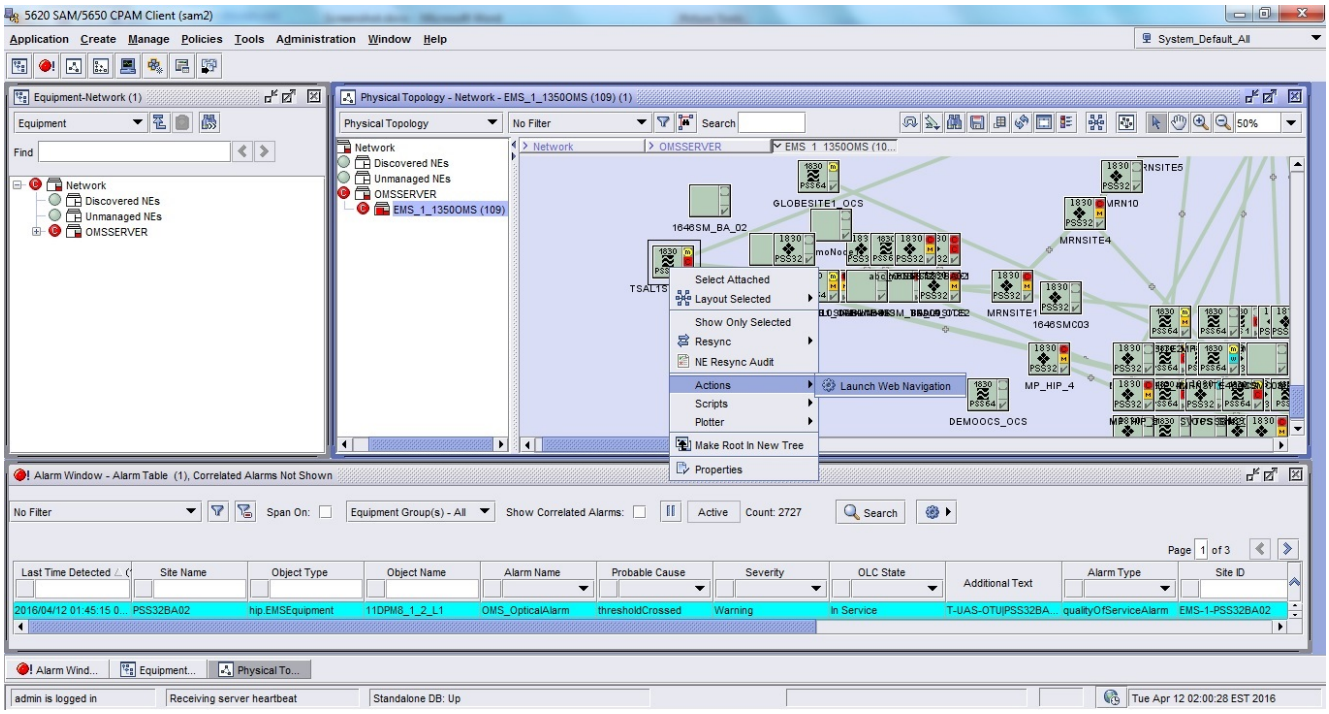


Figure 11 Navigation to the 1350 OMS EQM

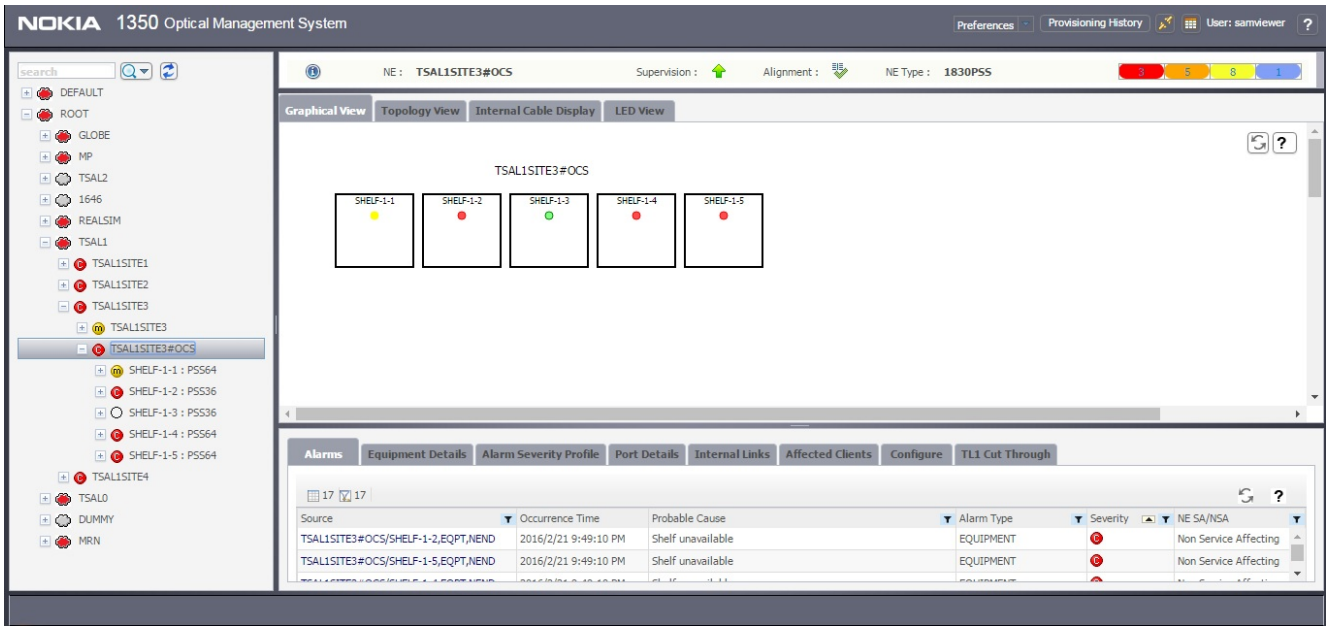
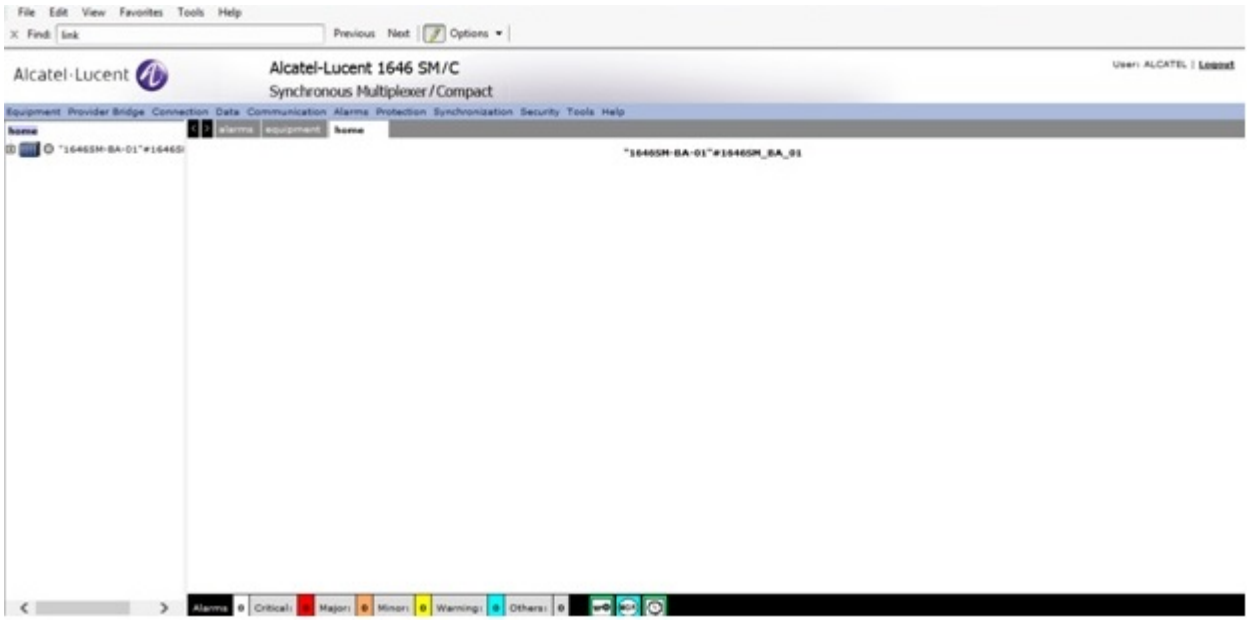


Figure 12 Navigation to the 1646 SMC



4.10 To cross-launch the 1350 OMS web GUI from an optical node or a link context

4.10.1 Before you begin

The following must be true before you can cross-launch the 1350 OMS web GUI from the 5620 SAM client:

- The 1350 OMS is managed as an EMS in the 5620 SAM, and at least one optical node and one link are discovered for node and link context navigation, respectively.
- The URLs are configured correctly in the EM System object.

Active connectivity between the 1350 OMS and the 5620 SAM is not necessarily required for cross-launch. The Administrative State of the EMS can be down and cross-launch will succeed if the client can access the URL successfully.

4.10.2 Steps

1

Navigate to the 1350 OMS optical node or link on the 5620 SAM equipment tree, topology map, or properties form.

Launch equipment view on 1350 OMS

2

Right-click on the node in the 5620 SAM equipment tree or topology map, or open the node properties form and choose Actions→Launch Web Navigation. The equipment view of the chosen node opens on the 1350 OMS web GUI in the default browser, according to the defined URL for the node.

Launch physical connection details on 1350 OMS

3

Right-click on the plus sign of the optical link group in the 5620 SAM topology map and choose Expand Group. The link or links constituting the group are displayed.

4

Right-click on an optical link and choose Actions→Launch Web Navigation. The physical connections details of the chosen link opens on the 1350 OMS web GUI in the default browser, according to the defined URL for the link.

Note: You can also cross-launch the physical connection details on the 1350 OMS web GUI by clicking Actions→Launch Web Navigation from the properties form of an optical link.

END OF STEPS

Link navigation

4.11 Overview

4.11.1 Purpose

This section provides information about link navigation.

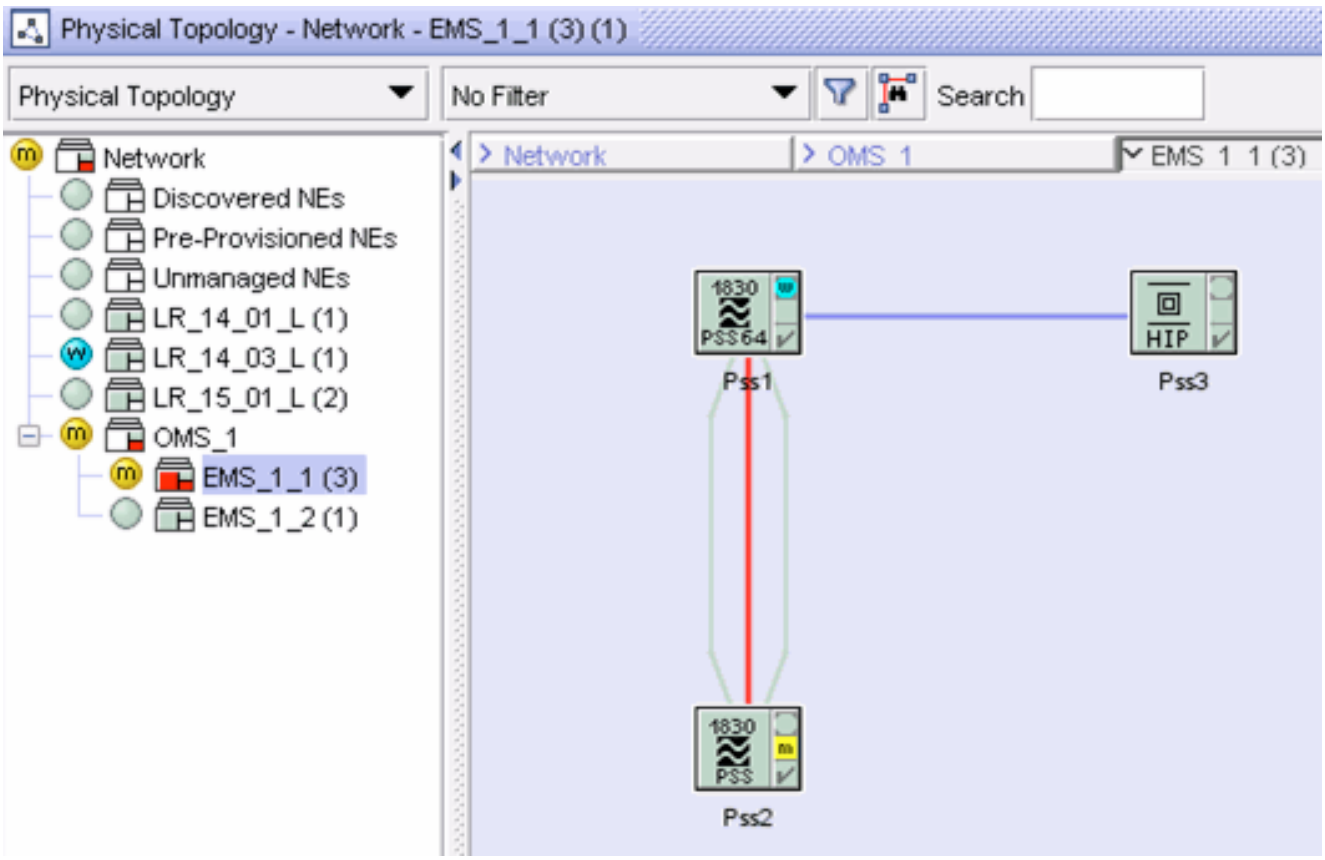
4.11.2 Contents

4.12 Optical link navigation

4.12.1 Introduction

The 1350 OMS also sends optical link data to the 5620 SAM on initial discovery and synchronizes the link data over HIP for creation/deletion and state changes. The 5620 SAM displays links between the 1350 OMS nodes on the topology map,as follows. Links are colored according to their Operational State.

Figure 13 Optical node link display on topology map



4.12.2 Link navigation

You can navigate to the 1350 OMS Physical Connections from the 5620 SAM equipment tree or topology map when the selected NE is a photonic or OCS node. See 4.10 “To cross-launch the 1350 OMS web GUI from an optical node or a link context” (p. 46) for more information about cross launch from the 5620 SAM to the 1350 OMS.

Figure 14 Expand group

Figure 15 Navigation from the 5620 SAM

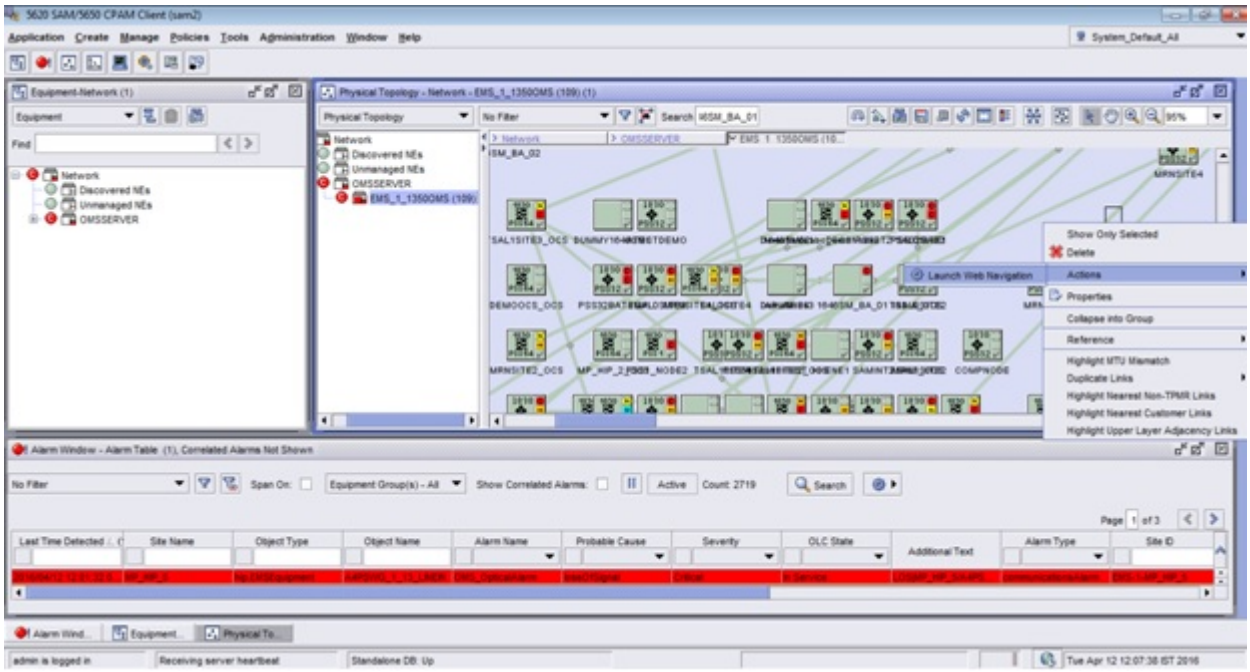
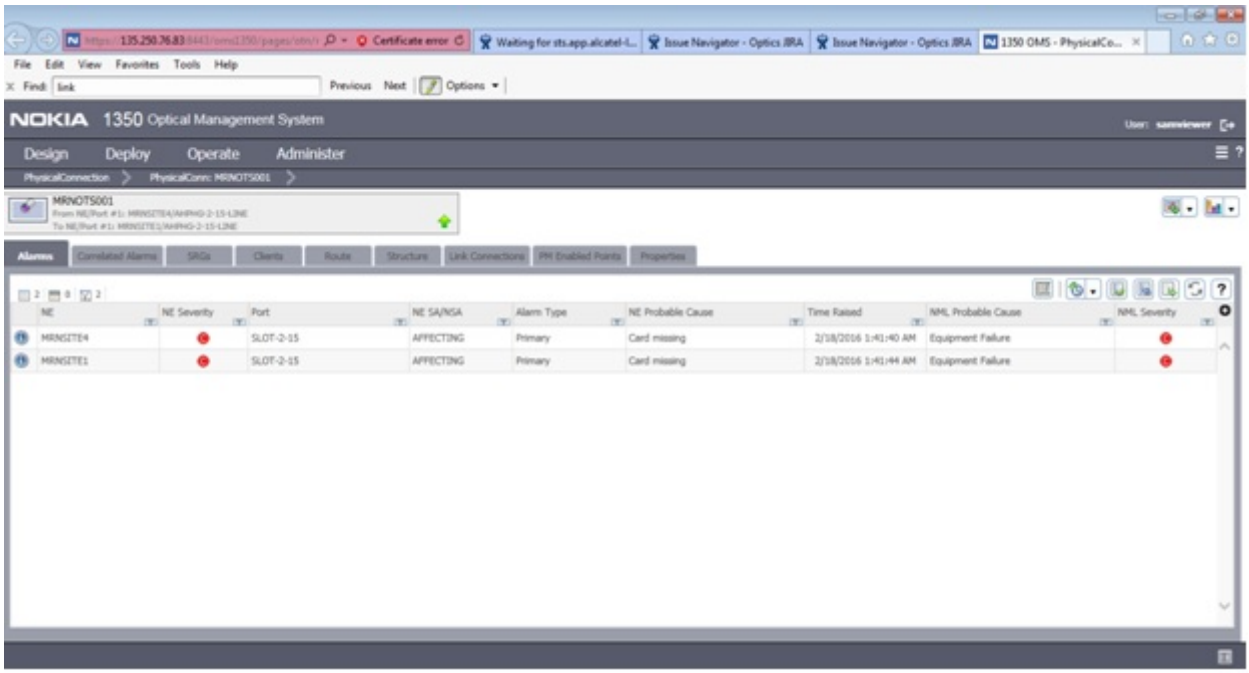


Figure 16 Navigation to the 1350 OMS Physical Connection



4.12.3 MPLS link navigation

MPLS link navigation is also supported from the 5620 SAM. Tou can navigate from MPLS adjacency link between SRs to the corresponding DSR path in the 1350 OMS.

MPLS link navigation is supported for RSVP.

Card, shelf, and port navigation

4.13 Overview

4.13.1 Purpose

This section provides information about card, shelf, and port navigation.

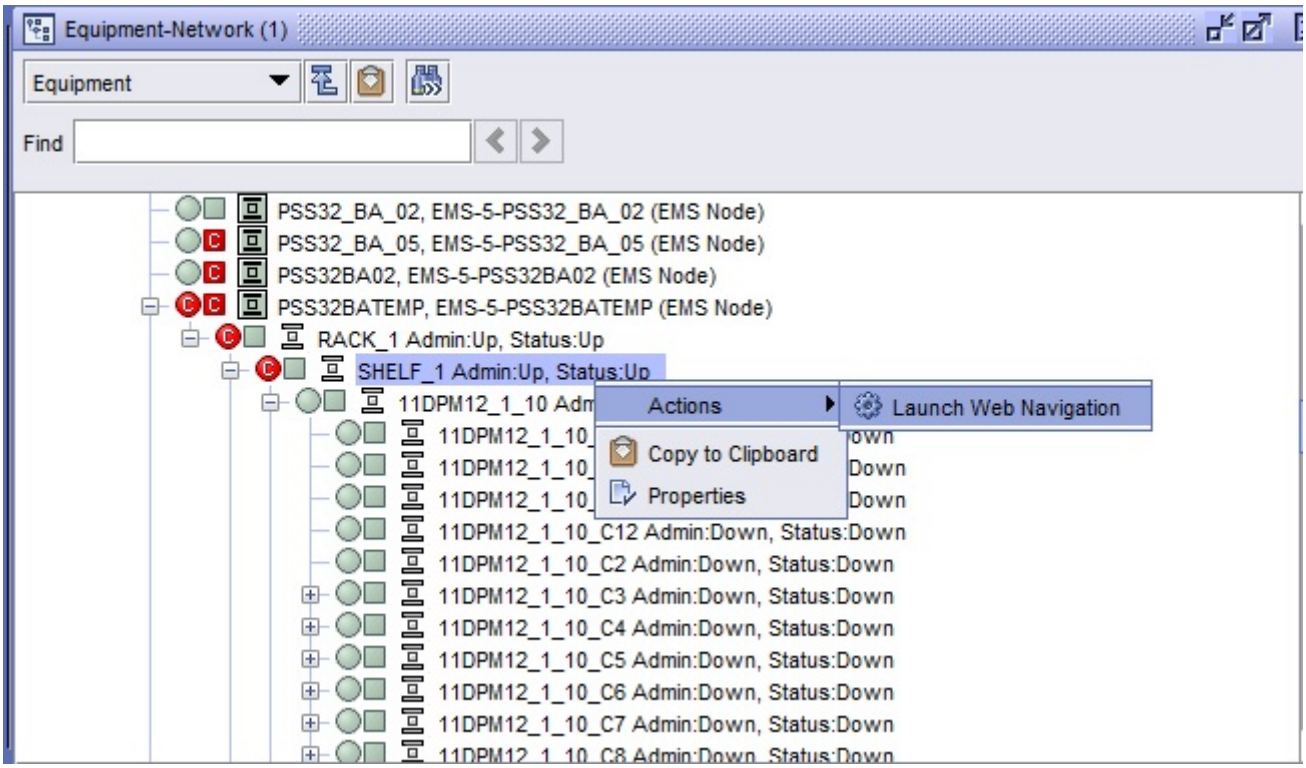
4.13.2 Contents

4.14 Shelf navigation

4.14.1 General information

You can navigate to the 1350 OMS Equipment View from the Network→1350 OMS→EMS→PSS→Rack→Shelf.

Figure 17 Shelf navigation

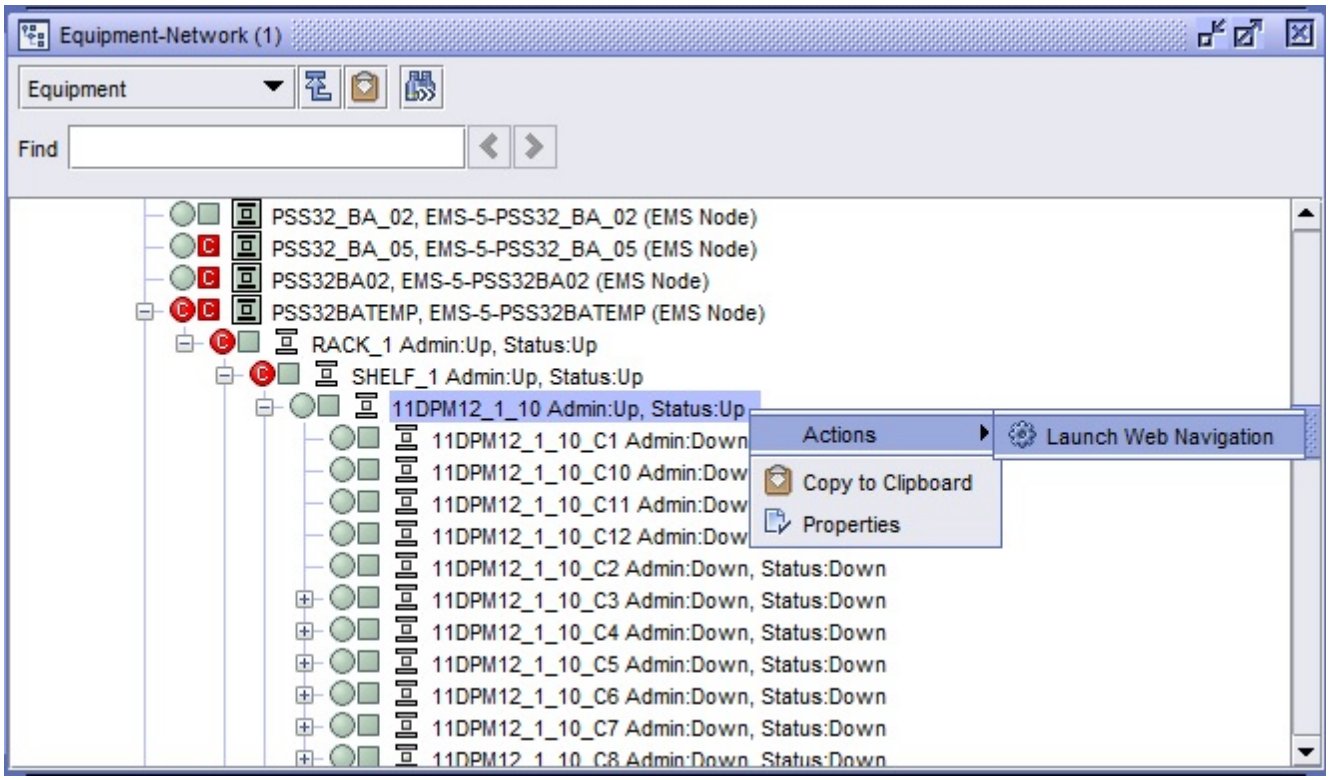


4.15 Card navigation

4.15.1 General information

You can navigate to the 1350 OMS Equipment View from the Network→1350 OMS→EMS→PSS→Rack→Shelf→Card.

Figure 18 Card navigation

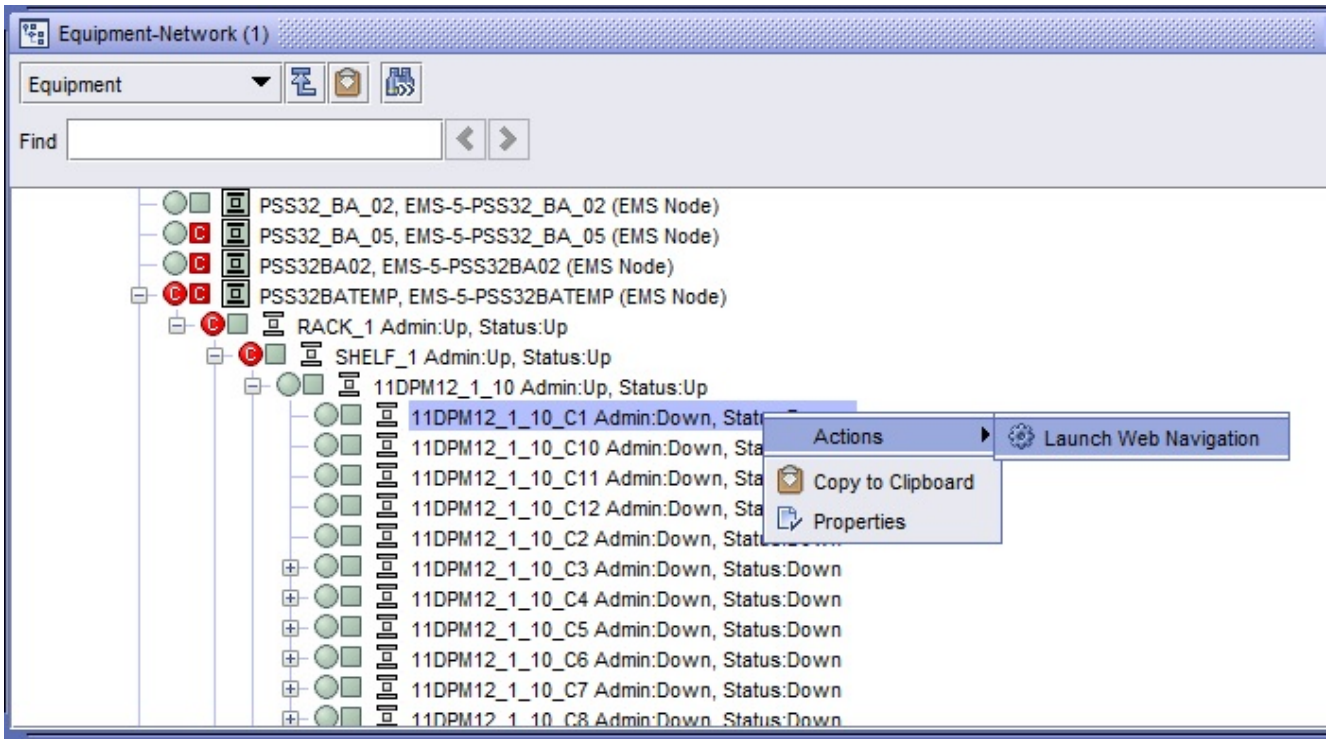


4.16 Port navigation

4.16.1 General information

You can navigate to the 1350 OMS Equipment View from the Network→1350 OMS→EMS→PSS→Rack→Shelf→Card→Port.

Figure 19 Port navigation



Link configuration between 7750 SR and 1350 OMS

4.17 Overview

4.17.1 Purpose

This section describes how to configure a physical link between a 7750 SR and a HIP node in the 1350 OMS managed as an EMS in the 5620 SAM.

4.17.2 Contents

4.18 To create a link between a 7750 SR and 1350 OMS node

4.18.1 Steps

1

Choose Create→Equipment→Physical Link from the 5620 SAM main menu. The Physical Link (Create) form opens.

2

Configure the identifying parameters as required and set the Endpoint A Type and Endpoint B Type parameters to “Network Element”.

3

Configure the Navigation URL parameter. See “Link navigation URL — Physical link — syntax” (p. 33).

Note: The configuration of the Navigation URL parameter is mandatory if you need to navigate to the 1350 OMS user interface.

4

In the Endpoint panels, click Select and choose the required nodes for the A and B points of the link.

5

Save the changes and close the form. The 5620 SAM creates the link object between the specified nodes.

END OF STEPS

Delete a 1350 OMS EMS

4.19 Overview

4.19.1 Purpose

This section describes how to delete a 1350 OMS that is managed as an EMS in the 5620 SAM.

4.19.2 Contents

4.20 To delete a 1350 OMS EMS from the 5620 SAM

4.20.1 Before you begin

You must set the Administrative State of the EMS to “Down” before you can delete the object from the 5620 SAM.

4.20.2 Steps

1

Choose Administration→Discovery Manager from the 5620 SAM main menu. The Discovery Manager (Edit) form opens.

2

Click on the EM System tab.

3

If required, configure the Administrative State parameter:

1. Select the EM System and click Properties.
2. Set the Administrative State parameter to “Down”.
3. Save the changes and close the form.

4

In the Discovery Manager form, select the EM System and click Delete. The 5620 SAM deletes the EM System and all associated optical nodes and links.

Note: The EMS group does not get deleted from Physical Topology view if non-Hip NEs are present in the EMS group.

END OF STEPS

5 OSS integration and fault management

5.1 Overview

5.1.1 Purpose

This chapter provides information about the OSS integration and fault management.

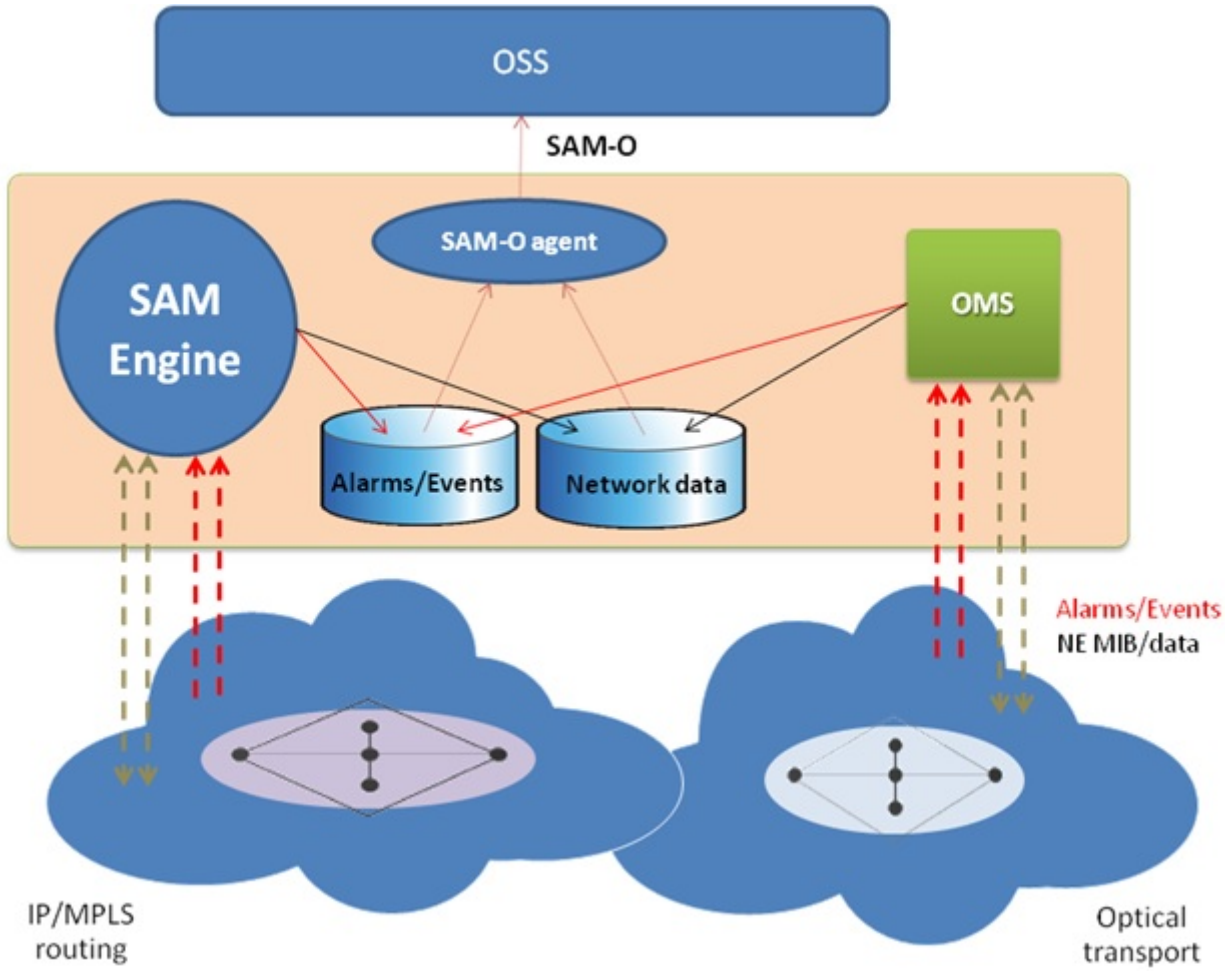
5.1.2 Contents

5.2 OSS integration

5.2.1 Introduction

One NBI is supported for the 5620 SAM and the 1350 OMS using the 5620 SAM-O interface. The interface exports the 5620 SAM and the 1350 OMS objects, inventories, and alarms of the 1830 PSS managed network.

Figure 20 The 5620 SAM and the 1350 OMS OSS integration



5.3 Fault and event management

5.3.1 Introduction

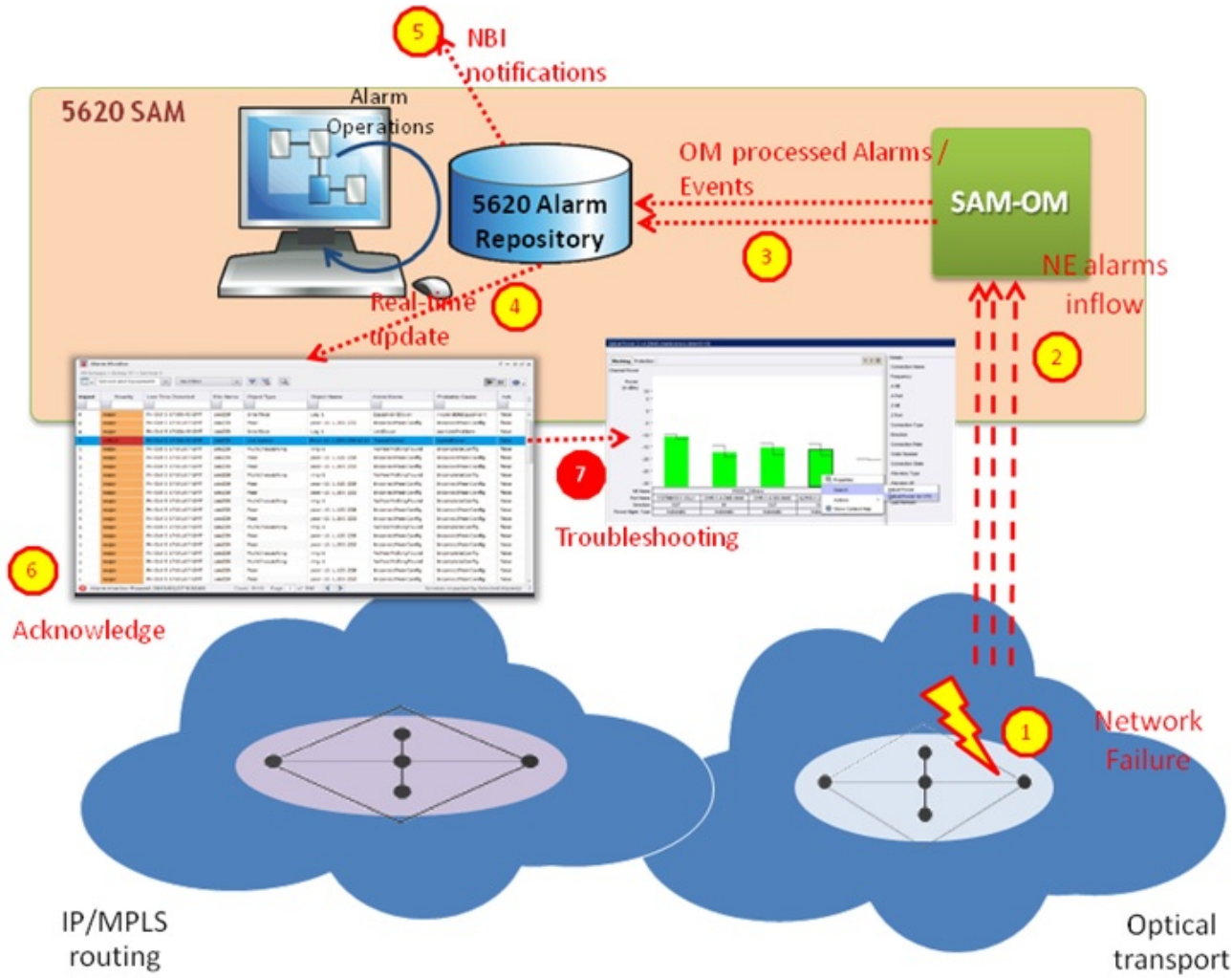
The 5620 SAM and the 1350 OMS integration supports an enhanced fault management application, to provide a single point of handling for the alarms of a multi-layer IP and optical network, and a centralized environment where the fault correlation process takes place.

5.3.2 Fault management

The 1350 OMS feeds platform and nodal alarms, including correlation information, to the 5620 SAM over HIP. The following statements describe FM support for 1350 OMS integration:

- Alarm raising and clearing from the 1350 OMS to the 5620 SAM is supported. Acknowledging the alarm from the 5620 SAM results in the alarm acknowledgment in the 1350 OMS. See 6.3 “To acknowledge alarms” (p. 73) for more information about acknowledging alarms in the 5620 SAM.
- Basic nodal alarms are associated with the expected node objects from the 1350 OMS in the 5620 SAM network. See 5.4 “To enable the 1350 OMS cross-launch from the 5620 SAM FM application” (p. 68) and 5.5 “To cross-launch the 1350 OMS web GUI from the 5620 SAM FM application” (p. 70) for more information about cross-launching from the 5620 SAM FM application to the 1350 OMS.
- Correlated alarms on optical links are associated with the expected object types in the 5620 SAM. Correlated alarms on OTU-k/ODU-k layers and services are associated with Opt_Connection.
- 5620 SAM-O support for alarms originating from the 1350 OMS via HIP is provided.

Figure 21 The 5620 SAM and 1350 OMS fault and event management



5.3.3 Alarm navigation

Navigation to the elementary alarms

You can navigate to the 1350 OMS EQM elementary alarm from the 5620 SAM Fault Management Application. See 5.4 “To enable the 1350 OMS cross-launch from the 5620 SAM FM application” (p. 68) and 5.5 “To cross-launch the 1350 OMS web GUI from the 5620 SAM FM application” (p. 70) for more information about cross launch from the 5620 SAM FM application to the 1350 OMS.

Figure 22 Navigation from the 5620 SAM Fault Management Application

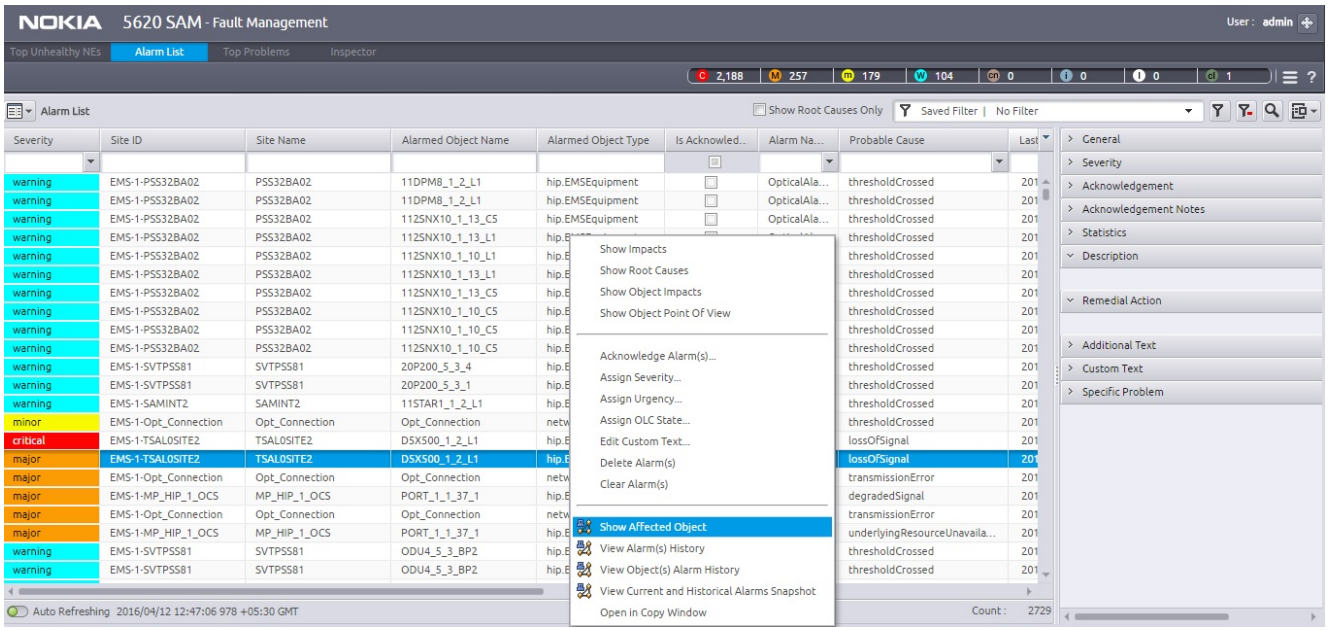
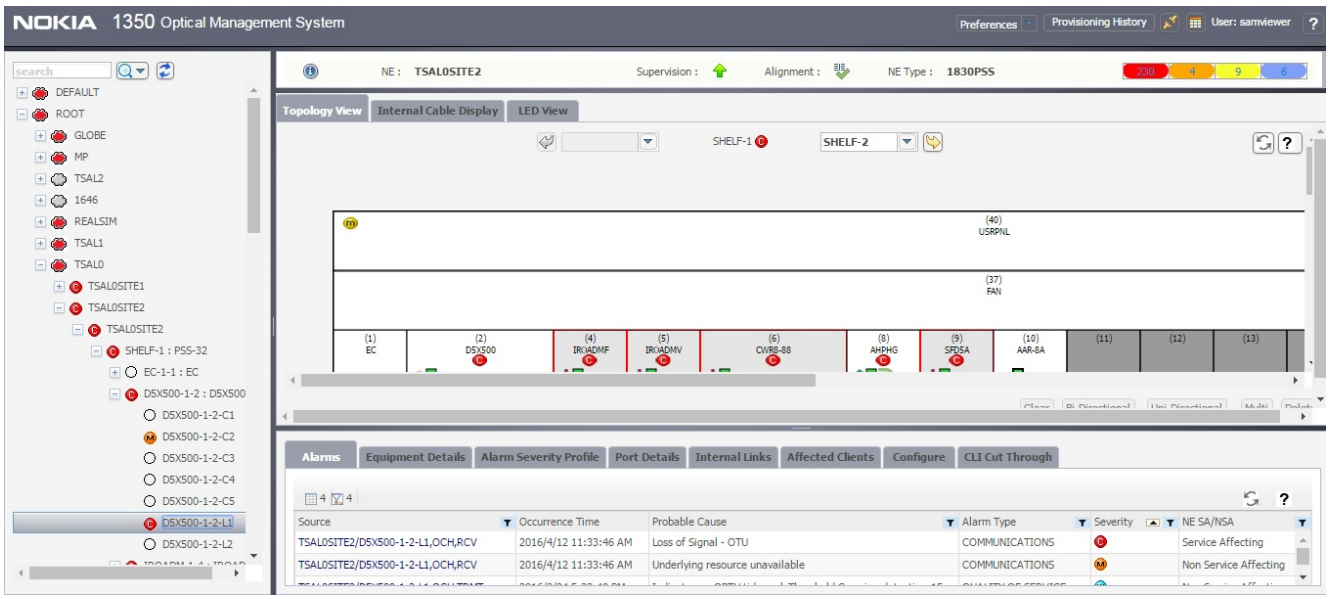


Figure 23 Navigation to the 1350 OMS EQM



Navigation to the correlated alarms

You can navigate to the correlated alarms in the 1350 OMS RCA/alarms tab of 360 view on a connection from 5620 SAM Fault Management Application. See 5.4 “To enable the 1350 OMS cross-launch from the 5620 SAM FM application” (p. 68) and 5.5 “To cross-launch the 1350 OMS web GUI from the 5620 SAM FM application” (p. 70) for more information about cross launch from the 5620 SAM FM application to the 1350 OMS.

Figure 24 Navigation from the 5620 SAM Fault Management Application

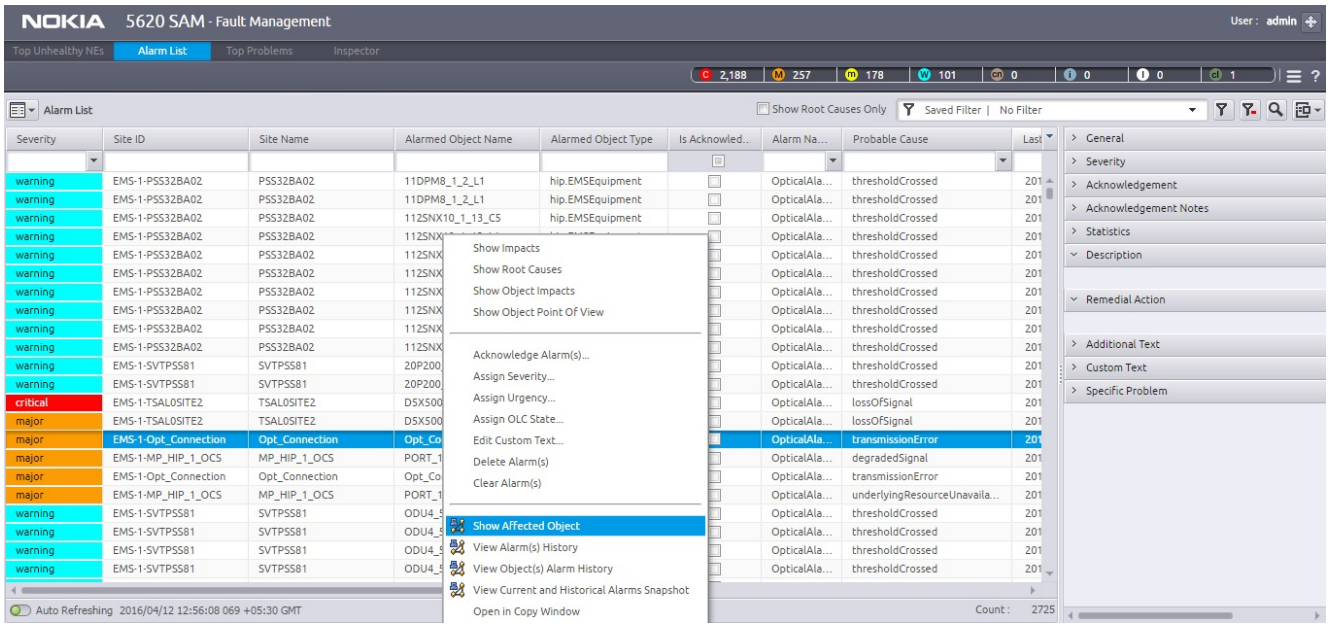
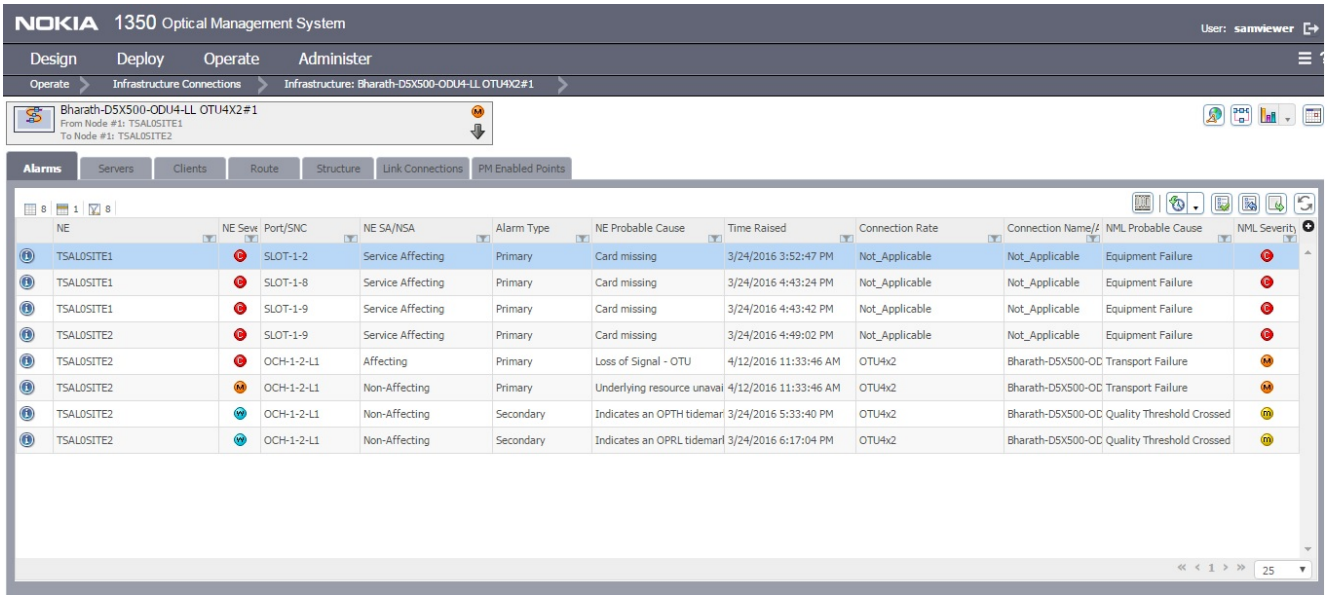


Figure 25 Navigation to the 1350 OMS correlated alarms



5.4 To enable the 1350 OMS cross-launch from the 5620 SAM FM application

5.4.1 Purpose

The following steps describe how to enable 5620 SAM FM application users to open an 1350 OMS management window using an FM contextual menu option.

CAUTION

Service Disruption

The procedure changes the 5620 SAM system configuration. A configuration change may have serious consequences such as service disruption.

Contact technical support before you attempt to modify the 5620 SAM system configuration.

Note: You must perform this procedure on each main server in the 5620 SAM system.

5.4.2 Steps

1

Log in to the main server station as the samadmin user.

2

Open a console window.

3

Enter the following:

```
bash$  cd /opt/5620sam/server/nms/config
```

4

Create a backup copy of the nms-server.xml file.

5

Open the nms-server.xml file using a plain-text editor such as vi.

6

Locate the section that begins with the following tag:

```
<integration
```

7

Edit the following line in the section to read:

```
navigationEnabled="true"
```

8

Save and close the nms-server.xml file.

9

Enter the following:

```
bash$  cd ../bin
```

10

Enter the following:

```
bash$  ./nmsserver.bash read_config ↵
```

The main server reads the updated configuration and puts the change into effect.

11

Close the console window.

END OF STEPS

5.5 To cross-launch the 1350 OMS web GUI from the 5620 SAM FM application

5.5.1 Steps

1

Log in to the 5620 SAM FM application.

2

Click on the Alarm List tab. The alarm list is displayed.

3

Right-click on an alarm entry and choose Show Affected Object. The details of the chosen alarm opens on the 1350 OMS web GUI in the default browser, according to the defined URL for the link.

END OF STEPS

6 Troubleshooting

6.1 Overview

6.1.1 Purpose

This chapter describes how to troubleshoot problems when you are working on the OIM.

6.1.2 Contents

6.2 Troubleshooting

6.2.1 Introduction

The *5620 SAM Troubleshooting Guide* provides information about the 5620 SAM and troubleshooting using alarms, OAM tools for service troubleshooting, and network management domain troubleshooting for the 5620 SAM software and platforms.

6.2.2 Acknowledge alarms

When you acknowledge the alarms in the 5620 SAM, the alarms are acknowledged also in the 1350 OMS. See 6.3 “To acknowledge alarms” (p. 73) for more information about how to acknowledge alarms.

6.3 To acknowledge alarms

6.3.1 Purpose

When you select an alarm to investigate the root cause, you should acknowledge the alarm and its related problems to indicate that the problem is under investigation. This ensures that duplicate resources are not applied to the same problem.

6.3.2 Steps

1

To acknowledge the selected alarm:

1. Right-click on the selected alarm in the dynamic alarm list and choose Acknowledge Alarm(s). The Alarm Acknowledgment form opens.

   If required, add text in the Acknowledgment Text box.
2. Select the Acknowledgement check box and click OK.
3. Click OK. A check mark appears for the selected alarm under the Acknowledged column in the dynamic alarm list.

2

To acknowledge multiple, correlated alarms:

1. Right-click on the selected alarm in the dynamic alarm list and choose Show Affected Object. The Properties form for the object opens.
2. Click on the Faults tab, then click on the Object Alarms, Alarms on Related Objects, or Affected Objects tab to display the alarms related to the affected object.
3. Choose all the alarms listed.
4. Right-click on the alarm list, then choose Acknowledge Alarm(s). The Alarm Acknowledgement form opens and lists all of the selected alarms. If required, add text in the Acknowledgement Text box.
5. Click OK to continue. A check mark appears for each of the selected alarms under the Ack. column in the dynamic alarm list.

END OF STEPS

6.4 Problem: Client not receiving server heartbeat messages

6.4.1 Purpose

Perform this procedure when a 5620 SAM client is not receiving heartbeat messages.

6.4.2 Steps

1

Verify the network connectivity between the 5620 SAM and 1350 OMS.

2

Verify that the 5620 SAM server and client clocks are synchronized. To set the date and time for 5620 SAM server and client clocks, see the *5620 SAM System Administrator Guide* for more information.

END OF STEPS

6.5 Problem: EMS is unreachable

6.5.1 Purpose

Perform this procedure when an EMS is unreachable.

6.5.2 Steps

1

Verify that the Administrative State parameter on the EM System (Edit) form is set to Up.

END OF STEPS

6.6 Problem: HIP cannot complete 5620 SAM synchronization after restarting OIS (NBI)

6.6.1 Purpose

Perform this procedure to synchronize the 1350 OMS and the 5620 SAM after you remove an NE from the 1350 OMS, the 5620 SAM inventory does not reflect the change, and continues to list the NE in the inventory list.

6.6.2 Steps

1

Enter the following to stop the OIM application to ensure that the current HIP process is terminated and more than one HIP processes are not in progress simultaneously.

```
..,root,root # /usr/Systems/OTN*Master/WDM_APPL/bin/hip_stop
```

2

Configure HIP on the 1350 OMS to complete the 5620 SAM and 1350 OMS synchronization. See Procedure 3.4 “To configure HIP on the 1350 OMS” (p. 24) for more information about how to configure HIP on the 1350 OMS.

Note: When you restart the OIM application, the 5620 SAM re-synchronizes the inventory by retrieving all objects from the OIM. The operation can take a long time to complete depending on the size of the 1350 OMS network.

END OF STEPS