
5 _____

Save the changes.

6 _____

To view the log file, go to */nfmt/global/maintenance/trace/CommonWebServices.log*

END OF STEPS _____

24.9 Manage Note for a Selected Object

When to use

Use this task to add, modify, delete, and export all the available notes to a comma separated values (CSV) file for a selected object.

Users have the capability to add, modify, delete, and export all the available notes to a .CSV file for the following items.

- Nodes
- NEs
- Physical connections
- Infrastructure connections
- Protected connections
- Services
- Dark fibers
- Equipment Manager (EQM)

The added note for NEs, connections, and services is visible in a dedicated **360° View** for the selected object. Users can visualize the attributes relevant to the note such as the note description, user initial (first two letters from their user ID), and date and time stamp of the addition or last modification of the note in the corresponding **NOTES** tab of the selected object.

Related Information

See [25.31 “Notes Tab” \(p. 2123\)](#).

Task: Add a Note

Complete the following steps to add a note to **Nodes, NEs, Equipment Manager, Physical Connections, Infrastructure Connections, Protected Connections, Services, and Dark Fibers**.

1

From the NFM-T GUI, follow one of these navigation paths:

OPERATE > Nodes > 360° View > NOTES

OPERATE > NEs > 360° View > NOTES

OPERATE > Physical Connections > 360° View > NOTES

OPERATE > Infrastructure Connections > 360° View > NOTES

OPERATE > Protected Connections > 360° View > NOTES

OPERATE > Services > 360° View > NOTES

OPERATE > Dark Fibers

OPERATE > Equipment Manager



Note: For Equipment Manager, the Notes tab is displayed for Node, NE, shelf, card, port, and slot.

Result:

- Nodes, NEs, connections, and services: The corresponding **NOTES** tab is displayed.
- Dark fibers, and Equipment Manager: The corresponding Dark fibers and Equipment Manager page is displayed.
- To add a note to **Dark Fibers**, see [Step 2](#).
- To add a note to **Equipment Manager**, see [Step 3](#).
- To add a note to **Nodes, NEs, Physical Connections, Infrastructure Connections, Protected Connections, and Services**, see [Step 4](#).

2

To add a note to a dark fiber from the **Dark Fibers** window, use one of the following procedures.

- Complete the following steps to add a note using right click option.
 1. Right click the selected dark fiber and then click **Add Note**. The **Notes** window is displayed.
 2. Enter the note description in the **Notes** window.
 3. Click **Apply** to save multiple notes. Click **OK** to save a single note. Click **Cancel** to terminate the operation.
- Complete the following steps to add a note from the **Notes** tab.
 1. Select the dark fiber and then click the **Notes** tab.
 2. Mouse over the icons on the top right of the **Notes** tab and select the **Add Note**  icon.
 3. Enter the note description in the **Notes** window.
 4. Click **Apply** to save multiple note. Click **OK** to save a single note. Click **Cancel** to terminate the operation.

Result: The new note is added in the **Notes** tab and displayed in the **Latest Note** column of the data table.

3

Complete the following steps to add a note to **Equipment Manager**.

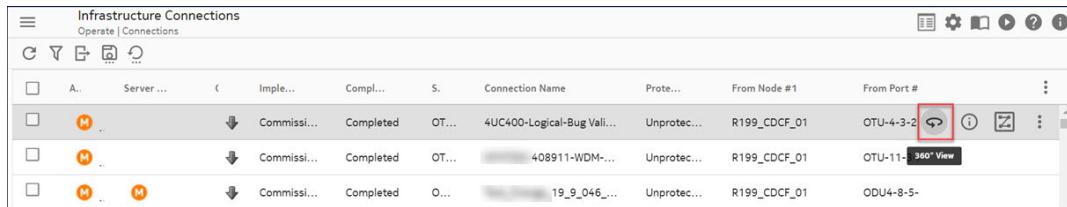
1. Select the Node, NE, shelf, card, port, or slot in the Equipment Manager window.
2. Click the **Notes** tab.
3. Click **Add Notes Plus** icon. The **Notes** widow is displayed.
4. Enter the note description.
5. Click **Apply** to save multiple note. Click **OK** to save a single note. Click **Cancel** to terminate the operation.

Result: The new note is added in the **Notes** tab and displayed in the **Latest Note** column of the data table.

4

To add a note to the **Nodes, NEs, Physical Connections, Infrastructure Connections, Protected Connections, and Services** use one of the following procedures.

- Complete the following steps to add a note using **NOTES** tab.
 1. Select the Node, NE, or connection in the data table.
 2. Click the corresponding **360°View** icon for the selected object. The **360° View** react screen is displayed.

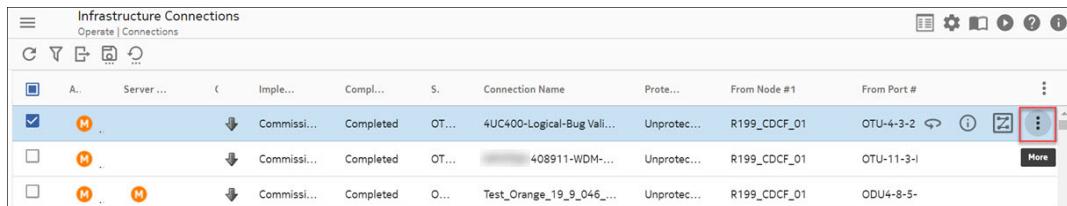


3. Click the **NOTES** tab.



4. Enter the note description in the **Add Notes** window.
5. Click **POST** to save and add the note. Click **CANCEL** to terminate the operation.

 - Complete the following steps to add a note using the **More** options icon.
 1. Select the Node, NE, or connection in the data table.
 2. Click the **More** options icon for the selected object.



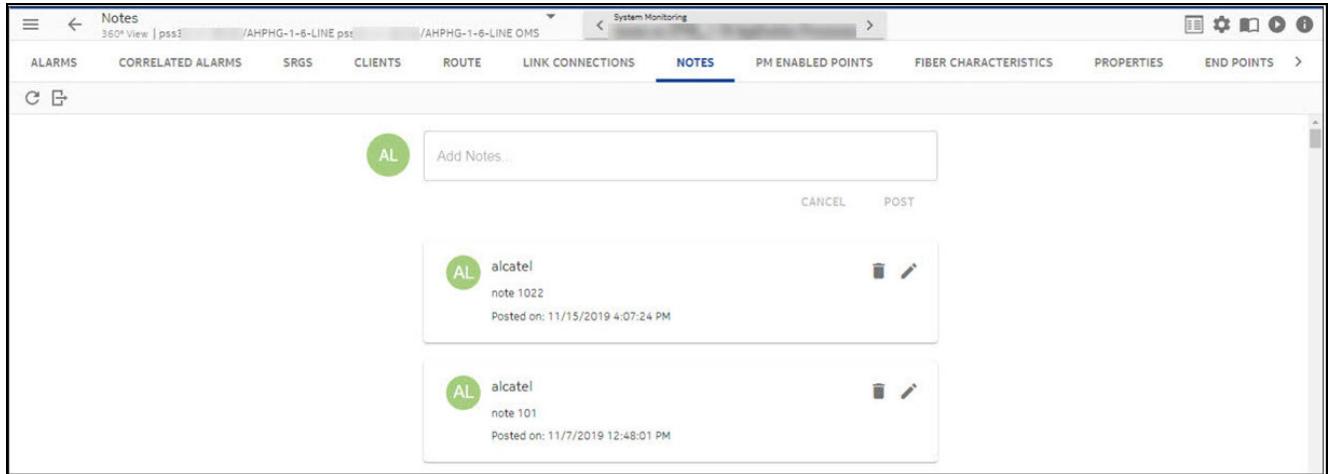
3. Click **Add Note**. The **NOTES** tab opens in the **360° View**.
4. Enter the note description in the **Add Notes** window.
5. Click **POST** to save and add the note. Click **CANCEL** to terminate the operation.

Result: The note is saved and displayed in the **NOTES** tab for the selected object. As notes are added they are listed as cards, with the most recent note at the top. The notes added by the respective user is tagged with the first two letters from their user ID. The notes from

different users for the same object (such as a Connection or NE) appears intermixed based on the date and time stamp.

Example: The following figure illustrates the **NOTES** tab for the **Infrastructure Connections**.

Figure 24-30 Data Tables – Infrastructure Connections – NOTES tab



END OF STEPS

Task: Modify Note

Complete the following steps to modify a note for **Nodes, NEs, Equipment Manager, Physical Connections, Infrastructure Connections, Protected Connections, Services, and Dark Fibers**.

1

Follow one of the navigation paths depending on the path you are in:

- For **Nodes, NEs, Physical Connections, Infrastructure Connections, Protected Connections, and Services**, from the NFM-T GUI, follow one of these navigation paths:
OPERATE > Nodes > 360° View > NOTES
OPERATE > NEs > 360° View > NOTES
OPERATE > Physical Connections > 360° View > NOTES
OPERATE > Infrastructure Connections > 360° View > NOTES
OPERATE > Protected Connections > 360° View > NOTES
OPERATE > Services > 360° View > NOTES
- For **Dark Fibers and Equipment Manager**, from the NFM-T GUI, follow one of these navigation paths to view the **Latest Note**:
OPERATE > Dark Fibers
OPERATE > Equipment Manager

Result:

- Nodes, NEs, connections, and services: The corresponding **NOTES** tab is displayed.
- Dark fibers, and Equipment Manager: The corresponding Nodes, Dark fibers, and Equipment Manager page is displayed.
- To modify a note for **Dark Fibers**, see [Step 2](#).
- To modify a note for **Equipment Manager**, see [Step 3](#).
- To modify note for **Nodes, NEs, Physical Connections, Infrastructure Connections, Protected Connections, and Services**, see [Step 4](#).

2

Complete the following steps to modify a note for **Dark Fibers**.

1. Select the **Dark Fiber** from the data table.
2. Click the **Notes** tab.
3. Mouse over the icons on the top right corner of the **Notes** tab and then click the **Edit Note**  icon or right click the selected note and then click **Edit Note**.
4. Modify the **Notes** field as required and then click **OK**.
5. Click **Refresh**  icon on the top right corner of the **Notes** tab to view the modified note.

Result: The note is modified in the **Notes** tab and the updated note is displayed in the **Latest Note** column of the data table.

3

Complete the following steps to modify a note for **Equipment Manager**.

1. Select the Node, NE, shelf, card, port, or slot.
2. Click the **Notes** tab.
3. Mouse over the icons on the top right corner of the **Notes** tab and then click the **Edit Note**  icon or right click the selected note and then click **Edit Note**.
4. Modify the **Notes** field as required and then click **OK**.
5. Click **Refresh**  icon on the top right corner of the **Notes** tab to view the modified note.

Result: The note is modified in the **Notes** tab and the updated note is displayed in the **Latest Note** column of the data table.

4

Complete the following steps to modify a note for **Nodes, NEs, Physical Connections, Infrastructure Connections, Protected Connections, and Services**.

1. Click the **Edit**  icon.
2. Edit the existing note.
3. Click **Save**  icon. Click **Cancel**  icon to terminate the editing operation.



Note: Only the user who adds the note, has the permission to modify the note.

Result: The existing note is modified and the list is updated dynamically with the latest date and time stamp.

END OF STEPS

Task: Delete Note

Complete the following steps to delete the note for **Nodes, NEs, Equipment Manager, Physical Connections, Infrastructure Connections, Protected Connections, Services, and Dark Fibers**.

1

Follow one of the way depending on the path you are in:

- For **Nodes, NEs, Physical Connections, Infrastructure Connections, Protected Connections, and Services**, from the NFM-T GUI, follow one of these navigation paths:

OPERATE > Nodes > 360° View > NOTES

OPERATE > NEs > 360° View > NOTES

OPERATE > Physical Connections > 360° View > NOTES

OPERATE > Infrastructure Connections > 360° View > NOTES

OPERATE > Protected Connections > 360° View > NOTES

OPERATE > Services > 360° View > NOTES

- For **Dark Fibers and Equipment Manager**, from the NFM-T GUI, follow one of these navigation paths to view the **Latest Note**:

OPERATE > Dark Fibers

OPERATE > Equipment Manager

Result:

- Nodes, NEs, connections, and services: The corresponding **NOTES** tab is displayed.
- Dark fibers and Equipment Manager: The corresponding Dark fibers and Equipment Manager page is displayed.
- To delete a note for **Dark Fibers**, see [Step 2](#).
- To delete a note for **Equipment Manager**, see [Step 3](#).
- To delete note for **Nodes, NEs, Physical Connections, Infrastructure Connections, Protected Connections, and Services**, see [Step 4](#).

2

Complete the following steps to delete a note for **Dark Fibers**.

1. Select the **Dark Fiber** from the data table.
2. Mouse over the icons on the top right corner of the **Notes** tab and then click the **Delete Note**  icon or right click the selected note and then click **Delete Note**.
3. Click **Refresh**  icon on the top right corner of the **Notes** tab.

Result: The last note is deleted from the **Notes** tab. The next latest note is now displayed in the **Latest Note** column.

3

Complete the following steps to delete a note for **Equipment Manager**.

1. Select the Node, NE, shelf, card, port, or slot.
2. Mouse over the icons on the top right corner of the **Notes** tab and then click the **Delete Note**  icon or right click the selected note and then click **Delete Note**.
3. Click **Refresh**  icon on the top right corner of the **Notes** tab to update the **Latest Note** column.

Result: The last note is deleted from the **Notes** tab. The next latest note is now displayed in the **Latest Note** column.

4

To delete a note for **Nodes, NEs, Physical Connections, Infrastructure Connections, Protected Connections, and Services**, click the **Delete**  icon.



Note: The user who has added the note has the permission to delete the note.

Result: The deleted note is removed from the list and the list is dynamically updated.

END OF STEPS

24.10 Manage Timeline

Overview

Timeline displays the activities and additional information of a selected object, beyond the basic listing of information. Timeline displays events that happened in a timely order with the activity information being displayed in a descending order (it can be added by providing a predefined data-source or dynamically calculating the URL by the user's actions). The Timeline feature resembles the social media type representation for the activities that are performed in the NEs and connection pages of NFM-T.

When to use

Use this task to manage the timeline of a selected object.

Timeline is managed on the following pages:

- NEs
- Physical Connections
- Infrastructure Connections
- Protected Connections
- Services

Task

Complete the following steps to manage the timeline of a selected object.

1

From the NFM-T GUI, follow one of the navigation paths:

- OPERATE > NEs > More  > Timeline
- OPERATE > Physical Connections
- OPERATE > Infrastructure Connections
- OPERATE > Services
- OPERATE > Protected Connections
- OPERATE > Nodes > [Selection]> 360⁰ View >OTN Physical Connections (tab)> [Selection] > More  > Timeline
- OPERATE > Nodes > [Selection]> 360⁰ View >Impacted Connections (tab)> [Selection] > More  > Timeline>
- OPERATE > Nodes > [Selection]> 360⁰ View > Infrastructure Connections (tab)> [Selection] > More  > Timeline

Result: The corresponding data table is displayed.

2

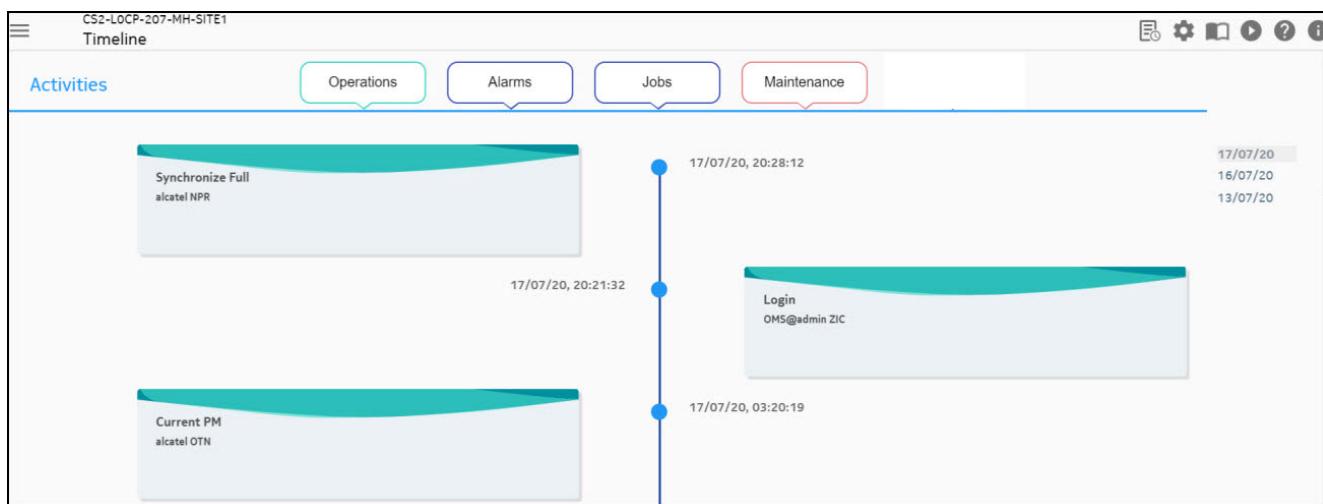
Select an NE, connection, or service from the list, click the corresponding **More**  icon, and select **Timeline** from the list of options.

Timeline does not support multi select option of the objects.

Result: The **Timeline** window is displayed with the applicable tabs on the top of the window. The color display around the tabs help the user to distinguish the operations, events, and alarms. The color of the data boxes in each of the tabs matches the border color of the respective tabs. For example, the data in the **Operations** or **Connections** tab is depicted in turquoise blue.

The activities that are performed for a particular NE, connection, or service are displayed in a time sequence. The Timeline is sorted based on the Date field in UTC format with the most recent activities on top of the timeline.

Figure 24-31 Timeline window from OPERATE > NEs



The following tabs are applicable for Timeline:

- **Operations:** This tab is enabled when the user navigates from the **OPERATE > NEs** page. See [Step 7](#)
- **Connections:** This tab is enabled when the Timeline is accessed from the **OPERATE > Physical Connections**, **OPERATE > Infrastructure Connections**, **OPERATE > Services**, or **OPERATE > Protected Connections** pages. See [Step 8](#)
- **Alarms:** Displays the alarm related information based on the severity. Refer [Step 9](#).
- **Jobs:** Displays the status of tasks performed in NFM-T. Refer [Step 10](#).
- **Maintenance:** Displays the data from All Records and Maintenance pages. Refer [Step 26](#).

3

Click each of the tabs to view the respective activities.

If none of the tabs are selected, the **Timeline** window displays the message: **There is no Activity Selected**. The tabs, if not selected, displays a navy blue border.

If there is no data returned for a particular tab, the Timeline window displays the message: **There is no Timeline data for XXX tab**.

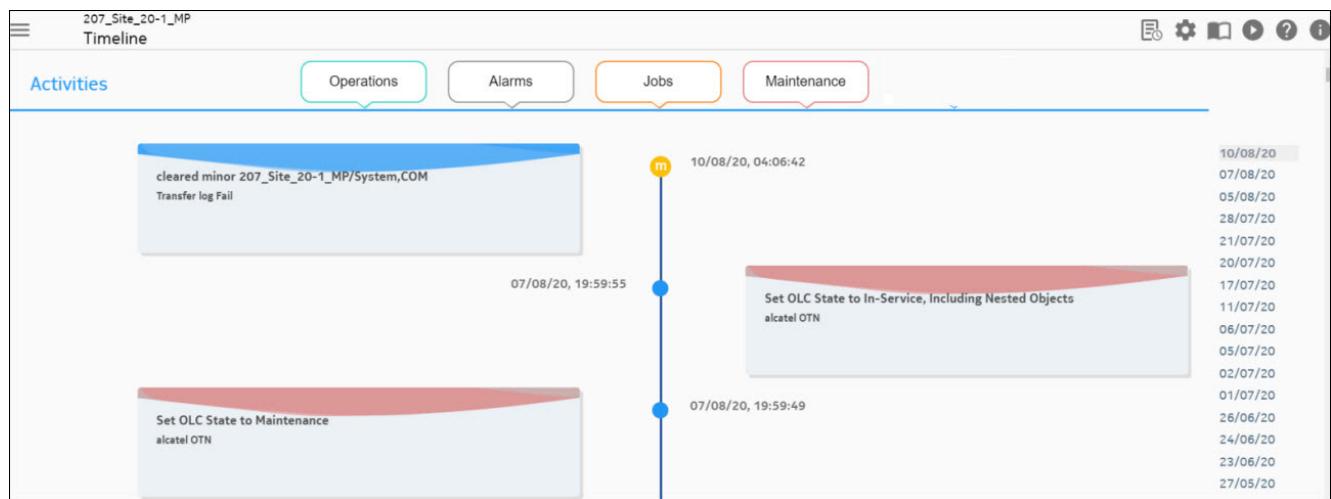
When multiple tabs are selected, the items from all the tabs are displayed in the same timeline. See [Figure 24-32, "Timeline: Date Selection" \(p. 2010\)](#).

To view the activities for a particular tab, select the tab where the activities must be displayed and then deselect the other tabs where the activities need not be displayed.

4

Click the date in the Date Selector on the right side to navigate to the first event associated with that date.

Figure 24-32 Timeline: Date Selection

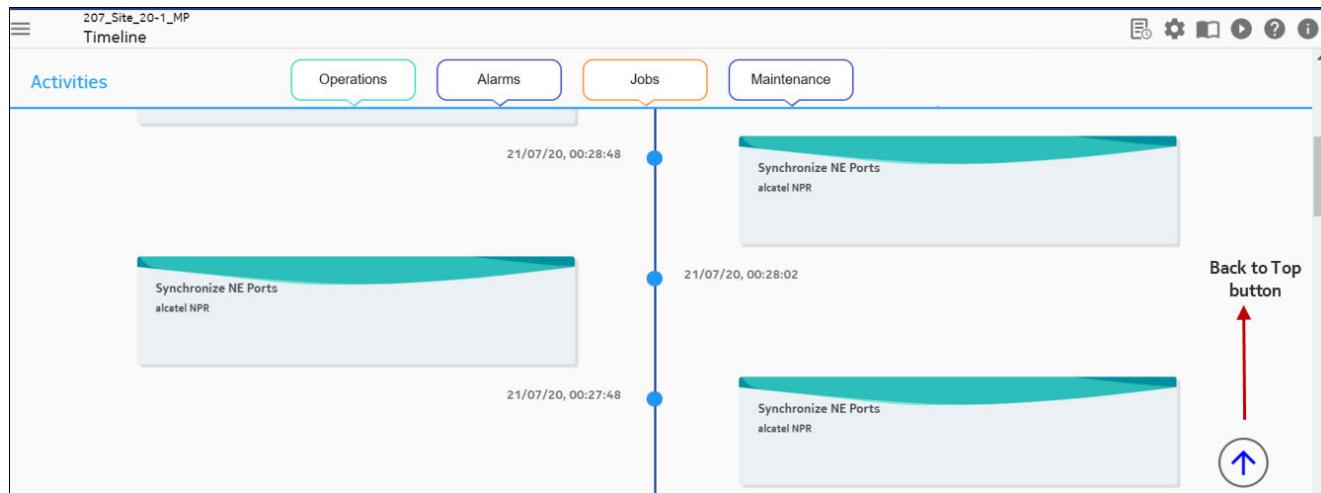


Result: The UI is navigated to the event associated with that date. The selected date is highlighted in gray.

5

Click the **Back to Top Arrow** button to navigate back to the top of the page. This arrow is displayed at the bottom right of the page.

Figure 24-33 Timeline: Back to top scrolling button



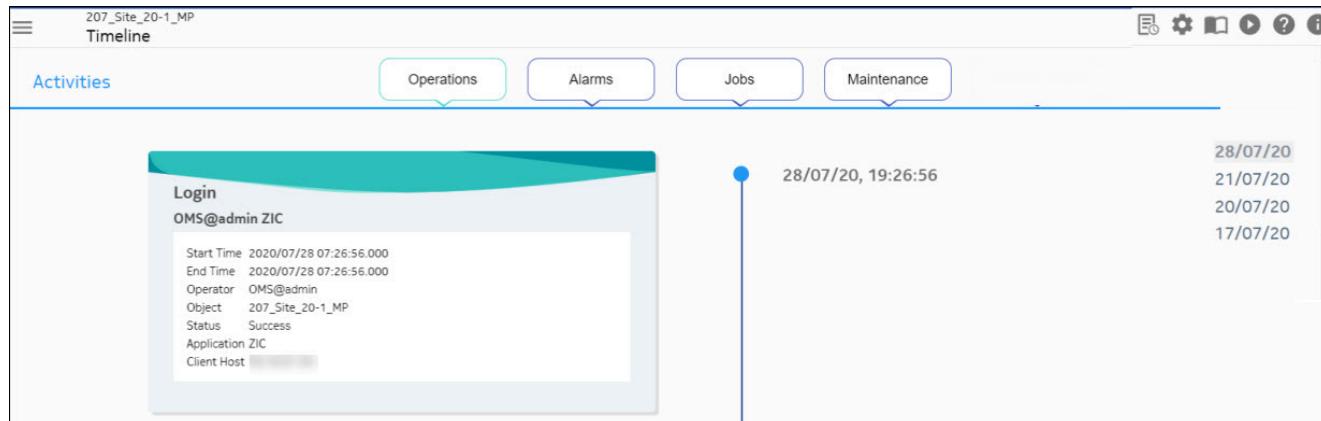
Result: The UI is navigated to the top of the page.

6

Mouse over the timeline items on each of the tabs.

Result: The selected data box expands and displays detailed information on the activity.

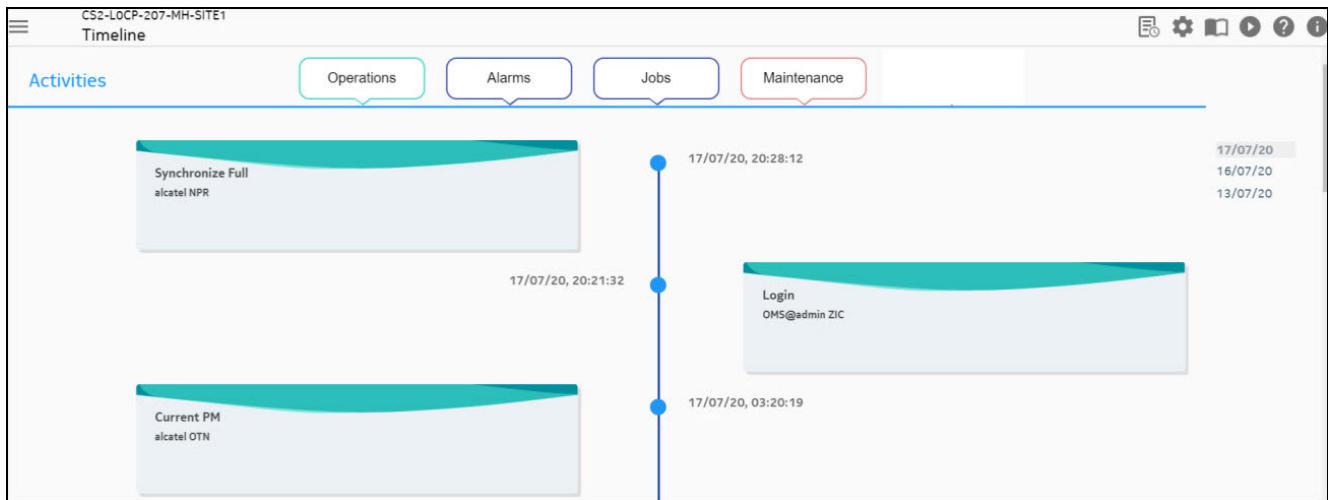
Figure 24-34 Timeline: Mouse over details display



7

Click the **Operations** tab to view the activities such as create, modify, add, and remove objects.

Figure 24-35 Timeline: Operations tab



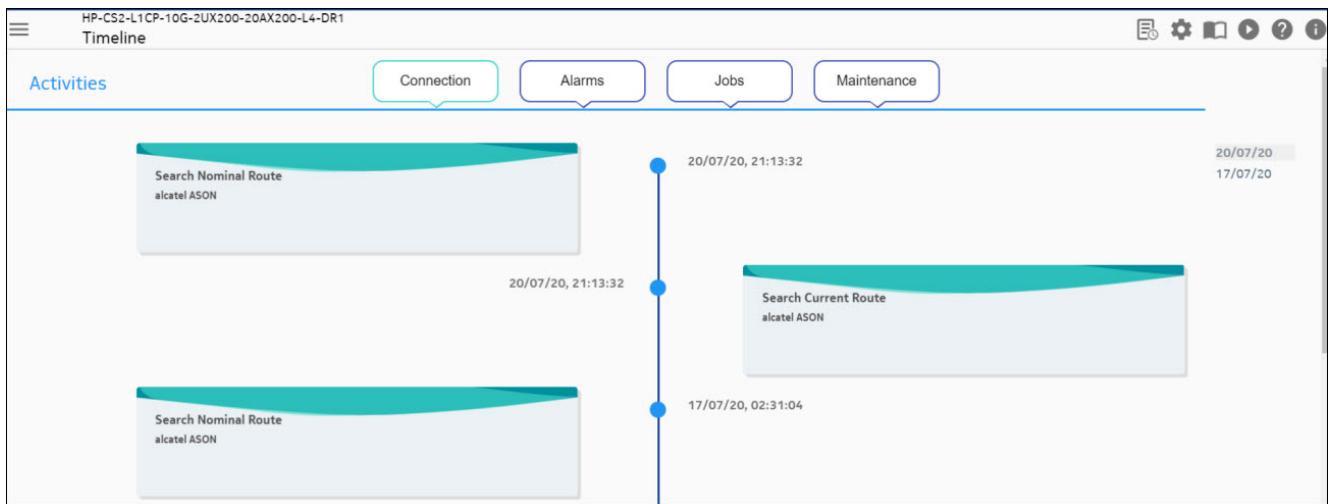
The activities in the Operations timeline can be validated by searching for the selected object in the Activity Log (**ADMINISTER > All Records**).

Result: All the operations related to the selected NE are displayed.

8

Click the **Connection** tab to view the activities related to the provisioning and configurations of connections and services.

Figure 24-36 Timeline: Connection tab

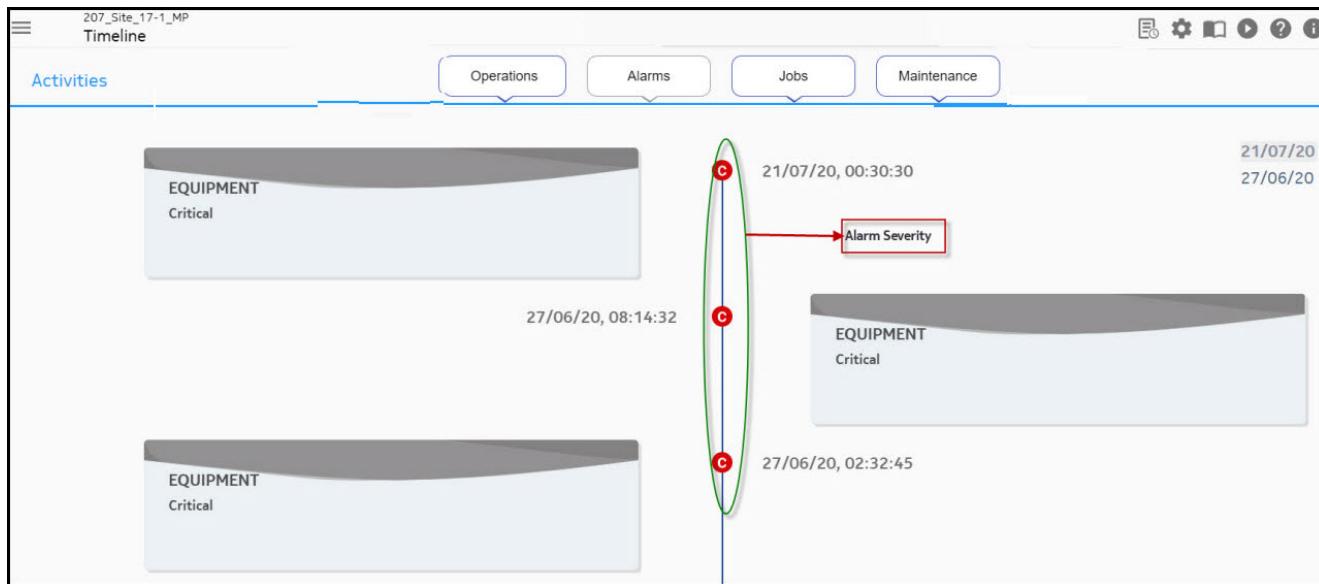


Result: All the operations related to the selected connection or service are displayed. The data boxes display the color of the border of the **Connection** tab.

9

Click the **Alarms** tab to view the type of alarms, like critical, major, minor, and warning alarms.
The **Alarms** tab is represented with a gray border.

Figure 24-37 Timeline: Alarms tab



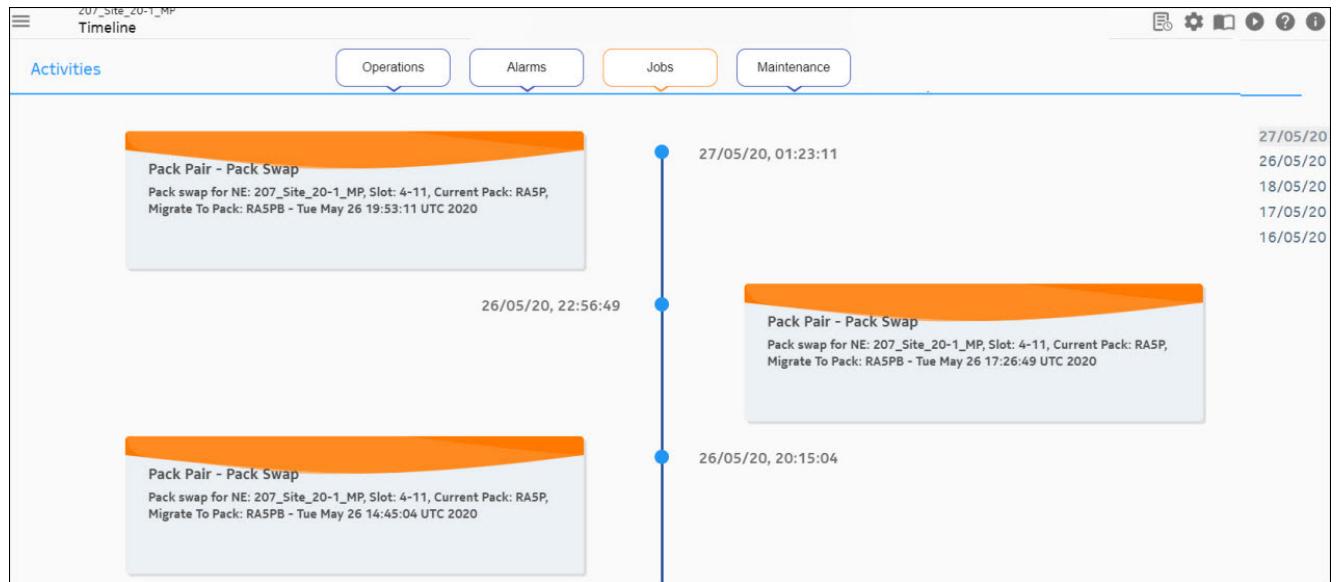
Result: The alarm data is displayed based on the severity of the alarm. The icons on the timeline depict the severity of the alarms.

The data boxes display the color of the border of the **Alarms** tab.

10

Select the **Jobs** tab to view the status of all the operations that are performed in NFM-T.
The **Jobs** tab is represented with a orange border.

Figure 24-38 Timeline: Jobs tab



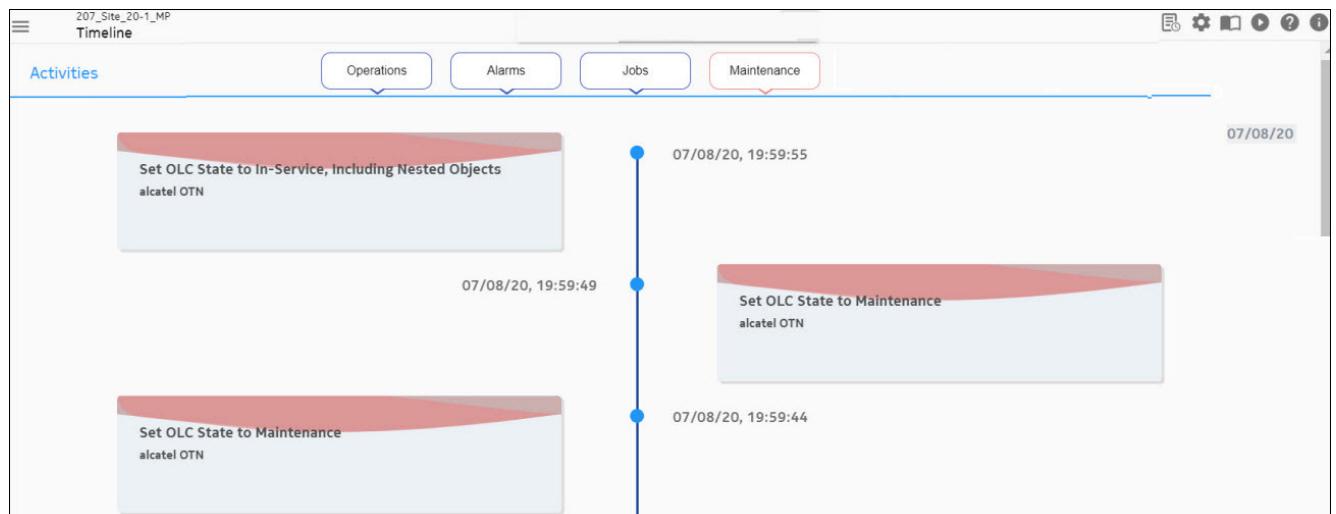
Result: The details of all the operations are displayed.

The data boxes display the color of the border of the **Jobs** tab.

11

Select the **Maintenance** tab to view the logs of object under maintenance state.

Figure 24-39 Timeline: Maintenance tab



Result: The details of objects under maintenance are displayed.
The data boxes display the color of the border of the **Maintenance** tab.

END OF STEPS

24.11 System Wide Search

Overview

System Wide Search functionality in the NFM-T is used to perform system wide text search such as NEs, Connections, Equipment, and User Activity from NFM-T database.

The System Wide Search functionality is accessible through the **Search** icon available at the top right corner of the NFM-T page.

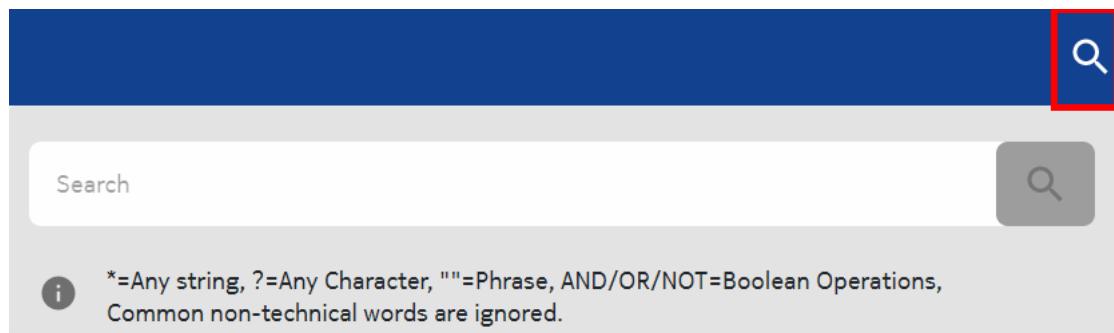
The user can access the Search window from **OPERATE > Search** option.

1. From the NFM-T GUI, follow this navigation path:

- **Dashboard > Search**  icon.

- Any NFM-T GUI page > **Search** icon, except older UI screens.

The **Search** field appears.



2. Enter the query in the **Search** field and click the corresponding **Search** icon.

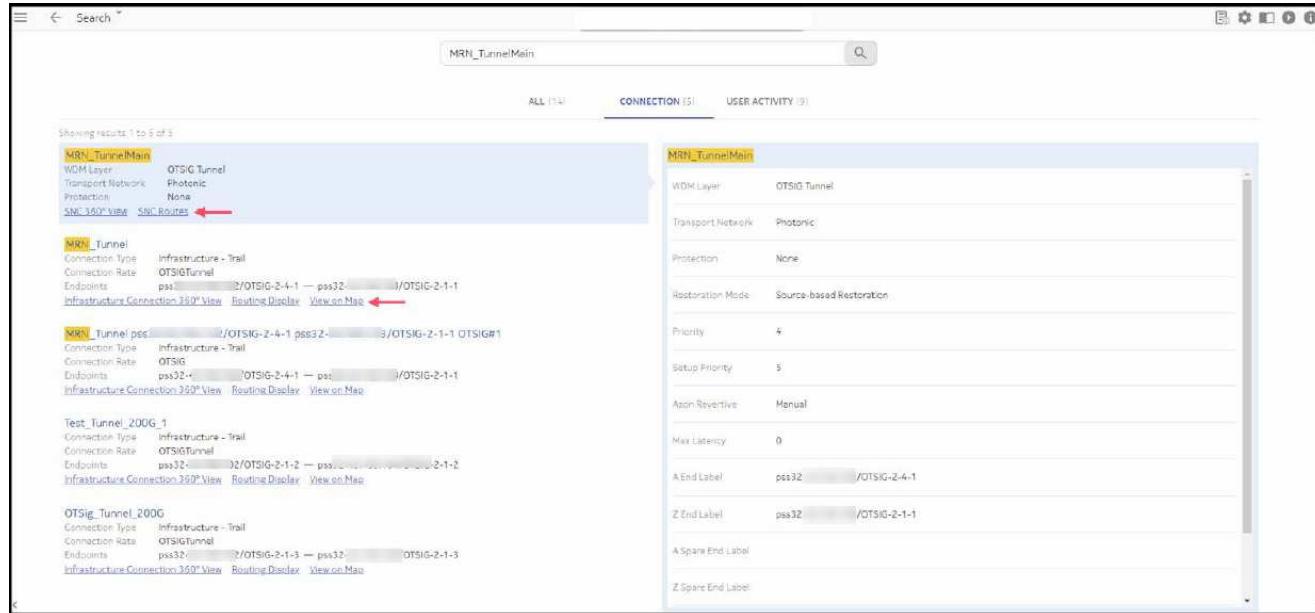
The window displays the search result.

The Search Results page of the System Wide Search consists of **ALL**, **NE**, **CONNECTION**, **EQUIPMENT**, and **USER ACTIVITY** tabs. The tabs in search result page display links to navigate to the corresponding application, as shown in the following table:

Table 24-1 Search results

Tab	Application Link
ALL	All Records, Fault Management, Routing Display, View on Map, SNC Routes, SNC 360° View, Physical Connection 360° View, Infrastructure Connection 360° View, Service Connection 360° View, Record 360° View, NE 360° View
NE	Equipment Manager, NE 360° View
CONNECTION	<p>The view of the application links are as follows:</p> <ul style="list-style-type: none"> Physical Connections - Physical Connection 360° View, Routing Display Infrastructure Connections - Infrastructure Connection 360° View, Routing Display and View on Map Services - Service Connection 360° View, Routing Display and View on Map SNCs - Routing Display and View on Map
EQUIPMENT	Equipment Manager
USER ACTIVITY	All Records, Record 360° View

Figure 24-40 Connection tab



The right side pane shows the details of the selected search result. It consists of information except the links.

The user can widen or narrow down scope of the search using the following features in the search text:

- Wildcard search using (?) for characters and (*) for strings
- Double quotes ("") to search an exact match or phrase.
- Boolean Operations using AND/OR/NOT

Some possible query formats are as follows:

1. Wildcard based operations

Character (?) to replace a single character and string (*) to replace zero or more characters.

For example, **PSS*-43.12?.*** shows the following results:

The screenshot shows a search interface with a search bar containing "PSS*-43.12?.*". Below the search bar are navigation tabs: ALL (1639), NE (16), CONNECTION (71), EQUIPMENT (1312), and USER ACTIVITY (240). The ALL tab is selected. A message indicates "Showing results 1 to 10 of 1639". The results list three entries, each with a yellow highlighted section. The first entry is expanded, showing detailed information: NE Type (1830 PSS-32), Release (13.0), Sitename (NOKIA), and a link to "360° Equipment Manager". The second and third entries are partially visible. To the right of the results, a large blue-bordered box highlights the expanded first result, showing the same detailed information: NE Type (1830 PSS-32), Release (13.0), Sitename (NOKIA), IP Address (192.168.100.214), and Date Created (11/07/2020, 20:38:54).

2. Boolean based operations. Boolean operators AND, OR and NOT must be in upper case.

For example, if a user performs a search using AND, a boolean such as **d5x500 AND 100Gbe** shows the following results:

3. Double quotes ("") to search an exact match or a phrase.

For example, if a user performs a search using double quotes such as "**Prepare Connection**", the following results appear:

Wildcard characters are not supported in phrase queries.

Note: The search results may not match the expected results if comma (,) is present in the search query within double quotes ("").

4. Combination of Wildcard, Boolean and Phrase

For example, if a user performs a search, such as **D5X500* AND "pss32-45.211.35"** shows the following results:

The screenshot shows a search interface with a search bar containing "D5X500* AND \"pss32-45.211.35\"". Below the search bar are three tabs: ALL (10), CONNECTION (4), and EQUIPMENT (6). The ALL tab is selected, showing search results 1 to 10 of 10. The results are listed in a table format with columns for NE Name, Parent NE, Circuit Pack Type, Location, and NE Type. The first result is highlighted with a blue box. A large blue arrow points from the first result to a detailed view of the same entry on the right side of the screen.

NE Name	Parent NE	Circuit Pack Type	Location	NE Type
D5X500-1-2	pss32-45.211.35	D5X500	NOKIA	Equipment Manager
D5X500-1-2-C2	pss32-45.211.35	D5X500	NOKIA	1830PSS_32
D5X500-1-2-C4	pss32-45.211.35	D5X500	NOKIA	1830PSS_32

Detailed View (Right Side):

NE Name	Parent NE	Circuit Pack Type	Location	NE Type	Equipment Type	NE Release
D5X500-1-2	pss32-45.211.35	D5X500	NOKIA	1830PSS_32	Circuit Pack	13.0



Note: Search indexes are updated in every 30 minutes. Any changes in NFM-T are reflected in Search results within 30 minutes.

24.12 View and Manage Structure

Before you begin

Ensure the NEs are configured, and the cards and ports are provisioned. To view the Structure, ensure at least one Physical, Infrastructure, or Service connection is available.

Reference

For more information on connections, see the following topics:

- [8.5 “Deploy a Managed Plane Connection” \(p. 1271\)](#)
- [8.6 “Deploy an L0 Control Plane Connection” \(p. 1278\)](#)
- [8.8 “Deploy a Service” \(p. 1294\)](#)
- [25.53 “Structure Tab” \(p. 2167\) \(Legacy\)](#)

Structure overview

Structure provides a graphical hierarchical view of Physical and Infrastructure connections with channel utilization and detailed information of the connection at each layer (cascaded view of all the clients on that connection).

The initial display of the Structure shows the individual frequencies or channels available on the selected Physical or Infrastructure connection. Channel utilization is displayed graphically with used channels highlighted with different colors and icons, distinguishing Managed Plane, Control Plane (Nominal and Current route), and other connection types. Structure provides a quick way to view the hierarchy with easy access to information on the connections in the hierarchy.

i **Note:** WR8-88AF supports a granularity of 12.5 GHz. Hence, it is required to reserve an M+1 slot where N is even and M is odd or vice versa (M represents base signal width and N represents frequency), because of this the structure is displayed with extra two slots.

To access the Structure, perform one of the following.

From the NFM-T GUI, navigate to:

- **OPERATE > Physical Connections > Select a connection > More [⋮] icon > Structure**
- **OPERATE > Infrastructure Connections > Select a connection > More [⋮] icon > Structure**
- **OPERATE > Dashboard > Alarmed Connections > Select a connection > More [⋮] icon > Structure**
- **OPERATE > Dashboard > Alarmed Physical Connections > Select a connection > More [⋮] icon > Structure**
- **OPERATE > NPAs > Click the 360° view and select Links. Select a connection and click the More [⋮] icon > Structure**

Troubleshooting with structure view

A Structure can also be used for troubleshooting purposes.

- It provides a quick graphical representation of the connections that are riding on a Physical or

Infrastructure connection which may have been impacted by a failure. The mouse hover and selection process provide quick access to the high-level details of all the subtending connections.

- For Control Plane connections, the Structure bar provides a clear indication of the connections that have been rerouted by GMRE. If a failed fiber or Infrastructure connection is selected, the Structure bar shows **N** for those connections that have been rerouted since the current route (C) is no longer following the nominal route (N). Connections that have not been rerouted shows as **NC**, indicating that the current route is still on the nominal route path and has not been rerouted.

Structure

Structure displays the individual frequencies or channels available on a selected Physical or an Infrastructure connection. The individual frequencies or channels are called *slots* in the Structure bar.

Each *slot* is highlighted to indicate if it is used or available. Click or hover over a slot to view the detailed information about the channel or the connection using that channel. For more information, refer [Figure 24-42, "Legend pane for Structure" \(p. 2025\)](#)

Click on a used slot to view the details and the structure bar of the client utilizing that slot. If there is a one to one relationship between the server and the client, the structure bar is not displayed for that client, but the client details are displayed.

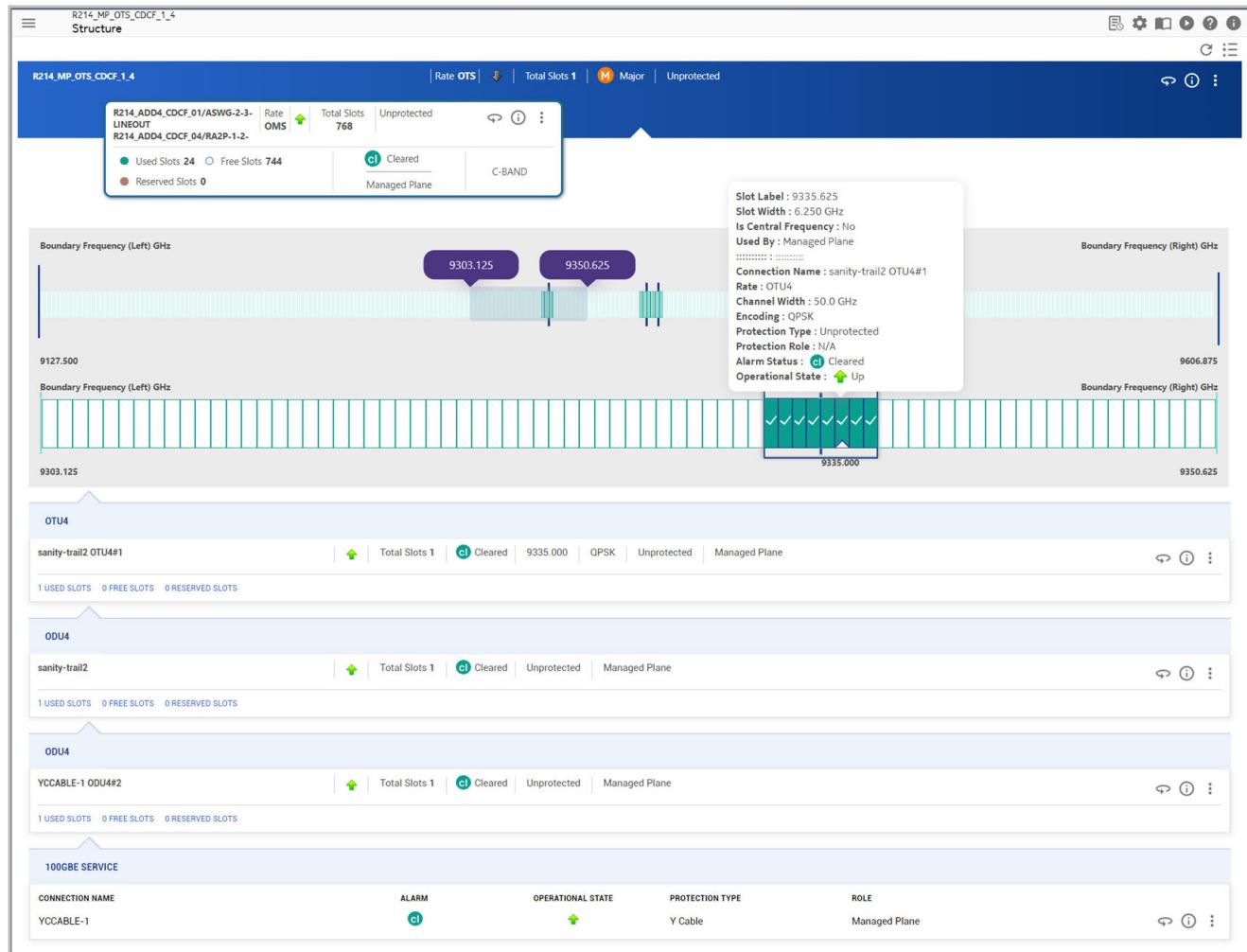
The process of selecting slots on each of the cascading structure bars continues down to the Service connection level, providing a visualization of the Client Server relationship from the Physical connection to the Service connection.

i **Note:** A Service connection does not have clients. You can only view the Service connection from the Structure view of one of its servers.

To view the Structure of a server, from the WebUI, navigate to OPERATE > Services > Select a connection > 360° view > SERVERS > More  icon > Structure.

The following figure is an example of Structure for a Physical Connection on Managed Plane.

Figure 24-41 Managed Plane Connection Structure



The Structure window is divided into panes:

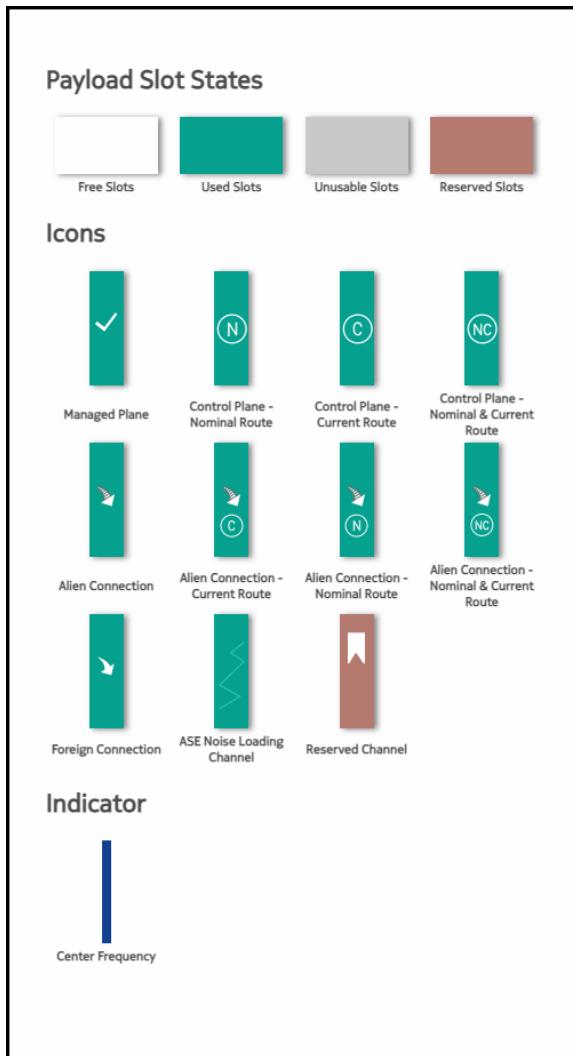
Legend Pane

On the top right-hand corner:

Click the **Refresh** icon to refresh the information displayed in the Structure window.

Click the Legend icon to view the legend pane.

Figure 24-42 Legend pane for Structure



Payload slots are color coded:

- **Free Slots** are white green
- **Used Slots** are green
- **Unusable Slots** are Grey
- **Reserved Slots** are Brown
- Different icons are used to represent Managed Plane and Control Plane connections, see [Figure 24-42, "Legend pane for Structure" \(p. 2025\)](#).
- A vertical blue line is used to indicate the center frequency for a set of frequencies, see [Figure 24-42, "Legend pane for Structure" \(p. 2025\)](#).

Information pane

The top of the window is the Information pane, which has two boxes, a blue box displaying the OTS/OPS connection information (the information in this box is displayed only for a Physical connection) and a white box displaying the OMS connection information.

Figure 24-43 Example of an Information Pane with C-Band



Figure 24-44 Example of an information pane with C+L band



Blue information box:

- Displays the connection name, rate, operational state, total slots, alarm status, and type of connection.
- Note:** the information in this box is displayed only for a physical connection.
- Click the **More** icon to perform more activities on the physical connection.
 - Click the icon to view the 360° view of the physical connection.
 - Click the icon to view the *Properties* of the physical connection.

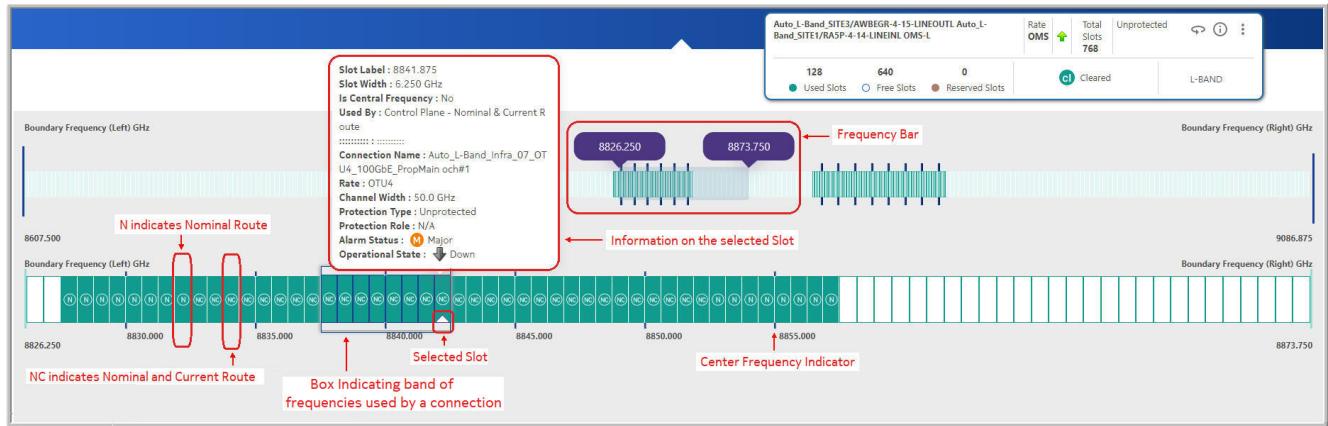
White information box:

- Displays information on ports, slots (number of **Used**, **Reserved**, and **Free** slots), C-Band or L-Band (for a Physical connection), rate, operational state, total slots, alarm status, and type of connection.
- Click the **More** icon to perform more activities on the OMS connection.
- Click the icon to view the 360° view of the OMS connection.
- Click the icon to view *Properties* of the OMS connection.

Spectrum Pane

In the middle of the window, the full spectrum of frequencies in GHz is displayed as a bar with **Boundary Frequency** to the left and right of the spectrum.

Figure 24-45 Example of spectrum pane



- One bar for C-Band or One bar for L-Band.
 - C+L Band (If there is a C+L band connection, two *White information boxes* are displayed, one with C-Band and other with L-Band information for the physical connection. You can select which connection to display, that is, C-Band or L-Band).
- For more information, see [Figure 24-44, “Example of an information pane with C+L band” \(p. 2026\)](#)
- For Flexgrid spectrum, the bandwidth is further divided leading to a larger number of divisions.
 - The first spectrum is the complete set of frequencies (or channels) available for a connection, for example from 8607.500 GHz to 9086.875 GHz. Slide the frequency bar to select different set of frequencies (or Channels).
 - As per the selected set of frequencies (using the frequency bar) from the first spectrum, the second spectrum displays the detailed set of selected frequencies, for example from 8826.250 GHz to 8873.750 GHz
 - Select a slot from the second spectrum (a small arrow appears in the selected slot) or hover over a slot to view the attributes of that connection like the slot label, rate, protection type, and so on. This information varies on the type of slot.

For a Control Plane connection, the **Used** slot displays:

- **N** for a Nominal Route
- **C** for a Current Route
- **NC** for a Nominal and Current Route

For more information, refer [Figure 24-42, “Legend pane for Structure” \(p. 2025\)](#)

- Select a **Used Slot** to view the Infrastructure and Service Connections information. This information is displayed below the spectrum pane.

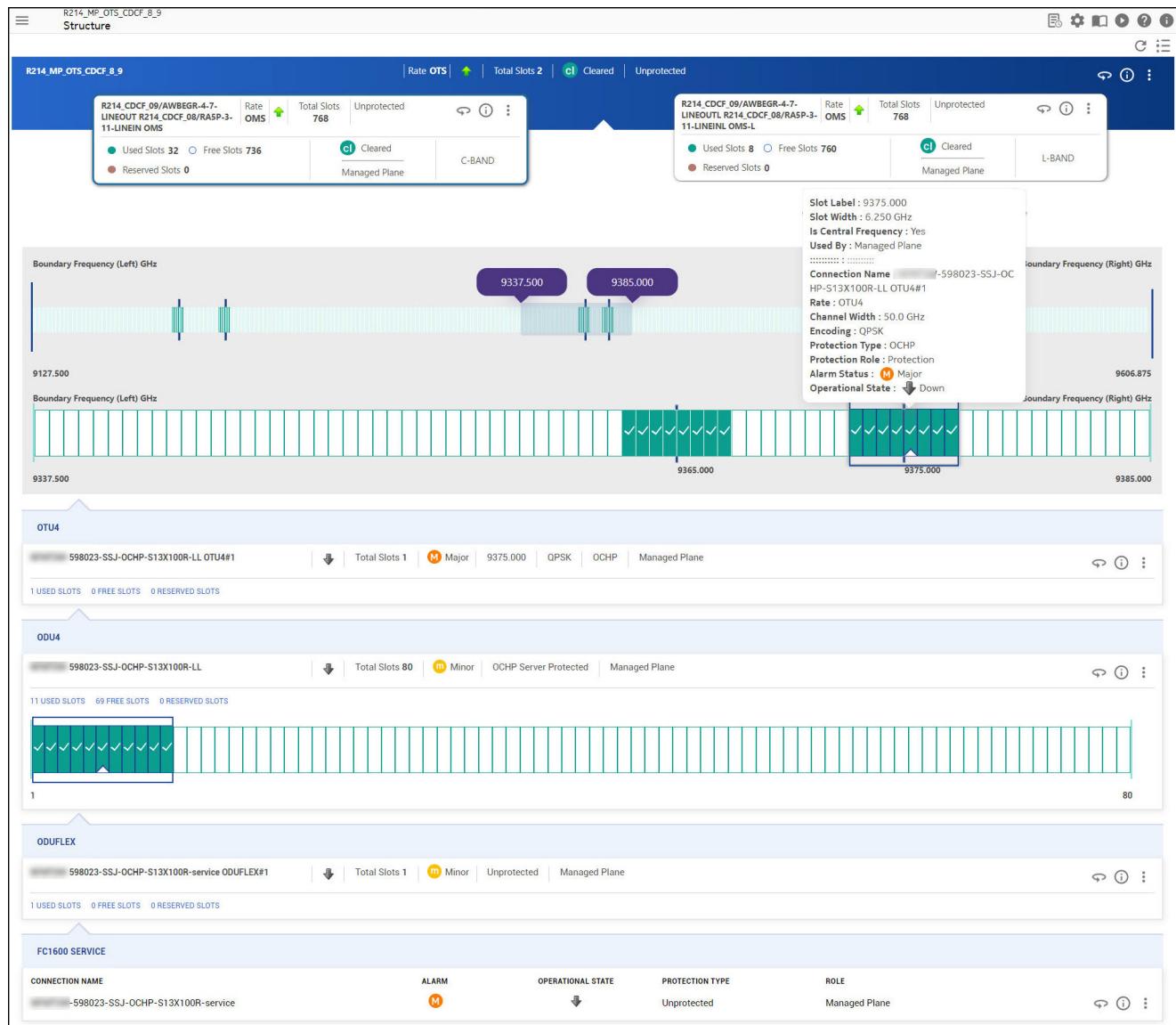
When clicked on a **Used Slot**, a blue box appears indicating the band of frequencies used by a connection and the center frequency of that connection. For more information, see [Figure 24-45, “Example of spectrum pane” \(p. 2027\)](#)

Connection pane

From the Spectrum pane, select a slot (**Used**, **Reserved**, or **Free**), the system displays the Infrastructure, Tunnel, and Service Connections for that slot (if these connections are available).

Click a slot on the Infrastructure spectrum to view if that connection has an associated Service.

Figure 24-46 Example of a physical, infrastructure connection and associated service connection



In this example, a Physical, Infrastructure, and associated Service Connections are displayed. It is a C+L Band, Unprotected connection.

The C-Band information box is selected to view the C-Band spectrum and associated connections. **Slot Label** 9211.250 GHz is selected and the corresponding **OTU2** and **ODU2** spectrums are displayed.

When the **Used Slot** from **ODU2** is selected, the corresponding **ODU0** and **1GBE SERVICE** connection information are displayed.

- Click the **More**  icon to perform more activities on the connection.
- Click the  icon to view the 360° view of the connection.
- Click the  icon to view *Properties* of the connection.

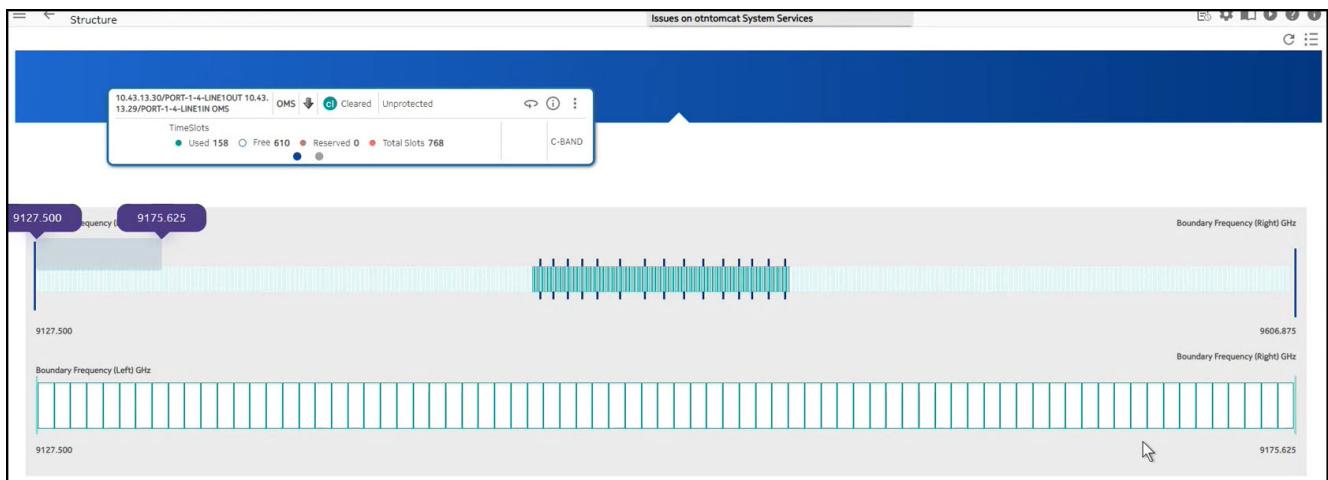
Count View

The connection count information is displayed on the structure page in two ways: Slot View and Client Connection View.

The Slot View displays Used, Free, Reserved, and Unusable slots, and the Client Connection View displays Managed and Control Plane counts.

The Managed Plane displays managed plane counts, and the Control Plane displays nominal and current counts.

Figure 24-47 Structure page - Count information

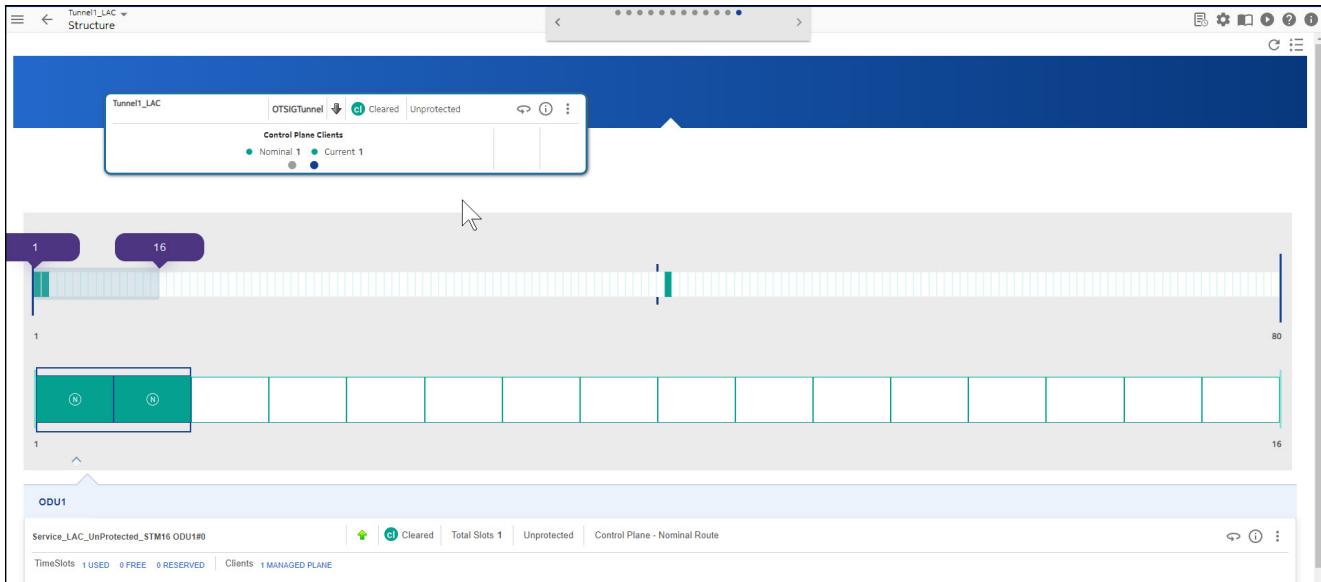


 **Note:** If a switch happens between Slot View and Client Connection View, the default is set as Slot View.

Subtending area

The connection count information is also displayed in the subtending area at the bottom of the structure page.

Figure 24-48 Structure page - Connection count



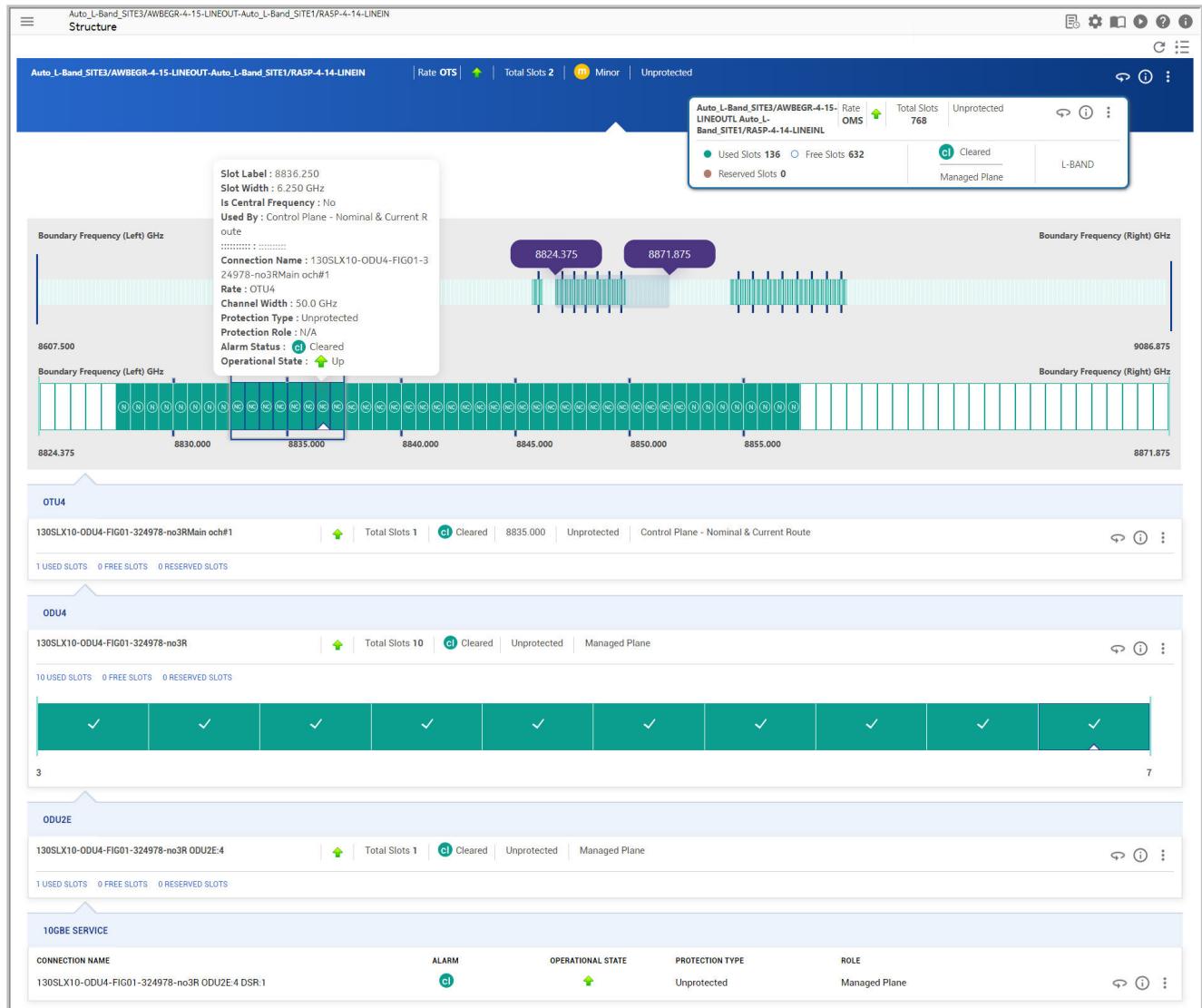
Example Structure for different connections

The following figures are example Structures for different type of connections.

Physical connection structure on mixed plane

The following figure is an example that depicts the Structure of a Physical connection on a Mixed Plane (Managed Plane and Control Plane).

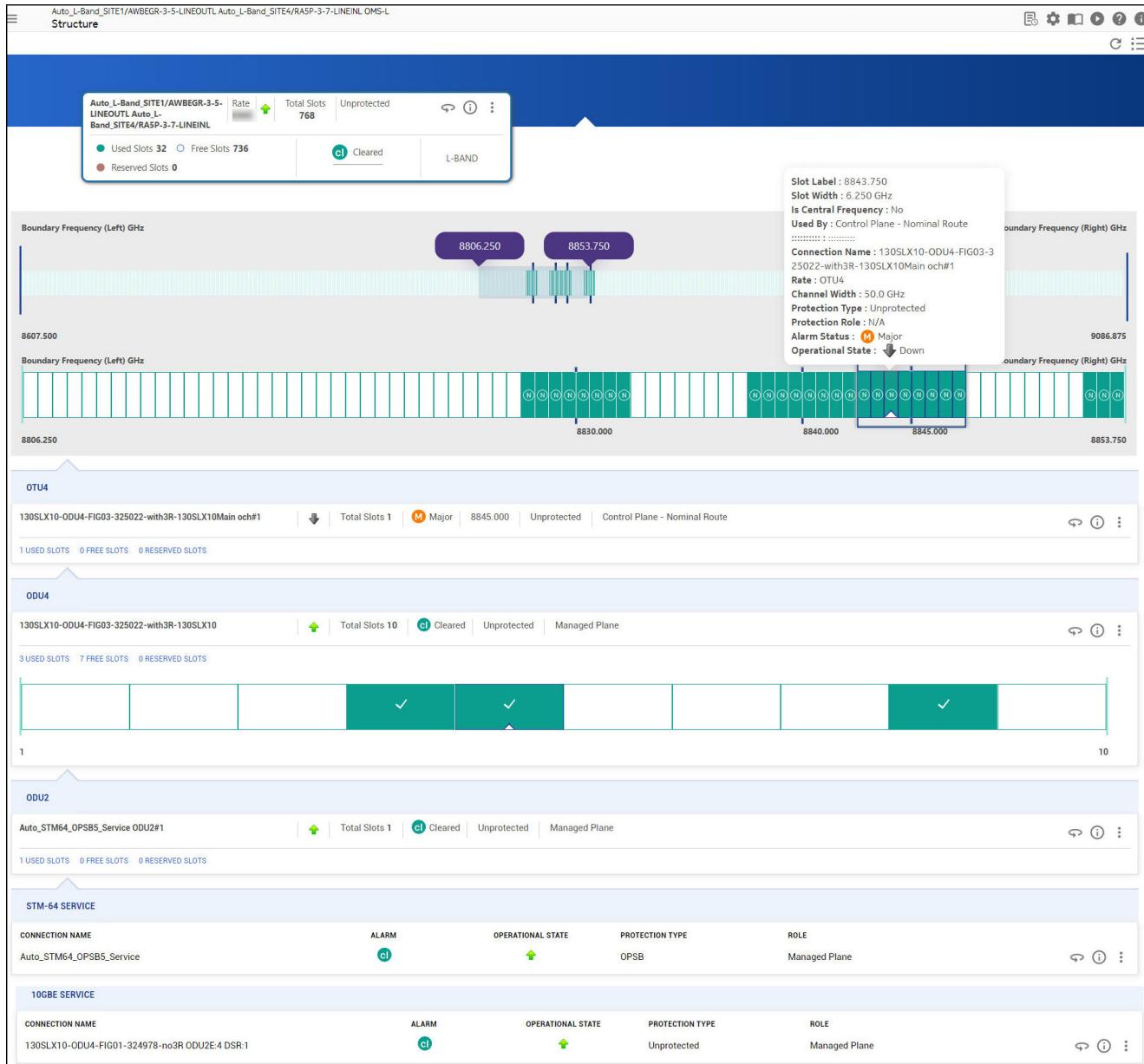
Figure 24-49 Physical connection structure on mixed plane



Infrastructure connection structure on mixed plane

The following figure is an example that depicts the Structure of an Infrastructure connection on a Mixed Plane (Managed Plane and Control Plane).

Figure 24-50 Infrastructure connection structure on mixed plane



Examples of alien OCH control plane connections

For alien connections, the used slot displays:

- N (with arrow): Nominal route only
- C (with arrow): Current route only

- NC (with arrow): Nominal route and current route

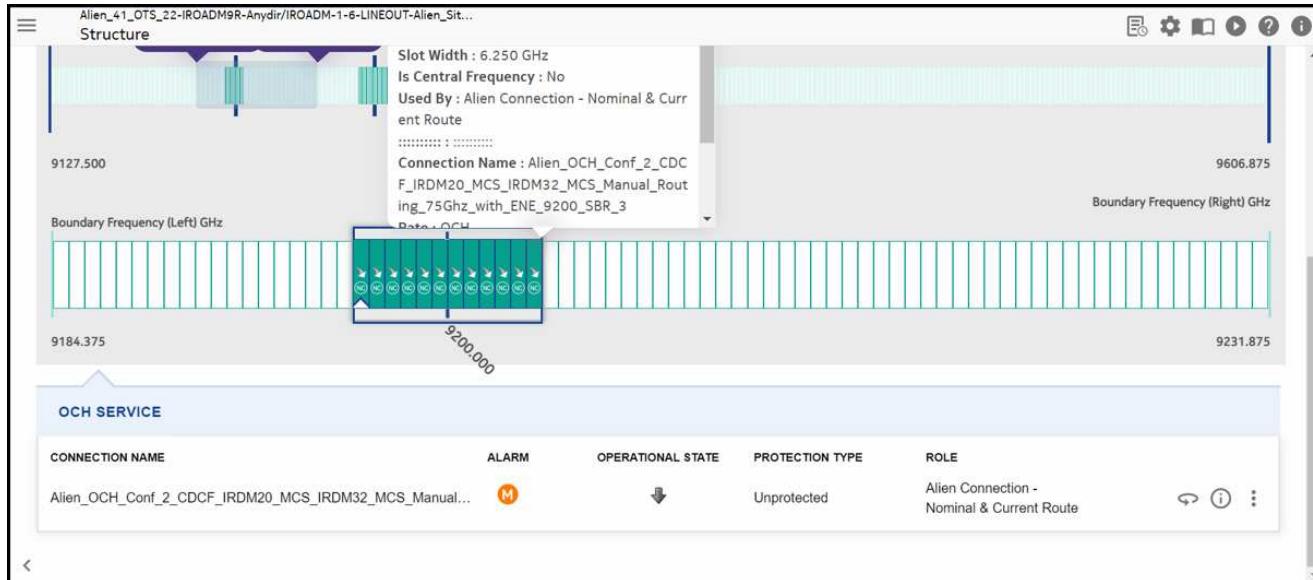
Figure 24-51 Example of an alien OCH control plane connection - with Nominal Route only



Figure 24-52 Example of an alien OCH control plane connection - with Current Route only



Figure 24-53 Example of an alien OCH control plane connection - with Nominal and Current Route



24.13 Service Testing

Service Testing is Stalled

When there is an unexpected interruption of service testing, the service testing may stall. However, when the service testing stalls, the test status still displays *In Progress*. The only indication of a stalled service test is that the service test remains in progress longer than expected. The length of the service testing is the sum of length of the PRBS Observation Period and the Latency Observation Period. See [7.75 “1830 PSD Service Testing and BER Monitor” \(p. 1025\)](#) for the values set for these fields.

How to recover

There is no way to restart the service testing. The only option is to abort the service testing and initiate another service testing from **OPERATE > Nodes** page or **OPERATE > Services** page.

To abort the stalled service testing, perform the following steps:

1. From the NFM-T GUI, follow this navigation path:

OPERATE > Services

Note: You can perform the abort operation from **OPERATE > Nodes** also.

Result: The system displays a data table that lists all of the services.

2. Select the 1 GbE or 10 GbE connection in commissioned state, and click on the **More**  icon.

3. Click **Service Testing > Abort Testing** to abort the service testing.

Result: If there was an unexpected interruption of service testing, an error message is displayed to execute commands to disable generation/monitoring.

4. Click **OK**.

5. Navigate to **OPERATE > Jobs** page to determine whether PRBS testing or latency testing is in progress when the test is interrupted. If both the PRBS testing and latency testing are completed successfully, no further action is required.

A PRBS Test is in progress if the Jobs List has the Enable PRBS Generation action successfully completed and there is not a matching Disable PRBS Generation action successfully completed

in the Jobs List. In the figure below both actions are success and PRBS testing has completed.

Name	Sub Task	Task Detail	Status	Error Reason	Start Time
OTN Service-Service Testing: SERVICETESTING_1GBE-PSD-A-INFRA-1:1 DSR:1 - Tue May 18 12:57:13.332 UTC 2021					
① ➤ Measure BER (NE [REDACTED] version 2.0 ID 3286)		Measure BER in A-Z Direction	Success		5/18/2021 6:28:16 PM
② ➤ Measure BER (NE [REDACTED] version 2.0 ID 3286)		Measure BER in A-Z Direction	Success		5/18/2021 6:28:47 PM
③ ➤ Measure BER (NE [REDACTED] version 2.0 ID 3286)		Measure BER in A-Z Direction	Success		5/18/2021 6:29:18 PM
④ ➤ Disable PRBS Monitoring (NE [REDACTED] version 2.0 ID 3286)		Disable PRBS Signal Monitoring in A-Z Direction	Success		5/18/2021 6:29:18 PM
⑤ ➤ Disable PRBS Generation (NE [REDACTED] version 2.0 ID 3286)		Disable PRBS Signal Generation in A-Z Direction	Success		5/18/2021 6:29:18 PM
⑥ ➤ Enable PRBS Generation (NE [REDACTED] version 2.0 ID 3286)		Configure PRBS Signal Generation in Z-A Direction	Success		5/18/2021 6:29:19 PM
⑦ ➤ Enable PRBS Monitoring (NE [REDACTED] version 2.0 ID 3286)		Configure PRBS Signal Monitoring in Z-A Direction	Success		5/18/2021 6:29:19 PM
⑧ ➤ Measure BER (NE [REDACTED] version 2.0 ID 3286)		Measure BER in Z-A Direction	Success		5/18/2021 6:29:49 PM
⑨ ➤ Measure BER (NE [REDACTED] version 2.0 ID 3286)		Measure BER in Z-A Direction	Success		5/18/2021 6:30:20 PM
⑩ ➤ Measure BER (NE [REDACTED] version 2.0 ID 3286)		Measure BER in Z-A Direction	Success		5/18/2021 6:30:50 PM
⑪ ➤ Measure BER (NE [REDACTED] version 2.0 ID 3286)		Measure BER in Z-A Direction	Success		5/18/2021 6:31:21 PM
⑫ ➤ Disable PRBS Monitoring (NE [REDACTED] version 2.0 ID 3286)		Disable PRBS Signal Monitoring in Z-A Direction	Success		5/18/2021 6:31:22 PM
⑬ ➤ Disable PRBS Generation (NE [REDACTED] version 2.0 ID 3286)		Disable PRBS Signal Generation in Z-A Direction	Success		5/18/2021 6:31:22 PM
⑭ ➤ Setting CMEP Bit on source (NE [REDACTED] version 2.0 ID 3286)		CMEP Bit is Set	Success		5/18/2021 6:31:22 PM
⑮ ➤ Setting CMEP Bit on destination (NE [REDACTED] version 2.0 ID 3286)		CMEP Bit is Set	Success		5/18/2021 6:31:22 PM
⑯ ➤ Triggering Latency Measurement (NE [REDACTED] version 2.0 ID 3286)		Latency computation triggered	Success		5/18/2021 6:31:22 PM
⑰ ➤ Retrieving Latency Measurement (NE [REDACTED] version 2.0 ID 3286)		Retrieved latency measurement	Success		5/18/2021 6:31:23 PM
⑱ ➤ Triggering Latency Measurement (NE [REDACTED] version 2.0 ID 3286)		Latency computation triggered	Success		5/18/2021 6:31:54 PM
⑲ ➤ Retrieving Latency Measurement (NE [REDACTED] version 2.0 ID 3286)		Retrieved latency measurement	Success		5/18/2021 6:31:54 PM
⑳ ➤ Triggering Latency Measurement (NE [REDACTED] version 2.0 ID 3286)		Latency computation triggered	Success		5/18/2021 6:32:24 PM
㉑ ➤ Retrieving Latency Measurement (NE [REDACTED] version 2.0 ID 3286)		Retrieved latency measurement	Success		5/18/2021 6:32:24 PM

In the following figure PRBS testing is in progress. Both Signal generation and Signal monitoring remain enabled and both must be disabled to end the PRBS testing.

Name	Sub Task	Task Detail	Status	Error Reason	Start Time	End Time	Duration (in milliseconds)	VME Logs
Run History: SERVICETESTING_PSD-INFRA4-CONFIG-1 ODU2:1 DSR:1 - Thu May 20 10:36:34.655 UTC 2021								
① ➤ Enable PRBS Generation (NE [REDACTED] version 2.0 ID 33)		Configure PRBS Signal Generation Success	Success		5/20/2021 4:06:37 PM	5/20/2021 4:06:37 PM	407	
② ➤ Enable PRBS Monitoring (NE [REDACTED] version 2.0 ID 33)		Configure PRBS Signal Monitor Success	Success		5/20/2021 4:06:38 PM	5/20/2021 4:06:38 PM	108	
③ ➤ Measure BER (NE [REDACTED] version 2.0 ID 332)		Measure BER in A-Z Direction	Success		5/20/2021 4:07:38 PM	5/20/2021 4:07:39 PM	210	
④ ➤ Measure BER (NE [REDACTED] version 2.0 ID 332)		Measure BER in A-Z Direction	Success		5/20/2021 4:08:39 PM	5/20/2021 4:08:39 PM	133	

If the PRBS testing is in progress:

- Verify if the command to enable signal monitoring is successfully completed.

Connection Name	CLI Command
ODU1 connection	config otn odulp 1 VIRTUAL prbs monitor disable
ODU2 connection	config otn odu2p 1 VIRTUAL prbs monitor disable
ODU2e connection	config otn odu2ep 1 VIRTUAL prbs monitor disable

- Verify if the command to enable signal generation is successfully completed.

If the command is successfully completed, execute the following CLI command for the NE on the **From End** of the connection

Connection Name	CLI Command
ODU1 connection	<code>config otn odulp 1 VIRTUAL prbs generator disable</code>
ODU2 connection	<code>config otn odu2p 1 VIRTUAL prbs generator disable</code>
ODU2e connection	<code>config otn odu2ep 1 VIRTUAL prbs generator disable</code>

A Latency Test is in progress if the Jobs list has a successful action to enable CMEP Bit on the Destination NE and there is no matching successful action to disable the CMEP Bit on the Destination NE.

In the following figure, Latency testing has completed.

Run History: SERVICETESTING_PSD-INFR4-A-CONFIG-1 ODU2 1 DSR-1 - Thu May 20 18:36:34 655 UTC 2021							
OTN Service-Service testing: SERVICETESTING_PSD-INFR4-A-CONFIG-1 ODU2 1 DSR-1							
Job ID	Task	Sub Task	Task Detail	Status	Error Reason	Start Time	End Time
①	Enable PRBS Generation (NE)	version 2.0.ID.33	Configure PRBS Signal Generation Success	Success		5/20/2021 4:06:37 PM	5/20/2021 4:06:37 PM
②	➤ Enable PRBS Monitoring (NE)	version 2.0.ID.33;	Configure PRBS Signal Monitor Success	Success		5/20/2021 4:07:38 PM	5/20/2021 4:07:38 PM
③	➤ Measure BER (NE)	version 2.0.ID.32[5]	Measure BER in A-Z Direction Success	Success		5/20/2021 4:07:39 PM	5/20/2021 4:08:39 PM
④	➤ Measure BER (NE)	version 2.0.ID.32[5]	Measure BER in A-Z Direction Success	Success		5/20/2021 4:07:39 PM	5/20/2021 4:08:39 PM
⑤	➤ Measure BER (NE)	version 2.0.ID.32[5]	Measure BER in A-Z Direction Success	Success		5/20/2021 4:07:40 PM	5/20/2021 4:09:40 PM
⑥	➤ Disable PRBS Monitoring (NE)	version 2.0.ID.33	Disable PRBS Signal Monitoring Success	Success		5/20/2021 4:09:40 PM	5/20/2021 4:09:40 PM
⑦	➤ Disable PRBS Generation (NE)	version 2.0.ID.33	Disable PRBS Signal Generation Success	Success		5/20/2021 4:09:40 PM	5/20/2021 4:09:40 PM
⑧	➤ Enable PRBS Generation (NE)	version 2.0.ID.33	Configure PRBS Signal Generation Success	Success		5/20/2021 4:09:41 PM	5/20/2021 4:09:41 PM
⑨	➤ Enable PRBS Monitoring (NE)	version 2.0.ID.33;	Configure PRBS Signal Monitor Success	Success		5/20/2021 4:09:41 PM	5/20/2021 4:09:41 PM
⑩	➤ Measure BER (NE)	version 2.0.ID.32[5]	Measure BER in Z-A Direction Success	Success		5/20/2021 4:10:41 PM	5/20/2021 4:10:41 PM
⑪	➤ Measure BER (NE)	version 2.0.ID.32[5]	Measure BER in Z-A Direction Success	Success		5/20/2021 4:10:42 PM	5/20/2021 4:11:42 PM
⑫	➤ Measure BER (NE)	version 2.0.ID.32[5]	Measure BER in Z-A Direction Success	Success		5/20/2021 4:10:42 PM	5/20/2021 4:12:42 PM
⑬	➤ Disable PRBS Monitoring (NE)	version 2.0.ID.33	Disable PRBS Signal Monitoring Success	Success		5/20/2021 4:12:43 PM	5/20/2021 4:12:43 PM
⑭	➤ Disable PRBS Generation (NE)	version 2.0.ID.33	Disable PRBS Signal Generation Success	Success		5/20/2021 4:12:43 PM	5/20/2021 4:12:43 PM
⑮	➤ Setting CMEP Bit on source (NE)	version 2.0.ID.01	CMEP Bit is Set Success	Success		5/20/2021 4:12:44 PM	5/20/2021 4:12:44 PM
⑯	➤ Setting CMEP Bit on destination (NE)	version 2	CMEP Bit is Set Success	Success		5/20/2021 4:12:44 PM	5/20/2021 4:12:44 PM
⑰	➤ Triggering Latency Measurement (NE)	version 2.1	Latency computation triggered Success	Success		5/20/2021 4:12:44 PM	5/20/2021 4:12:44 PM
⑱	➤ Retrieving Latency Measurement (NE)	version 2.1	Retrieved latency measurement Success	Success		5/20/2021 4:12:44 PM	5/20/2021 4:12:44 PM
⑲	➤ Triggering Latency Measurement (NE)	version 2.1	Latency computation triggered Success	Success		5/20/2021 4:13:45 PM	5/20/2021 4:13:45 PM
⑳	➤ Retrieving Latency Measurement (NE)	version 2.1	Retrieved latency measurement Success	Success		5/20/2021 4:13:45 PM	5/20/2021 4:13:45 PM
㉑	➤ Triggering Latency Measurement (NE)	version 2.1	Latency computation triggered Success	Success		5/20/2021 4:14:46 PM	5/20/2021 4:14:46 PM
㉒	➤ Retrieving Latency Measurement (NE)	version 2.1	Retrieved latency measurement Success	Success		5/20/2021 4:14:46 PM	5/20/2021 4:14:46 PM
㉓	➤ Triggering Latency Measurement (NE)	version 2.1	Latency computation triggered Success	Success		5/20/2021 4:15:46 PM	5/20/2021 4:15:46 PM
㉔	➤ Retrieving Latency Measurement (NE)	version 2.1	Retrieved latency measurement Success	Success		5/20/2021 4:15:46 PM	5/20/2021 4:15:47 PM
㉕	➤ Setting CMEP Bit on destination (NE)	version 2	CMEP Bit is Set Success	Success		5/20/2021 4:15:47 PM	5/20/2021 4:15:47 PM

In the following figure, Latency testing is in progress. DM reflection remains enabled and must be disabled to end the latency testing.

Run History: SERVICETESTING_PSD-INFRA4-CONFIG-1 ODU2:1 DSR-1 - Thu May 20 11:32:43.893 UTC 2021									
OTN Service-Service Testing: SERVICETESTING_PSD-INFRA4-CONFIG-1 ODU2:1 DSR-1		Task Detail		Status	Error Reason	Start Time	End Time	Duration (in milliseconds)	VNE Logs
①	» Enable PRBS Generation (NE... version 2.0.0 D3325)	Configure PRBS Signal Generation	Success			5/20/2021 5:22:45 PM	5/20/2021 5:22:45 PM	153	
②	» Enable PRBS Monitoring (NE... version 2.0.0 D3325)	Configure PRBS Signal Monitoring	Success			5/20/2021 5:22:45 PM	5/20/2021 5:22:45 PM	156	
③	» Measure BER (NE... version 2.0.0 D3325)	Measure BER in A-Z Direction	Success			5/20/2021 5:23:46 PM	5/20/2021 5:23:46 PM	155	
④	» Measure BER (NE... version 2.0.0 D3325)	Measure BER in A-Z Direction	Success			5/20/2021 5:24:46 PM	5/20/2021 5:24:46 PM	157	
⑤	» Measure BER (NE... version 2.0.0 D3325)	Measure BER in A-Z Direction	Success			5/20/2021 5:25:47 PM	5/20/2021 5:25:47 PM	155	
⑥	» Disable PRBS Monitoring (NE... version 2.0.0 D3325)	Disable PRBS Signal Monitoring	Success			5/20/2021 5:25:47 PM	5/20/2021 5:25:47 PM	157	
⑦	» Disable PRBS Generation (NE... version 2.0.0 D3325)	Disable PRBS Signal Generation	Success			5/20/2021 5:25:47 PM	5/20/2021 5:25:48 PM	137	
⑧	» Enable PRBS Generation (NE... version 2.0.0 D3325)	Configure PRBS Signal Generation	Success			5/20/2021 5:25:48 PM	5/20/2021 5:25:48 PM	123	
⑨	» Enable PRBS Monitoring (NE... version 2.0.0 D3325)	Configure PRBS Signal Monitoring	Success			5/20/2021 5:25:48 PM	5/20/2021 5:25:48 PM	139	
⑩	» Measure BER (NE... version 2.0.0 D3325)	Measure BER in Z-A Direction	Success			5/20/2021 5:26:48 PM	5/20/2021 5:26:48 PM	128	
⑪	» Measure BER (NE... version 2.0.0 D3325)	Measure BER in Z-A Direction	Success			5/20/2021 5:27:49 PM	5/20/2021 5:27:49 PM	163	
⑫	» Measure BER (NE... version 2.0.0 D3325)	Measure BER in Z-A Direction	Success			5/20/2021 5:28:49 PM	5/20/2021 5:28:49 PM	116	
⑬	» Disable PRBS Monitoring (NE... version 2.0.0 D3325)	Disable PRBS Signal Monitoring	Success			5/20/2021 5:28:50 PM	5/20/2021 5:28:50 PM	161	
⑭	» Disable PRBS Generation (NE... version 2.0.0 D3325)	Disable PRBS Signal Generation	Success			5/20/2021 5:28:50 PM	5/20/2021 5:28:50 PM	149	
⑮	» Setting CMER Bit on source (NE... version 2.0.0 D3325)	CMER Bit is Set	Success			5/20/2021 5:28:50 PM	5/20/2021 5:28:50 PM	121	
⑯	» Setting CMER Bit on destination (NE... version 2.0.0 D3325)	CMER Bit is Set	Success			5/20/2021 5:28:50 PM	5/20/2021 5:28:50 PM	117	
⑰	» Triggering Latency Measurement (NE... version 2.0.0 D3325)	Latency computation triggered	Success			5/20/2021 5:28:51 PM	5/20/2021 5:28:51 PM	140	
⑱	» Retrieving Latency Measurement (NE... version 2.0.0 D3325)	Retrieved latency measurement	Success			5/20/2021 5:28:51 PM	5/20/2021 5:28:51 PM	206	
⑲	» Triggering Latency Measurement (NE... version 2.0.0 D3325)	Latency computation triggered	Success			5/20/2021 5:29:51 PM	5/20/2021 5:29:52 PM	157	
⑳	» Retrieving Latency Measurement (NE... version 2.0.0 D3325)	Retrieved latency measurement	Success			5/20/2021 5:29:52 PM	5/20/2021 5:29:52 PM	294	

If the Latency testing is in progress, verify whether the command to enable DM reflection is successfully completed.

If the command is successfully completed, then execute the following CLI command at the To End of the connection:

- a. In an ODU1 connection: config otn odu1p 1 VIRTUAL dm reflection disable
- b. In an ODU2 connection: config otn odu2p 1 VIRTUAL dm reflection disable
- c. In an ODU2e connection: config otn odu2ep 1 VIRTUAL dm reflection disable

6. Restart Service Testing from the **OPERATE > Nodes** page or **OPERATE > Services** page. See [7.75 “1830 PSD Service Testing and BER Monitor” \(p. 1025\)](#) for more details.

25 Tab Helps for WebUI windows

25.1 Overview

Purpose

This chapter gives explanation on the Tabbed topics are a set of user-selectable tabs that, when selected, contain all of the information that is related to a particular network management object.

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25.22 LLDP Parameters Tab	2103
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25.28 Link Connections Tab	2117
25.29 Links Tab	2120
25.30 Nominal Route Problems Tab	2122
25.31 Notes Tab	2123
25.32 OLP Tab	2125
25.33 OTN Physical Connections Tab	2126
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25.53 Structure Tab	2167
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Tabs Help

25.2 Data Table Tabs

Tabbed topics defined

Tabbed topics are a set of user-selectable tabs that, when selected, contain all of the information that is related to a particular network management object or, when selected, can navigate users to additional information related to a particular network management object.

Tabbed topics location

In most instances, tabbed topics are located directly below the data table of the selected network management object. In some other instances, tabbed topics are located directly to the left of the data table of the selected network management object. The following figures illustrate the locations of the tabbed topics on the NFM-T GUI.

Figure 25-1 Data Tables – Tabbed Topics – Bottom Tabs

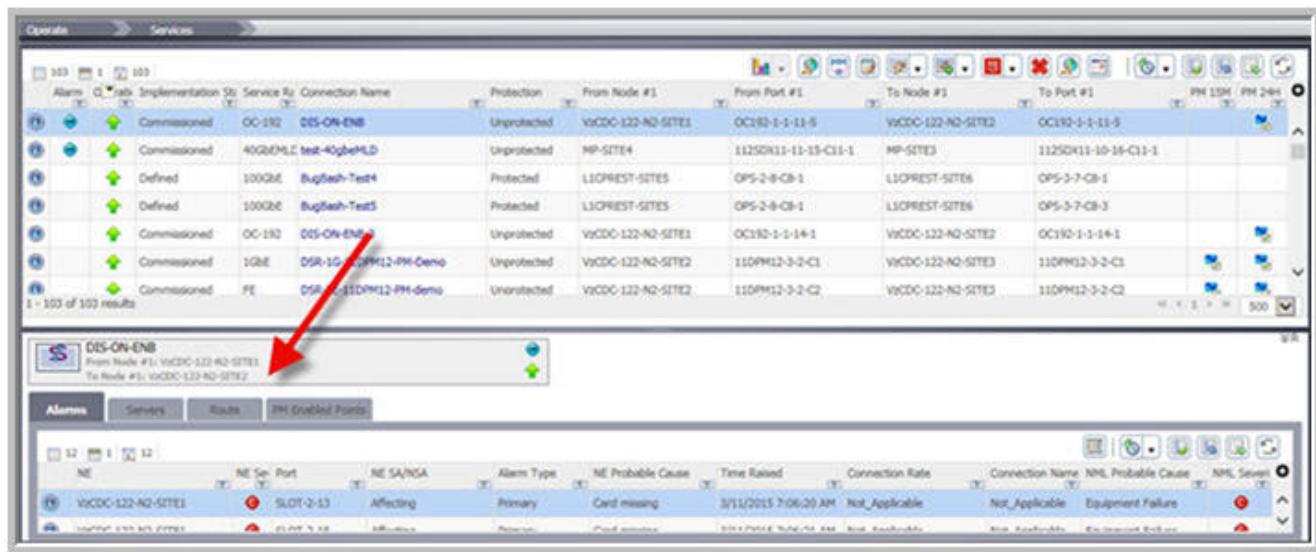


Figure 25-2 Data Tables – Tabbed Topics – Left Tabs

A screenshot of the Nokia NFM-T Network Inconsistency tab. On the left, there is a sidebar with categories: SNC Mismatches, Parameter Mismatches, Downloaded/Deleted Mismatches, ASAP Mismatches, Uncorrelated, and Cross Connectors. A red arrow points to the 'Cross Connectors' link. The main area shows a data table titled 'Network Inconsistency'. The table has columns: Type, Service Rate, Protection, Mismatch Detect Date, Acknowledged Date, and Acknowledged User. The data table contains several rows of network objects, each with a blue hyperlink in the 'Type' column. The first row is selected, highlighting the 'Cross Connectors' link.

Type	Service Rate	Protection	Mismatch Detect Date	Acknowledged Date	Acknowledged User
OC-192	OC-192	Unprotected	4/28/2015 4:42:17 AM		
OC-192	OC-192	Unprotected	4/28/2015 4:42:17 AM		
OC-192	OC-192	Unprotected	4/28/2015 4:42:17 AM		
OSR-1305N10-PC800-PM-Demo	PC800	Unprotected	4/14/2015 9:08:48 PM		
OSR-STMA-PM-Demo-1	STM-4	Unprotected	4/14/2015 9:08:48 PM		
MP-SITE1/110PM12-4-5-C1 MP-SITE2/110PM12-3-9-C1 OOU1	OOU1	Unprotected	5/12/2015 12:19:09 AM		
MP-SITE1/110PM12-4-5-C2 MP-SITE2/110PM12-3-9-C2 OOU1	OOU1	Unprotected	5/12/2015 12:19:09 AM		
MP-SITE1/110PM12-4-5-C3 MP-SITE2/110PM12-3-9-C3 OOU1	OOU1	Unprotected	5/12/2015 12:19:09 AM		

Tabbed topics and hyperlinks in the data tables

When users click an object in a data table *in any other column other than the hyperlink name for the object*, the system activates the tabbed topics for the selected object in the same browser window, directly below the original data table. Users can expand the viewing area of the tabbed topics by dragging the dividing line between the data table and the tabbed topics up or down.

When users *click or double click the hyperlinked name for object* in the data table, the system displays the tabbed topic information that is particular to the selected object in a new browser window. Users can return to the original browser window by clicking the back arrow.

Tabbed topics and the Expand and Shrink icons

When users click the **Expand** icon, the two upward arrows located on the upper right of the tabbed topics, they can view the tabbed topics in a full window. Once the tabbed topics are expanded in a new window, users can then click the **Shrink** icon, the two downward arrows located on the upper right of the tabbed topics, to return to the original split window.

Objects and their tabbed topics

The tabbed topics on the NFM-T GUI that users access from the **Operate > <object>** navigation path can be displayed once or multiple times, depending on the object and topic. Any exceptions are noted. Refer to the following table and compare/contrast with “360° View topics and their objects” (p. 2054).

Table 25-1 Objects and their 360° View topics

Objects and their 360° View topics	
Object/Reference	360° View Topics
Dashboard > Alarmed Physical Connections	For Alarmed Physical Connections: <ul style="list-style-type: none">• Alarms• Correlated Alarms• SRGs• Clients• Structure• Link Connections• Notes• PM Enabled Points• Fiber Characteristic• SLTE• Properties• End Points• Misalignment Report
Dashboard > Pending Connections	For Alarmed Pending Infrastructure Connections: <ul style="list-style-type: none">• Alarms• Servers• Route• Link Connections• Command Status• PM Enabled Points For Alarmed Pending Services: <ul style="list-style-type: none">• Alarms• Servers• Route• PM Enabled Points• Notes

Table 25-1 Objects and their 360° View topics (continued)

Objects and their 360° View topics	
Object/Reference	360° View Topics
Dashboard > Alarmed Connections	For Alarmed Infrastructure Connections: <ul style="list-style-type: none">• Alarms• Servers• Clients• Route• PM Enabled Points• NOTES• LLDP PARAMETERS• END POINTS For Alarmed Services: <ul style="list-style-type: none">• Alarms• Servers• Route• PM Enabled Points• NOTES• LLDP PARAMETERS• END POINTS
Dashboard > Alarmed ASON SNCs	Alarms End Points Routes Backup Route Nominal Route Problems Properties Client Link
Dashboard > Unavailable ASON Links	SRGs Client ASON SNCs Server SRGs Server Physical Connection

Table 25-1 Objects and their 360° View topics (continued)

Objects and their 360° View topics	
Object/Reference	360° View Topics
Nodes	NEs Alarms Communication States Alignment States Cluster Associations LLDP Enabled Ports OTN Physical Connections Control Planes Impacted Connections Used Ports Free Ports Service Connections Infrastructure Connections Cross Connections 3R Properties Notes
Physical Connections > OTN Physical Connections	Alarms Correlated Alarms SRGs Clients Link Connections PM Enabled Points Properties End Points

Table 25-1 Objects and their 360° View topics (continued)

Objects and their 360° View topics	
Object/Reference	360° View Topics
Infrastructure Connections 7.76 “View tabbed topics for an infrastructure connection or service” (p. 1032)	Alarms Servers Clients Route Link Connections PM Enabled Points Notes End Points
Services 7.76 “View tabbed topics for an infrastructure connection or service” (p. 1032)	Alarms Servers Route PM Enabled Points Notes End Points
Network Inconsistencies 7.76 “View tabbed topics for an infrastructure connection or service” (p. 1032)	Alarms Servers Route PM Enabled Points Notes End Points
Wave Key Assignments 17.4 “View tabbed topics for a wave key assignment” (p. 1720)	Infrastructure Connections Uncorrelated Cross Connections

Table 25-1 Objects and their 360° View topics (continued)

Objects and their 360° View topics	
Object/Reference	360° View Topics
ASON > NPAs 10.9 “View the list of NPAs” (p. 1447)	Alarms
	Nodes
	Control Planes
	Links
	TE Links
	ASON SNCs
	3R
	Properties
ASON > SNCs 10.33 “View the ASON SNCs” (p. 1522)	Alarms
	End Points
	Routes
	* Routes > Current Route
	* Routes > Nominal Route
	*Split screens.
	Nominal Route Problems
	SNCP Only displayed if Protection is SNCP and the Configuration State is Implemented .
	Client Link Only displayed if the Operational State is Enabled the Configuration State is Implemented or Partially Implemented .
	SNCP Blocking Reversion Only displayed if the SNC reversion nominal route is blocked because of a low priority SNC. This failure does not change the operational state of the connection. The default severity is Warning
	Properties

Table 25-1 Objects and their 360° View topics (continued)

Objects and their 360° View topics	
Object/Reference	360° View Topics
Network Profiles > Shared Risk Groups	Physical Connections
	TE Links
	ASON Links
	Properties
Network Profiles > Color Profiles	For automatic color profiles: Used In > ASON Links Used In > TE Links Used In > ASON SNCs For user-created color profiles: Elementary Colors
	For automatic color profiles and user created color profiles: Matched By > ASON Links Matched By > TE Links Matched By > ASON SNCs
	Properties
	Network Profiles > Alarm Profiles
	OTN Physical Connections
	ASON NPAs
	ASON SNCs
	OTN
	Properties

Tabbed topics and their objects

The tabbed topics on the NFM-T GUI that users access from the **Operate > <object>** navigation path can be displayed once or multiple times, depending on the object and topic. Any exceptions are noted.

Tabbed topic examples

The following figures illustrate the tabbed topics that are displayed on the NFM-T GUI for some, but not all, of the most frequently accessed objects that are related to infrastructure connections or services.

The **Alarms** tab is displayed for Infrastructure Connections, Services, and Loopbacks. When users click the **Alarms** tab, the system displays the related alarms.

Figure 25-3 Data Tables – Tabbed Topic – Alarms – Data Table Display

NE	NE Ser Port	NE SA/NSA	Alarm Type	NE Probable Cause	Time Raised	Connection Rate	Connection NML Probable Cause	NML Severity
MP0MPI1-121-N1-SITE1	A2325A-2-1-6-L1	NON_AFFECTING	Primary	Underlying resource	8/1/2014 12:01:29 AM OTS	OTS	MP0MPI1-121-N1 OTS Equipment Failure	危急
MP0MPI1-121-N1-SITE2	A2325A-2-1-2-L1	NON_AFFECTING	Primary	Underlying resource	8/1/2014 12:01:37 AM OTS	OTS	MP0MPI1-121-N1 OTS Equipment Failure	危急
MP0MPI1-121-N1-SITE1	A2325A-2-1-2-L1	NON_AFFECTING	Primary	Underlying resource	8/1/2014 12:06:19 AM OTS	OTS	MP0MPI1-121-N1 OTS Equipment Failure	危急
MP0MPI1-121-N1-SITE3	A2325A-2-1-6-L1	NON_AFFECTING	Primary	Underlying resource	8/1/2014 12:06:33 AM OTS	OTS	MP0MPI1-121-N1 OTS Equipment Failure	危急

When users click the **Servers** tab, the system displays the servers that are related to the selected infrastructure connection or service.

Figure 25-4 Data Tables – Tabbed Topic – Servers – Data Table Display

Alarm Operat	Implementation	Service R	Connection Name	Protection	From Node #1	From Port #1	To Node #1	To Port #1	PM 1SM PM 24H Type
Commissioned	OMS	MRN-SVT-NODE-1/AHPHG-2-B-L1	Unprotected	MRN-SVT-NODE-1	AHPHG-2-B-LINE	MRN-SVT-NODE-2	AHPHG-2-B-LINE		Infrastructure
Commissioned	OTS	MRN-OTS-LINK-01	Unprotected	MRN-SVT-NODE-1	AHPHG-2-B-LINE	MRN-SVT-NODE-2	AHPHG-2-B-LINE		Physical Link
Commissioned	OMS	MRN-SVT-NODE-2/AHPHG-2-15-L1	Unprotected	MRN-SVT-NODE-2	AHPHG-2-15-LINE	MRN-SVT-NODE-3	AHPHG-2-B-LINE		Infrastructure

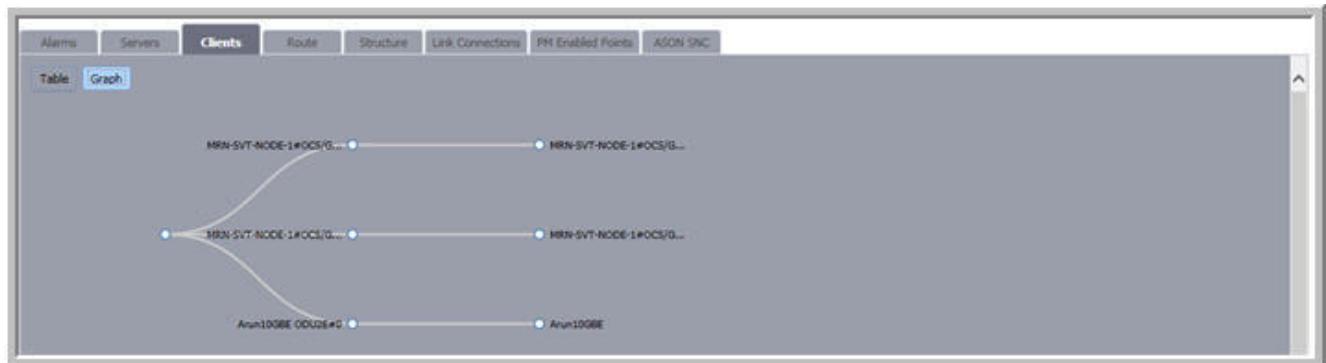
Figure 25-5 Data Tables – Tabbed Topic – Servers – Graph Display



When users click the **Clients** tab, the system displays the clients that are related to the selected infrastructure connection.

Figure 25-6 Data Tables – Tabbed Topic – Clients – Data Table Display

Figure 25-7 Data Tables – Tabbed Topic – Clients – Graph Display



When users click the **Route** tab, the system displays the route that is related to the selected infrastructure connection or service. Note that for the **Graph** view, the system opens a new browser window.

Figure 25-8 Data Tables – Tabbed Topic – Route – Table

Figure 25-9 Data Tables – Tabbed Topic – Route – Graph (Partial Display)

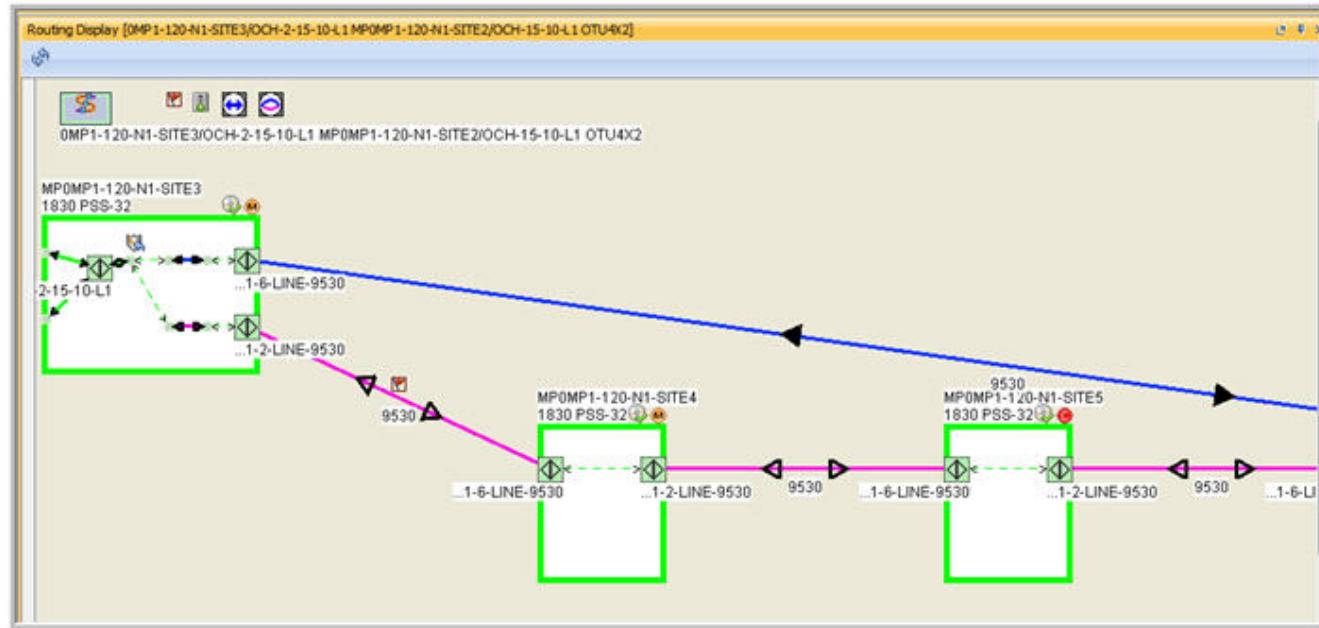


Figure 25-10 Data Tables – Tabbed Topic – Route – Full (Partial Display)



When you click the **Link Connections** tab, the system displays Link Connections information that is related to the selected infrastructure connection.

Figure 25-11 Data Tables – Tabbed Topic – Link Connections

#	Time Slot	Frequency	State	Effective Rate	In Use Connection	From Port	To Port
1	0	NA	Reserved	ODU0		ODUPOOL-1-1-1_1115213-1	ODUPOOL-1-1-1_1115694-1
2	0	NA	Reserved	ODU0		ODUPOOL-1-1-1_1115213-2	ODUPOOL-1-1-1_1115694-2
3	0	NA	Reserved	ODU0		ODUPOOL-1-1-1_1115213-3	ODUPOOL-1-1-1_1115694-3
4	0	NA	Reserved	ODU0		ODUPOOL-1-1-1_1115213-4	ODUPOOL-1-1-1_1115694-4
5	0	NA	Reserved	ODU0		ODUPOOL-1-1-1_1115213-5	ODUPOOL-1-1-1_1115694-5

When users click the **PM Enabled Points** tab, the system displays the PM Enabled information that is related to the selected infrastructure connection or service if PM has been enabled for the connection.

Figure 25-12 Data Tables – Tabbed Topic – PM Enabled Points

Node Label	TP Label	Monitored Rate	Granularity	Location	Direction	PM State	NML TCA	NE TCA
No filter applied								
MRN-SVT-NODE-2	MRN-SVT-NODE-2/110PM12-12-2-L1-1	ODU2	1 Day	Near End	Receive	Started	NONE	NONE
MRN-SVT-NODE-2	MRN-SVT-NODE-2/110PM12-12-2-L1-1	ODU2	1 Day	Far End	Receive	Started	NONE	NONE
MRN-SVT-NODE-4	MRN-SVT-NODE-4/110PM12-12-2-L1-1	ODU2	1 Day	Near End	Receive	Started	NONE	NONE
MRN-SVT-NODE-4	MRN-SVT-NODE-4/110PM12-12-2-L1-1	ODU2	1 Day	Far End	Receive	Started	NONE	NONE
MRN-SVT-NODE-2	MRN-SVT-NODE-2/110PM12-12-2-L1	OTU2	1 Day	Near End	Receive	Started	NONE	NONE
MRN-SVT-NODE-2	MRN-SVT-NODE-2/110PM12-12-2-L1	OTU2	1 Day	Far End	Receive	Started	NONE	NONE

25.3 Data Table 360° View

360° View topics defined

360° View topics are a set of user-selectable tabs that, when selected, contain all of the information that is related to a particular network management object or, when selected, can navigate users to additional information related to a particular network management object.

360° View topics location

In most instances, 360° View topics are displayed clicking on the 360° View icon on a selected object on the data table in a new screen. The following figures illustrate the locations of the 360° View topics on the NFM-T GUI.

Figure 25-13 Data Tables – 360° View Topics

NE	NE...	Port	NE SA...	Alarm Ty...	NE Probable Cause	Time Raised	NML Probable Cause
CONF1...	C	A2325A-1-5	Service AF...	Primary	Card missing	15/10/2019 1...	
CONF1...	C	AHPLG-2-3	Service AF...	Primary	Card missing	15/10/2019 1...	
COND1...	W	A2325A-1-5-LINE	Non Servi...	Secondary	APR Limited	15/10/2019 1...	APR Unavailable
COND1...	H	A2325A-1-5-LINE	Service AF...	Primary	Underlying resource un...	15/10/2019 1...	Underlying Resource Una...
CONF1...	H	AHPLG-2-3-LINE	Service AF...	Primary	Underlying resource un...	15/10/2019 1...	Underlying Resource Una...

360° View topics and their objects

The 360° View topics on the NFM-T GUI that users access from the **Operate > <object>** navigation path can be displayed once or multiple times, depending on the object and topic. Any exceptions are noted.

360° View topic examples

The following figures illustrate the 360° View topics that are displayed on the NFM-T GUI for some, but not all, of the most frequently accessed objects that are related to infrastructure connections or services.

The **Alarms** tab is displayed for Infrastructure Connections, Services, and Loopbacks. When users click the **Alarms** tab, the system displays the related alarms.

Figure 25-14 Data Tables – 360° View Topic – Alarms – Data Table Display

The screenshot shows a data table titled "ALARMS" with the following columns: ALARMS, SERVERS, CLIENTS, ROUTE, LINK CONNECTIONS, PM ENABLED POINTS, and NOTES. The table lists 15 rows of alarm data, each with a unique identifier (e.g., NE, AC_DC_NE1, AC_DC_NE1, AC_DC_NE2, COCF_NE1, COCF_NE2, COCF_NE3, COCF_NE1, COCF_NE3, COCF_NE1, COCF_NE3, AC_DC_NE1) and various status indicators (e.g., NE Severity, RASB-1-2-LINEIN, Service Affecting, Primary, NE Probable Ca, Underlying res). The table has a header row and a toolbar at the top.

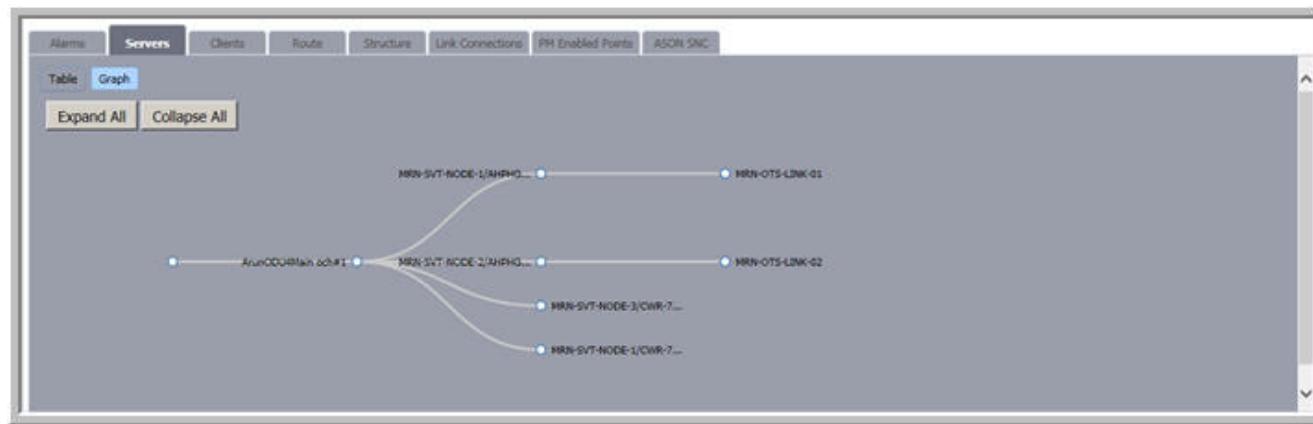
ALARMS	SERVERS	CLIENTS	ROUTE	LINK CONNECTIONS	PM ENABLED POINTS	NOTES
NE	NE Severity	RASB/SHC	NE SA/NSA	Alarm Type	NE Probable Ca	
AC_DC_NE1	■	RASB-1-2-LINEIN	Service Affecting	Primary	Underlying res	
AC_DC_NE1	■	RASB-1-13-LINEIN	Service Affecting	Primary	Underlying res	①
AC_DC_NE2	■	RASB-1-2-LINEIN	Service affecting	Primary	Underlying res	
AC_DC_NE2	■	RASB-1-7-LINEIN	Service Affecting	Primary	Underlying res	
COCF_NE1	■	RASB-2-8-LINEIN	Service Affecting	Primary	Underlying res	
COCF_NE2	■	RASB-1-8-LINEIN	Service Affecting	Primary	Underlying res	
COCF_NE2	■	RASB-1-12-LINEIN	Service Affecting	Primary	Underlying res	
COCF_NE3	■	RASB-1-10-LINEIN	Service Affecting	Primary	Underlying res	
COCF_NE1	■	MCS-1-7-AB3-WXYZ	Service Affecting	Primary	Underlying res	
COCF_NE3	■	MCS-2-5-AB3-WXYZ	Service Affecting	Primary	Underlying res	
COCF_NE1	■	OTU-4-5-L1	Service affecting	Primary	Underlying res	
COCF_NE3	■	OTU-3-7-L1	Service Affecting	Primary	Underlying res	
AC_DC_NE1	■	2GWB-1-1		Primary	Cord missing	

When users click the **Servers** tab, the system displays the servers that are related to the selected infrastructure connection or service.

Figure 25-15 Data Tables – 360° View Topic – Servers – Data Table Display

ALARMS	SERVERS	CLIENTS	ROUTE	LINK CONNECTIONS	PM ENABLED POINTS	NOTES
<input type="checkbox"/> Alarm Status	Operational State	Implementation State	Completion Status	Service Rate	Connection	
<input type="checkbox"/>	Up	Commissioned	Completed	ONS	CDCF_NES	
<input type="checkbox"/> !	Down	Commissioned	Completed	OTS	CDCF_NES	
<input type="checkbox"/>	Up	Commissioned	Completed	ONS	CDCF_NE1	
<input type="checkbox"/> !	Down	Commissioned	Completed	OTS	CDCF_NE1	
<input type="checkbox"/>	Up	Commissioned	Completed	ONS	CDCF_NE1	
<input type="checkbox"/> !	Down	Commissioned	Completed	OTS	CDCF_NE1	
<input type="checkbox"/>	Up	Commissioned	Completed	ONS	AC_DC_NE	
<input type="checkbox"/> !	Down	Commissioned	Completed	OTS	AC_DC_NE	
<input type="checkbox"/>	Up	Commissioned	Completed	OTS	CDCF_NE1	
<input type="checkbox"/>	Up	Commissioned	Downloaded	OTS	CDCF_NES	

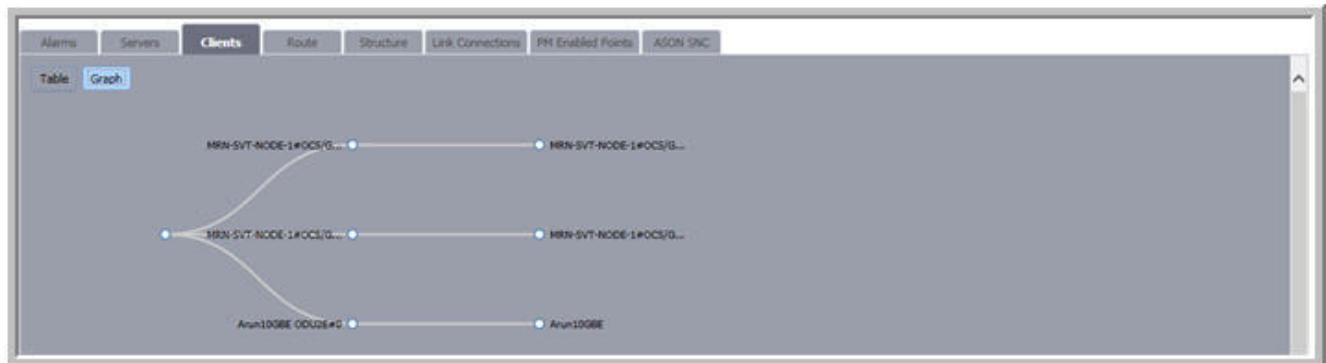
Figure 25-16 Data Tables – Tabbed Topic – Servers – Graph Display



When users click the **Clients** tab, the system displays the clients that are related to the selected infrastructure connection.

Figure 25-17 Data Tables – Tabbed Topic – Clients – Data Table Display

Figure 25-18 Data Tables – Tabbed Topic – Clients – Graph Display



When users click the **Route** tab, the system displays the route that is related to the selected infrastructure connection or service. Note that for the **Graph** view, the system opens a new browser window.

Figure 25-19 Data Tables – Tabbed Topic – Route – Table

Figure 25-20 Data Tables – Tabbed Topic – Route – Graph (Partial Display)

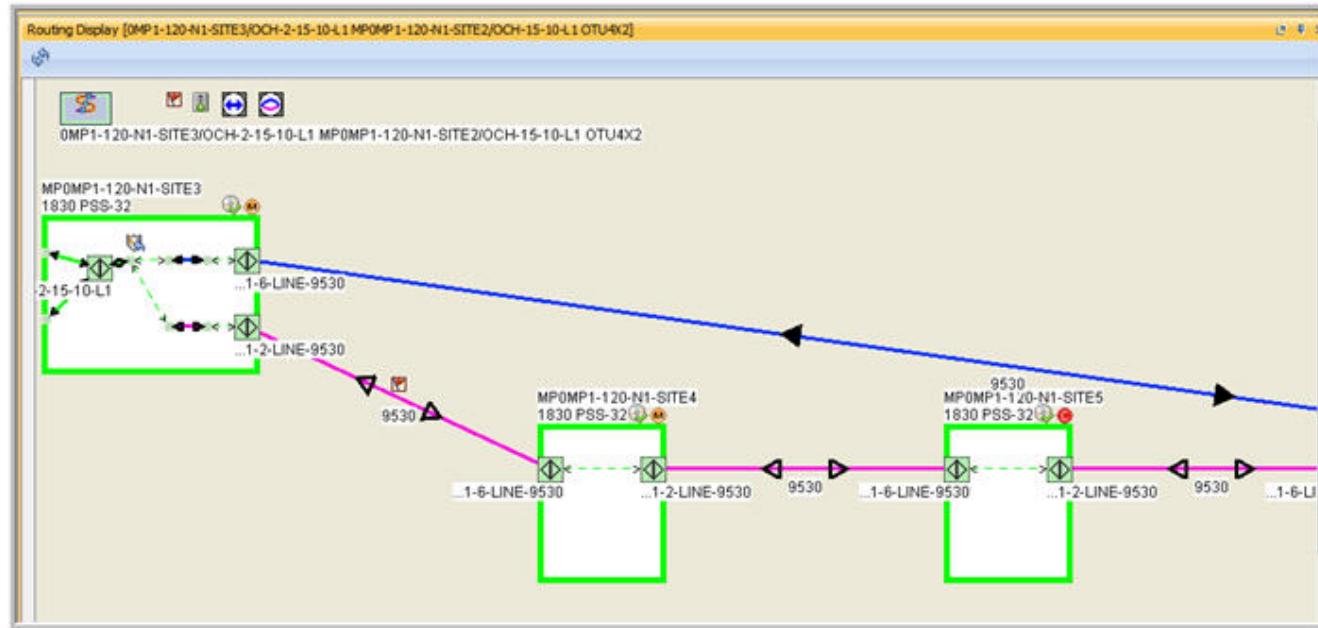


Figure 25-21 Data Tables – Tabbed Topic – Route – Full (Partial Display)



When you click the **Link Connections** tab, the system displays Link Connections information that is related to the selected infrastructure connection.

Figure 25-22 Data Tables – Tabbed Topic – Link Connections

#	Time Slot	Frequency	State	Effective Rate	In Use Connection	From Port	To Port
1	0	NA	Reserved	ODU0		ODUPOOL-1-1-1_1115213-1	ODUPOOL-1-1-1_1115694-1
2	0	NA	Reserved	ODU0		ODUPOOL-1-1-1_1115213-2	ODUPOOL-1-1-1_1115694-2
3	0	NA	Reserved	ODU0		ODUPOOL-1-1-1_1115213-3	ODUPOOL-1-1-1_1115694-3
4	0	NA	Reserved	ODU0		ODUPOOL-1-1-1_1115213-4	ODUPOOL-1-1-1_1115694-4
5	0	NA	Reserved	ODU0		ODUPOOL-1-1-1_1115213-5	ODUPOOL-1-1-1_1115694-5

When users click the **PM Enabled Points** tab, the system displays the PM Enabled information that is related to the selected infrastructure connection or service if PM has been enabled for the connection.

Figure 25-23 Data Tables – Tabbed Topic – PM Enabled Points

Node Label	TP Label	Monitored Rate	Granularity	Location	Direction	PM State	NML TCA	NE TCA
No filter applied								
MRN-SVT-NODE-2	MRN-SVT-NODE-2/110PM12-12-2-L1-1	ODU2	1 Day	Near End	Receive	Started	NONE	NONE
MRN-SVT-NODE-2	MRN-SVT-NODE-2/110PM12-12-2-L1-1	ODU2	1 Day	Far End	Receive	Started	NONE	NONE
MRN-SVT-NODE-4	MRN-SVT-NODE-4/110PM12-12-2-L1-1	ODU2	1 Day	Near End	Receive	Started	NONE	NONE
MRN-SVT-NODE-4	MRN-SVT-NODE-4/110PM12-12-2-L1-1	ODU2	1 Day	Far End	Receive	Started	NONE	NONE
MRN-SVT-NODE-2	MRN-SVT-NODE-2/110PM12-12-2-L1	OTU2	1 Day	Near End	Receive	Started	NONE	NONE
MRN-SVT-NODE-2	MRN-SVT-NODE-2/110PM12-12-2-L1	OTU2	1 Day	Far End	Receive	Started	NONE	NONE

25.4 3R Tab

Overview

A **3R** is a user selected optical regeneration group that consists of a node and two NNI transponder line ports that reshape, retime, and retransmit a signal; hence, the name *3R*.

3R tab display

The **3R** tab is displayed for the **NEs**, **Nodes**, and the **NPA** objects.

The navigation path from the main menu to the **3R** tab is as follows:

OPERATE > ASON > NPAs > 360° view > 3R

OPERATE > Nodes > 360° view > 3R

 **Note:** 3R TAB is displayed only for NE/Nodes with Control Plane.

3R tab actions

Depending on the node that is selected and its current state, the **3R** tab has icons and right clicks are used for the following actions or functions:

- **Create:** “[Task: Create a 3R](#)” (p. 1486)
- **Configuration:** “[Task: Implement an existing 3R](#)” (p. 1491), “[Task: Add a 3R to an existing NPA](#)” (p. 1489) and [10.15 “Add links and remove links from ASON”](#) (p. 1462)
- **Remove:** “[Task: Remove a 3R from an existing NPA](#)” (p. 1492)

The common set of NFM-T GUI icons

This set of NFM-T GUI icon, located to the right of the object icon and is commonly displayed for the majority of the data tables:

- **Save Table Preferences**

[26.8 “Save data table preferences and reset data table preferences to default”](#) (p. 2218)

- **Reset Table Preferences to Default**

[26.8 “Save data table preferences and reset data table preferences to default”](#) (p. 2218)

- **Export to CSV File**

[26.6 “Export a Data Table to a .csv File”](#) (p. 2209)

- **Refresh**

Click the **Refresh** icon to update and refresh the viewing area.

- **Help**

Click the **Help** icon to display information related to the current viewing area.

For more information, refer:

- [“ASON and the NFM-T”](#) (p. 379)

-
- “Operate ASON NPAs” (p. 1438)
 - “Operate ASON SNC” (p. 1521)

25.5 Additional Dropped Ports Tab

What is a dropped port?

A **dropped port** is a physical connection (**Physical Link**), an infrastructure connection (**Infrastructure**), or a service (**Service**) that is assigned to a port address on a selected node. In a service with 1:N broadcast configuration for a node, for example, 1 is continue and 9 are drop points, if N is equal 10.

Additional Drop Ports tab display

This tab is displayed for the **Services** and **Connections** object for connections that have **Connection Type**=1:N Broadcast.

The navigation path from the main menu to the **ADDITIONAL DROP PORTS** tab is as follows:

OPERATE > Services > 360° View > ADDITIONAL DROP PORTS

OPERATE > Infrastructure Connections > 360° View > ADDITIONAL DROP PORTS

Additional Drop Ports table columns

The following table describes the properties displayed for the ports that are used in a physical connection, infrastructure connection, or service.

Table 25-2 Properties of the Additional Drop Ports tab

Column	Description
From NE	The From NE column displays the From NE for the selected Connection/Service of type 1:N Broadcast.
From Port	The From Port column displays the from port where the 1:N Broadcast connection originates.
To NE	The To NE column displays the To NE for the selected Connection/Service of type 1:N Broadcast.
To Port	The To Port column displays the to port where the 1:N Broadcast connection terminates.
Status	The Status column displays the completion status of the connection of the selected used port, values can be active, failed or in progress.
Values displayed if the Broadcast Connection is protected.	
From OT Working Port	For the protected connection the user must choose the From OT Working Port of the connection, the working routing constraint.
To OT Working Port	For the protected connection the user must choose the To OT Working Port of the connection, the working routing constraint.
From OT Protection Port	For the protected connection the user must choose the From OT Protection Port of the connection, the protected routing constraint.
To OT Protection Port	For the protected connection the user must choose the To OT Protection Port of the connection, the protected routing constraint.

Additional Drop Ports tab operations

Depending on the type of connection that is selected and its current state, the **Additional Drop Ports** tab has the following actions or functions:

- **Add Drop Port**

See the procedure "[Add Additional Drop Ports](#)" (p. 2064) for details.

- **Remove Drop Port**

The system displays a confirmation message: *Removing a Drop Port may be traffic impacting. Are you sure you want to continue?*.

If the user attempts to remove the Drop Port which has the longest path from the From Port, the system fails the request and displays the message *Cannot Remove Drop Port with the longest path from the Source Port*.

If the broadcast connection has only one drop port, the request fails and the message *A broadcast connection must have at least one drop port* displayed.

- **Implement Drop Port**

The user can cancel a failed request to remove a Drop Port using the **Implement Drop Port** menu item.

- **OA&M Diagnostics...**

See **OA&M Diagnostics** in NFM-T OTN Guide for details.

- **Bidirectional Optical Power...** (The Bi-directional Power Display menu item is displayed if the Drop Port status is active).

See *View the Optical Power of an OTS Connection* of Manage Optical Power of an OTN OTS Connection in the *NFM-TOTN Guide*.

See *Adjust the Optical Power of an OTN OTS Connection* of Manage Optical Power of an OTN OTS Connection in the *NFM-T OTN Guide*.

See *Export the Optical Power for an OTN OTS Physical Connection to Excel* of Manage Optical Power of an OTN OTS Connection in the *NFM-T OTN Guide*.

See *View and Refresh the Optical Power for the Client of an OTN OTS Connection* of Manage Optical Power of an OTN OTS Connection in the *NFM-T OTN Guide*.

- **Routing Display**

Refer View Various Route Displays for an Infrastructure Connection or Service in the *NFM-T OTN Guide*.

The common set of NFM-T GUI icons

This set of NFM-T GUI icons, located to the right of the object icons, is commonly displayed for the majority of the data tables:

- **Save Table Preferences**

[26.8 "Save data table preferences and reset data table preferences to default" \(p. 2218\)](#)

- **Reset Table Preferences to Default**

[“Reset table preferences to default icon” \(p. 2200\)](#)

- [Export to CSV File](#)

[26.6 “Export a Data Table to a .csv File” \(p. 2209\)](#)

- [Refresh](#)

Click the **Refresh** icon to update and refresh the viewing area.

- [Help](#)

Click the **Help** icon to display information related to the current viewing area.

React UI icons

For more information on the React UI icons and operations, see

- [“Data Tables - React” \(p. 2182\)](#)
- [“Screens icons” \(p. 2241\)](#)

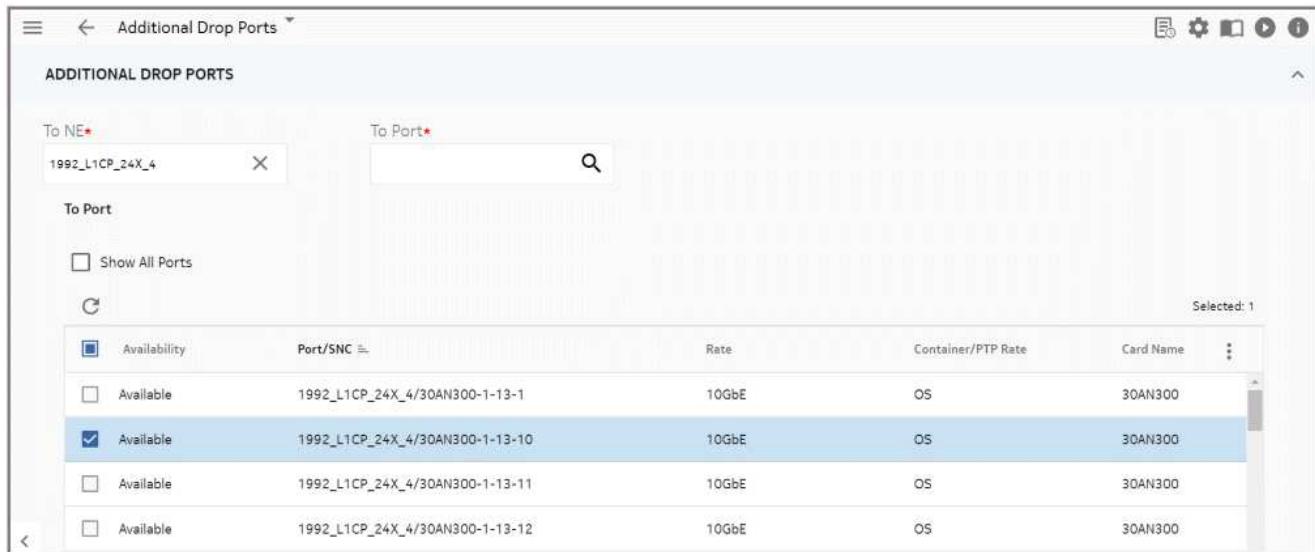
Add Additional Drop Ports

To add additional drop ports to a broadcast connection, follow these steps:

1

On the **Add Additional Drop Ports** panel of a broadcast connection, select the **Add** icon.

Figure 25-24 Broadcast Connection - Add Drop Port

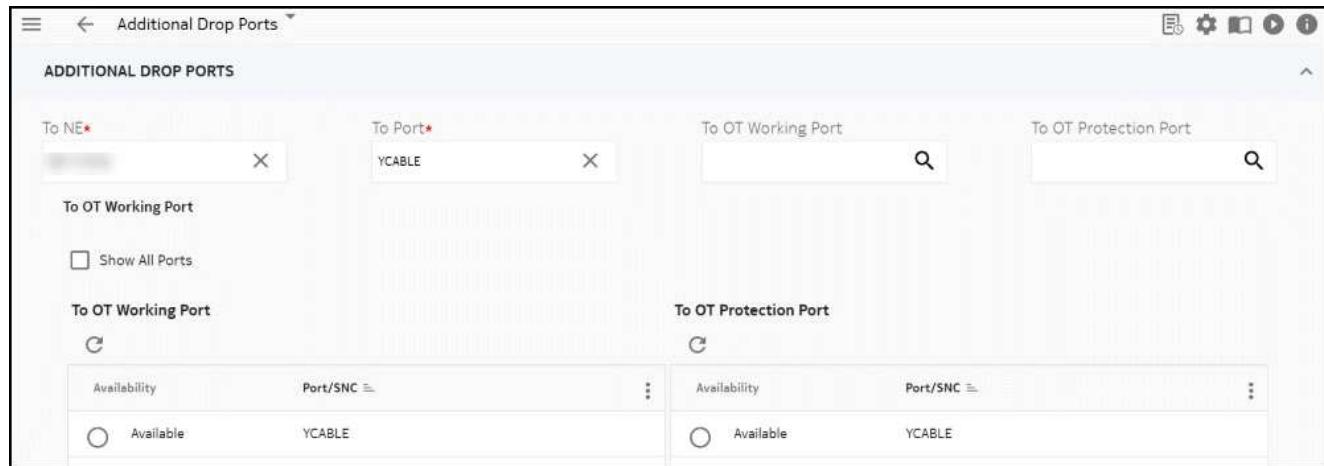


-
- 2 Select the **To NE** clicking on the magnifying glass to display the NE list.
- 3 Select the **To Port** by clicking on the magnifying glass to display the Ports list.
One or several ports can be selected. Click the **SELECT** button to confirm the selection.
Click the **REMOVE** button to remove selected ports from the selection.
- 4 Click the **ADD** button on the upper right corner to add the drop port selected.
- 5 Click **APPLY** to submit the request for adding the drop ports.

Y-Cable protected connections

If the Y-cable protection group for the drop port is already created, the fields displayed are To NE, To OT Working Port and To OT Protection Port.

Figure 25-25 Broadcast Connection Protected - Add Drop Port



If the Y-cable protection group for the drop port is not already created, the **From OT Working Port** and **From OT Protection Port** are editable. The system shall validate that the **To NE**, **To OT Working Port** and **To OT Protection Port** fields are selected for the Drop Port. If the validation fails, the message *Y-Cable Working and Protection Ports must be selected for all drop ports* appears.

25.6 ALARMS Tab

Alarm tab defined

An *Alarm* is a visual and audible indication to you from the equipment that a Critical, Major, Minor, or Warning event has occurred.

Alarm Management is a NFM-T feature that enables you to view lists of alarms and alarmed connections in the NFM-T OTN application.

ALARMS tab display

The **ALARMS** tab is displayed for the **Nodes**, **NEs**, **Physical Connections**, **Infrastructure Connections**, **Services**, **Looped Back Connections**, **NPAs**, **SNCs**, **Alarmed Connections**, **Alarmed Physical Connections**, **Pending Connections**, and **Alarmed ASON SNCs**.

The navigation paths to this tab are as follows:

OPERATE > ASON > NPAs > ALARMS (tab)

OPERATE > ASON > SNCs > ALARMS (tab)

OPERATE > Dashboard > Alarmed Connections (donut chart) > 360° View > ALARMS (tab)

OPERATE > Dashboard > Alarmed Physical Connections (donut chart) > 360° View > ALARMS (tab)

OPERATE > Dashboard > Pending Connections (donut chart) > 360° View > ALARMS (tab)

OPERATE > Dashboard > Alarmed ASON SNCs (donut chart) > ALARMS (tab)

OPERATE > Infrastructure Connections > 360° View > ALARMS (tab)

OPERATE > Looped Back Connections > 360° View > ALARMS (tab)

OPERATE > NEs > 360° View > ALARMS (tab)

OPERATE > Nodes > 360° View > ALARMS (tab)

OPERATE > Physical Connections > 360° View > ALARMS (tab)

OPERATE > Services > 360° View > ALARMS (tab)

Alarms tab icon and right click actions

The column display, the right click functions, and the icon functions differ depending on the object that is selected.

- For **Physical Connections**, **Infrastructure Connections**, **Services**, **Looped Back Connections**, **Alarmed Connections**, **Alarmed Physical Connections**, and **Pending Connections**, the **Alarms** tab has icons and right click for the **Display in Equipment View** action: Select the connection and either right click and select **Display in Equipment View** or click on the **Display in Equipment View** icon to display the current alarms for the object.
- For **Nodes**, **NEs**, **NPAs**, and **SNCs**, the **Alarms** tab does not have any allowed actions or functions other than those from the common set of NFM-T GUI icons.

Alarm Source Format

Alarm source object Format for GMRE Alarms has changed from R21.12 onwards.

Figure 25-26 Alarm Source old format for Release <21.12

Alarm Source	Occurrence Time	Probable Cause	Alarm Type
05-Gollum/EMS: [REDACTED]\MultiLayerSubnetwork:0\SubnetworkConnection:22	11/17/2021 6:51:53 PM	GMRE ALARM	COMMUNICATIONS
05-Gollum/EMS: [REDACTED]\MultiLayerSubnetwork:0\SubnetworkConnection:22	11/17/2021 6:51:53 PM	GMRE ALARM	EQUIPMENT
05-Gollum/EMS: [REDACTED]	11/3/2021 2:18:33 PM	GMRE ALARM	COMMUNICATIONS

Figure 25-27 Alarm Source new format for Release 21.12 onwards

Occurrence Time	Probable Cause	Alarm Type	Se
11/17/2021 6:51:53 PM	GMRE ALARM	EQUIPMENT	W
11/17/2021 6:51:53 PM	GMRE ALARM	COMMUNICATIONS	W
11/3/2021 2:18:33 PM	GMRE ALARM	COMMUNICATIONS	W

The common set of NFM-T GUI icons

This set of NFM-T GUI icons, which is located to the right of the object icon, is commonly displayed for the majority of the data tables:

- **Save Table Preferences**
- [26.8 “Save data table preferences and reset data table preferences to default” \(p. 2218\)](#)
- [“Reset table preferences to default icon” \(p. 2200\)](#)
- **Reset Table Preferences to Default**
- **Export to CSV File**
- [26.6 “Export a Data Table to a .csv File” \(p. 2209\)](#)
- **Refresh**
- Click the **Refresh** icon to update and refresh the viewing area.
- **Help**
- Click the **Help** icon to display information related to the current viewing area.

React UI icons

For more information on the React UI icons and operations, see:

- “[Data Tables - React](#)” (p. 2182)
- “[Screens icons](#)” (p. 2241)

25.7 ASON Links Tab

Overview

An ASON *link*, also known as a *link*, is an I-NNI link or a physical drop link that is associated with a selected ASON NPA.

A *drop link* is an external OS connection that is assigned to an NPA in the Automatic Switched Optical Network (Control Plane, G.7718). A drop link connection is the link between the Managed Plane domain and the Control Plane domain.

An *I-NNI link* is an Internal-Network-to-Network Interface that is inside an ASON domain for OMS GMRE L0 and for OTU in GMRE L1.

ASON Links tab display

The navigation path from the main menu to the **ASON Links** tab is as follows:

OPERATE > Network Profiles > COLOR PROFILES > 360° View > Used In > ASON Links

OPERATE > Physical Connections > 360° View > ASON Links

To manage ASON Links from Physical Connections page see [7.32 “Manage GMRE enabled ASON Link from OTN physical connections” \(p. 837\)](#).

ASON Links tab operations

The **ASON Links** tab has the following operations:

Administrative State

[10.27 “Set the ASON administrative state of links” \(p. 1504\)](#).

• **Add Links to ASON** (icon only)

[10.15 “Add links and remove links from ASON” \(p. 1462\)](#)

• **Link Maintenance**

[10.25 “Perform link maintenance” \(p. 1497\)](#)

• **Change ASON WTR**

[10.18 “Change ASON WTR” \(p. 1475\)](#)

• **Modify TCM Defect Raising Time**

[10.16 “Modify TCM defect raising time” \(p. 1470\)](#)

• **Auto Restoration**

[10.20 “Enable or disable auto restoration of links” \(p. 1480\)](#)

• **Shared Links**

“Task: Enable/disable shared link” (p. 1467)

• **TE Link Assignment**

[10.17 “Assign an ASON I-NNI link to a TE Link and SRG” \(p. 1473\)](#)

- **Remove Links from ASON**

[10.27 “Set the ASON administrative state of links” \(p. 1504\)](#)

- **Misalignment Report**

[10.14 “Access and view the misalignment report for a link” \(p. 1461\)](#)

- **Jobs**

Select the link and click on the **Jobs** icon to display the current jobs for the selected link.

[7.126 “Jobs description” \(p. 1194\)](#)

The common set of NFM-T GUI icons

This set of NFM-T GUI icons, which is located to the right of the object icon, is commonly displayed for the majority of the data tables:

- **Save Table Preferences**

[26.8 “Save data table preferences and reset data table preferences to default” \(p. 2218\)](#)

- **Reset Table Preferences to Default**

[26.8 “Save data table preferences and reset data table preferences to default” \(p. 2218\)](#)

- **Export to CSV File**

[26.6 “Export a Data Table to a .csv File” \(p. 2209\)](#)

- **Refresh**

Click on the **Refresh** icon to update and refresh the viewing area.

- **Help**

Click on the **Help** icon to display information related to the current viewing area.

For more information

See:

- [3.7 “ASON connection setup” \(p. 391\)](#)
- [3.8 “ASON protection and restoration” \(p. 394\)](#)
- [3.9 “Network setup in ASON” \(p. 404\)](#)
- [3.6 “ASON concepts applied in NFM-T” \(p. 379\)](#)
- [10.6 “ASON NPA” \(p. 1438\)](#)
- [10.32 “ASON SNC” \(p. 1521\)](#)

25.8 ASON Network Protection Architecture (NPA) Tab

What is an NPA?

A *Network Protection Architecture (NPA)*, is a set of NEs, protections blocks, and physical links that work together to create a dedicated protection mechanism or that are grouped together to establish service layer protection.

ASON NPAs tab display

The **ASON NPAs** tab is displayed for the **Alarm Profile** object.

The navigation path from the main menu to the **ASON NPAs** tab is as follows:

OPERATE > Network Profiles > Alarm Profiles > ASON NPAs

You can navigate to the data table for ASON NPAs directly from the **OPERATE > ASON > NPAs** navigation path and perform the same actions that you would from the **OPERATE > Network Profiles > Alarm Profiles > ASON NPAs** tab navigation path.

ASON NPAs tab operations

The **ASON NPAs** tab has the following operations

- **Add Links to ASON**

[10.15 “Add links and remove links from ASON” \(p. 1462\)](#)

- **Correlate ASAP**

[10.39 “Correlate an ASAP with SNC” \(p. 1546\)](#)

- **Create** (icon only)

[10.8 “Create and remove an NPA” \(p. 1443\)](#)

- **Deimplement**

[10.21 “Implement/deimplement an NPA” \(p. 1482\)](#)

- **Implement**

[10.21 “Implement/deimplement an NPA” \(p. 1482\)](#)

- **Jobs**

Select the **ASON NPA** and either right click and select **Jobs** or click on the **Jobs** icon to display the current Jobs for the ASON NPA.

- **Remove**

[10.8 “Create and remove an NPA” \(p. 1443\)](#)

The common set of NFM-T GUI icons

The following set of NFM-T GUI icons, which is located to the right of the object icon, and commonly displayed for the majority of the data tables:

- **Save Table Preferences**

[26.8 “Save data table preferences and reset data table preferences to default” \(p. 2218\)](#)

- **Reset Table Preferences to Default**

[26.8 “Save data table preferences and reset data table preferences to default” \(p. 2218\)](#)

- **Export to CSV File**

[26.6 “Export a Data Table to a .csv File” \(p. 2209\)](#)

- **Refresh**

Click the **Refresh** icon to update and refresh the viewing area.

- **Help**

Click the **Help** icon to display information related to the current viewing area.

More Information

For more information, see:

- [3.7 “ASON connection setup” \(p. 391\)](#)
- [3.8 “ASON protection and restoration” \(p. 394\)](#)
- [3.9 “Network setup in ASON” \(p. 404\)](#)
- [3.6 “ASON concepts applied in NFM-T” \(p. 379\)](#)
- [10.6 “ASON NPA” \(p. 1438\)](#)
- [10.32 “ASON SNC” \(p. 1521\)](#)

25.9 ASON SNC Tab

What is an ASON SNC?

An ASON SNC is a subnetwork connection internal that is internal to the Automatic Switched Optical Network (Control Plane, G.7718)-GMPLS Routing Engine network, or the ASON/GMRE. An ASON SNC can be a WDM ODU0, ODU1, or ODU4 layer that connects user-selected primary and spare endpoints. An ASON SNC can be further defined by its connection shape, its support of Tandem Connection Monitoring (TCM), and its sets of Control Plane restoration parameters and Color parameters.

ASON SNC tab display

The **ASON SNC** tab is displayed for the **ALARM PROFILES**, **NPAs**, **COLOR PROFILES**, and the **Infrastructure Connections** objects.

The navigation path from the main menu to the **ASON SNC** tab is as follows:

OPERATE > ASON > NPAs > 360° View > ASON SNCS

OPERATE > Infrastructure Connections > 360° View > ASON SNC (for Categories of Mixed Plane and Control Plane only)

OPERATE > Network Profiles > ALARM PROFILES > ASON SNCS

OPERATE > Network Profiles > COLOR PROFILES > Matched By > ASON SNCS

OPERATE > Network Profiles > COLOR PROFILES > Used In > ASON SNCS

Did you know?

You can navigate to the data table for ASON SNCs directly from the **OPERATE > ASON > SNCS** navigation path.

ASON SNCS tab More operations

For the **ALARM PROFILES** and **Infrastructure Connections** objects, the **ASON SNCS** tab has the following operations:

- **Convert current to nominal**
[10.44 “Switch SNC routes” \(p. 1560\)](#)
- **Correlate ASAP**
[10.39 “Correlate an ASAP with SNC” \(p. 1546\)](#)
- **Disable Test Mode**
[10.40 “Enable/Disable the test mode for an SNC” \(p. 1550\)](#)
- **Enable Test Mode**
[10.40 “Enable/Disable the test mode for an SNC” \(p. 1550\)](#)
- **Inherited Properties**
[10.37 “View the inherited priorities of an SNC” \(p. 1542\)](#)
- **Jobs**

Select the **ASON NPA** and either right click and select **Jobs** or click on the **Jobs** icon to display the current Jobs for the ASON NPA.

For the **COLOR PROFILES** object, the **ASON SNC** tab only has an icon and a right click function for the **Jobs** function. From the **Used In** or **Matched By** subtabs, click on ASON SNC where you want to view its jobs and click on the **Jobs** icon or right click and select **Jobs**.

- **Misalignment Report**

[10.38 “View a misalignment report for an SNC” \(p. 1544\)](#)

- **Modify Attributes**

[10.43 “Modify the attributes of an SNC” \(p. 1557\)](#)

- **SNC Constraints Management**

[10.42 “Manage SNC constraints” \(p. 1554\)](#)

- **SNCP Management**

[10.41 “Manage SNCP in ASON SNC” \(p. 1553\)](#)

- **Switch to Backup**

[10.44 “Switch SNC routes” \(p. 1560\)](#)

- **Switch to Nominal**

[10.44 “Switch SNC routes” \(p. 1560\)](#)

- **Infrastructure**

See Infrastructures Connections Tab of *NE Management Guide*.

- **Switch Route**

See Switch SNC routes of *OTN Guide*.

The common set of NFM-T GUI icons

This set of NFM-T GUI icons is located to the right of the object icon, and commonly displayed for the majority of the data tables:

- **Save Table Preferences**

[26.8 “Save data table preferences and reset data table preferences to default” \(p. 2218\)](#)

- **Reset Table Preferences to Default**

[26.8 “Save data table preferences and reset data table preferences to default” \(p. 2218\)](#)

- **Export to CSV File**

[26.6 “Export a Data Table to a .csv File” \(p. 2209\)](#)

- **Refresh**

Click on the **Refresh** icon to update and refresh the viewing area.

- **Help**

Click on the **Help** icon to display information related to the current viewing area.

More Information

For more information, refer:

- [3.7 “ASON connection setup” \(p. 391\)](#)
- [3.8 “ASON protection and restoration” \(p. 394\)](#)
- [3.9 “Network setup in ASON” \(p. 404\)](#)
- [3.6 “ASON concepts applied in NFM-T” \(p. 379\)](#)
- [10.6 “ASON NPA” \(p. 1438\)](#)
- [10.32 “ASON SNC” \(p. 1521\)](#)

25.10 Backup Route

What is Backup Route

The user can view the preconfigured backup route and the current backup route in the **Backup Route** page in the side by side view of the **ASON SNC** page for Guaranteed Restoration (GR) and Source Based Restoration (SBR). The user can view these pages (backup and preconfigured) if the **Backup Route Pre-Configured** column in the ASON SNC page is **True**.

The user can view only the **backup page** if the **Backup Route Pre-Configured** column in ASON SNC page is **False**.

i Note: The **Backup Route Pre-Configured** column in the ASON SNC page is set to **True** when the user performs a **Add Preconfigured Backup** operation.

For GR: The user can view these pages (backup and preconfigured) if the **Backup Route Pre-Configured** column in ASON SNC page is **True**. The user can view only Backup Route page if the **Backup Route Pre-Configured** column in ASON SNC page is **False**.

For SBR: The user can view this backup page if **Preconfigured Backup Route** is **Configured**.

For more information, see the following: [10.45 “Set a preconfigured Backup Route in ASON SNC” \(p. 1563\)](#)

Backup Route page for Guaranteed Restoration (GR)

If the user has selected the **Restoration Mode** as **Guaranteed Restoration (GR)**, the **Backup Route** page displays a split screen with preconfigured backup route on the left side (if GMRE has calculated a new backup because the provisioned one by the NFM-T is not suitable or has failed), and backup route on the right side.

If the backup route has not been fetched from the node, the right side of the split screen of the **Backup Route** page is not populated. The **Backup Route** page displays only the preconfigured route and not the backup route.

Figure 25-28 Backup Route for GR without a pre-configured backup route

360° View SNC_IOP_AGG-WDM-PRO1-R14-B_S13X100_S13X100_PROT_INFRA_CP_5Main					⋮		
Backup Route		ALARMS	END POINTS	ROUTES	BACKUP ROUTE	NOMINAL ROUTE PROBLEMS	PROPERTIES
Resource Type	Type	BACKUP ROUTE			Active Path R...	3R Resource	⋮
Main		12-CDCF-IRD20MCS1615/24-CDC-F-1.0-100024			(C)	-	(i)
Main		06-CDCF-IRD20-MCS816/24-CDC-F-1.0-100011			(C)	-	
Main		12-CDCF-IRD20MCS1615/24-CDC-F-1.0-100024			(C)	-	



Note: When the user clicks the **Backup Route** page, a request is sent to the NE to retrieve the backup route information.

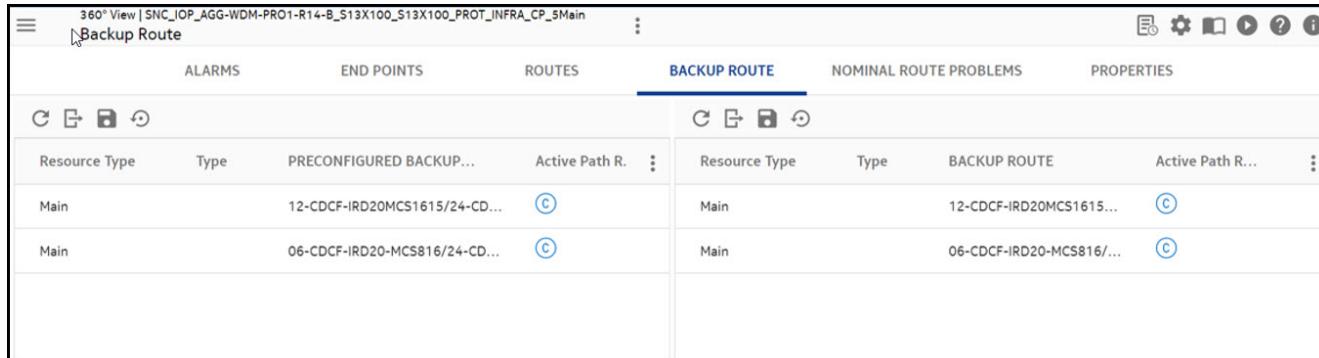
The following figure shows the **Backup Route Pre-Configured** column value set as **True**.

Figure 25-29 Backup route for GR with pre-configured route configured

Operate ASON v SNCs					
A Spare End L...	Z Spare End L...	ASAP Name	MRN Tunnel ...	Reversion Contro...	Backup Route Pre-Configured
3X100...		default ASAP	Not Applicable	True	(i)
-7-3-1		default ASAP	Not Applicable	False	
-7-3-2		default ASAP	Not Applicable	False	
-7-3-3		default ASAP	Not Applicable	False	
80-7-...		default ASAP	Not Applicable	False	
80-7-...		default ASAP	Not Applicable	False	
80-7-...		default ASAP	Not Applicable	False	
3X100...		default ASAP	Not Applicable	False	

If the backup route has not been fetched from the node, the right side of the split screen of the **Backup Route** page is not populated. The **Backup Route** page displays only the preconfigured route and not the backup route.

Figure 25-30 Backup route page with split screen

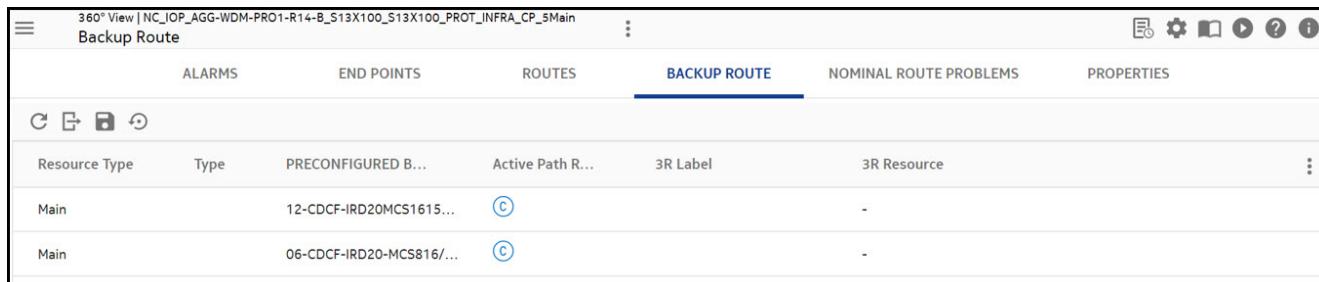


Note: When the user clicks the **Backup Route** page, a request is sent to the NE to retrieve the backup route information.

Backup Route page for Source Based Restoration (SBR)

The **Backup Route** page displays the backup route that is dynamically calculated by the GMRE. The values get populated once the user adds a backup route.

Figure 25-31 Backup Route page for SBR after configuring pre-configured backup route



Backup Route Display

The navigation path from the main menu to the **Backup Route** page is as follows:

OPERATE > ASON SNCs > More options (⋮) > Backup Route

Parameter	Description
Resource Type	Specifies the resource type. The default value is Main.
Type	Specifies the type.
PRECONFIGURED BACKUP ROUTE	Displays the preconfigured backup route path. Click the hyperlink to navigate to TE Links 360 degree page.
BACKUP ROUTE	Displays the backup route path. Click the hyperlink to navigate to TE Links 360 degree page.
Active path role	Specifies the active path role. The default value is Current .
3R Resource	Specifies the details of the 3R resource that is added.

Backup Route page operations

The **Backup Route** page only displays the common set of WebUI icons.

i Note: The Backup Route page will be shown as menu option to launch in legacy WebUI view.

The common set of NFM-T GUI icons

This set of NFM-T GUI icons, which is located to the right of the object icons, is commonly displayed for the majority of the data tables:

- Auto Refresh**

Depending on the current refresh state, click **Start Auto Refresh** or **Stop Auto Refresh** to begin or end the automatic update and refresh of information that is displayed in the data table.

- Save Table Preferences**

[26.8 “Save data table preferences and reset data table preferences to default” \(p. 2218\)](#)

- Reset Table Preferences to Default**

[26.8 “Save data table preferences and reset data table preferences to default” \(p. 2218\)](#)

- Export to CSV File**

[26.6 “Export a Data Table to a .csv File” \(p. 2209\)](#)

- Refresh**

Click on the **Refresh** icon to update and refresh the viewing area.

- Help**

Click on the **Help** icon to display information related to the current viewing area.

25.11 Clients Tab

What is a client?

A *client* is an object that uses a service of another object.

Infrastructure trails can have other infrastructure trails or services (paths) as clients, and infrastructure trails can have other infrastructure trails or physical connections as servers.

Physical connections can only have clients and physical connections can never have servers. When accessing a physical network connection, the system provides users with access to the clients of the selected connection, and are the infrastructure trails.

Services never have clients although they always have servers.

Clients tab display

The **Clients** tab is displayed for the **Dashboard**, **Infrastructure Connections**, , and **Physical Connections** objects.

The navigation paths from the main menu to the **Clients** tab are as follows:

OPERATE > Dashboard > Alarmed Connections > 360° View > Clients

OPERATE > Dashboard > Alarmed Physical Connections > 360° View > Clients

OPERATE > Dashboard > Pending Connections > 360° View> Clients

OPERATE > Infrastructure Connections > 360° View> Clients

OPERATE > Physical Connections > 360° View> Clients

Clients tab Table and Graph subtabs

The **Clients** tab has subtabs for **Table** and **Graph**:

- The **Table** subtab, which is the default view, provides a standard NFM-T GUI data table for the selected object.
- The **Graph** displays a linear representation of the client connection with choices for **Expand All**, **Collapse All**, or **Refresh**.

Clients tab operations

Depending on the type of client connection that is selected and its current state, the **Table** subtab for the **Clients** tab has the following operations:

- **Alarms**

[“Task: Enable Alarm Profile” \(p. 932\)](#); part of [7.53 “Manage alarms for a connection” \(p. 924\)](#)

[“Task: Disable Alarm Reporting” \(p. 931\)](#); part of [7.53 “Manage alarms for a connection” \(p. 924\)](#)

- **Correlate ASAP** (right click only)

[“Task: Correlate a commissioned connection to an ASAP” \(p. 925\)](#); part of [7.53 “Manage alarms for a connection” \(p. 924\)](#)

- **Disable Service State** (right click only)

[7.60 “Manage the service state of connection” \(p. 975\)](#)

• **Display Route on Map**

Select the client, select the icon for **Display Route on Map** or go to [7.77 “View various route displays for an infrastructure connection or service” \(p. 1036\)](#) for details.

• **Delete Connection**

[7.51 “Delete a commissioned connection” \(p. 919\)](#)

• **Deployment Control**

[7.49 “Control the deployment of a connection” \(p. 915\)](#)

• **Enable Service State** (right click only)

[7.60 “Manage the service state of connection” \(p. 975\)](#)

• **Jobs**

[7.71 “View Jobs for an infrastructure connection or service” \(p. 1016\)](#)

• **Modify Connection...**

[7.63 “Modify Route \(Reroute\) of a connection” \(p. 987\)](#)

[7.58 “Manage protection for a connection in Managed Plane and Control Plane” \(p. 960\)](#)

• **Modify Parameters...**

[7.62 “Modify the parameters of a connection” \(p. 981\)](#)

• **Modify PM** (right click only)

Manage PM for a Connection in the *NFM-T Service Assurance Guide*

• **Routing Display**

Select the client, right click and select the path **Routing Display** or go to [7.77 “View various route displays for an infrastructure connection or service” \(p. 1036\)](#) and [7.78 “View the Routing Display of a selected connection” \(p. 1042\)](#) for details.

The common set of NFM-T GUI icons

This set of NFM-T GUI icons, which is located to the right of the object icons and commonly displayed for the majority of the data tables:

• **Auto Refresh**

Depending on the current refresh state, click **Start Auto Refresh** or **Stop Auto Refresh** to begin or end the automatic update and refresh the information that is displayed in the data table.

• **Save table preferences**

[26.8 “Save data table preferences and reset data table preferences to default” \(p. 2218\)](#)

• **Reset table preferences to default**

[26.8 “Save data table preferences and reset data table preferences to default” \(p. 2218\)](#)

• **Export to csv file**

26.6 “Export a Data Table to a .csv File” (p. 2209)

- **Refresh**

Click the **Refresh** icon to update and refresh the viewing area.

- **Help**

Click the **Help** icon to display information related to the current viewing area.

For more information

For more information, refer [2.23 “Client or server relationships” \(p. 247\)](#)

25.12 Client ASON SNC Tab

What is Client ASON SNC?

This tab displays the number of SNCs that are created for that particular ASON link and the time slot that is allotted for the SNC.

This tab specifies whether the SNCs are Nominal, Current or Nominal and Current. Based on that, the Start and the End frequencies are specified.

If the Nominal and Current are same, all the values that appear in the Nominal and Current columns would be same.

For L1 Control Plane the system displays ODU slots number depends on ODU structure granularity supported by Logical link. ODU0 supports 80 channels.

For L0 Control Plane, the system displays Och channels. The number varies depending on LD Card used on NMS. It can be 768 (96 x 8).

Client ASON SNC Display

The navigation paths from the main menu to the **CLIENT ASON SNCS** tab is as follows:

Go to **ASON > NPA > 360° View > LINKS > 360° View > CLIENT ASON SNCS** tab.

Click the **CLIENT ASON SNCS** tab. The system displays two more tabs at the lower level: **CLIENT ASON SNCS** tab.

Figure 25-32 Client ASON SNC Tab

Name	Alarm Status	WDM Layer	Active path role	Start Frequency(Nominal)	End Frequency(Nom)
connection-7-casca...	W	ODU4	Current		

The common set of NFM-T GUI icons

This set of NFM-T GUI icons, is located to the right of the object icon, and commonly displayed for the majority of the data tables:

Save Table Preferences

[26.8 “Save data table preferences and reset data table preferences to default” \(p. 2218\)](#)

Reset Table Preferences to Default

[26.8 “Save data table preferences and reset data table preferences to default” \(p. 2218\)](#)

Export to CSV File

[26.6 “Export a Data Table to a .csv File” \(p. 2209\)](#)

Refresh

Click on the **Refresh** icon to update and refresh the viewing area.

Help

Click on the **Help** icon to display information related to the current viewing area.

For more information

For more information, refer:

- [“Connection setup using the nominal, optimal, and current routes” \(p. 391\)](#)
- [“ASON protection” \(p. 394\)](#)
- [3.9 “Network setup in ASON” \(p. 404\)](#)
- [3.6 “ASON concepts applied in NFM-T” \(p. 379\)](#)
- [10.6 “ASON NPA” \(p. 1438\)](#)
- [10.32 “ASON SNC” \(p. 1521\)](#)

25.13 Client ASON SNCS Structure Tab

What is CLIENT ASON SNCS - STRUCTURE?

Structure is the arrangement of the relationship among the parts of a selected ASON Link. This tab is enabled only for L0 connections.

Structure Tab Display

The navigation paths from the main menu to the Structure tab in ASON is as follows:

ASON > NPA > 360° View > LINKS > 360° View > CLIENT ASON SNCS - STRUCTURE tab.

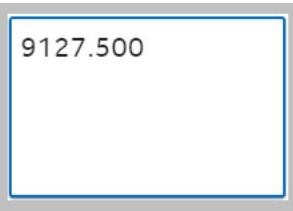
Figure 25-33 CLIENT ASON SNCS - STRUCTURE Tab

SRGS	CLIENT ASON SNCS	CLIENT ASON SNCS - STRUCTURE	SERVER SRGS	SERVER PHYSICAL CONNECTIONS
C				
<input checked="" type="radio"/> All	<input type="radio"/> Used/Allocated	<input type="radio"/> Used by Foreign Connection	<input type="radio"/> Nominal	<input type="radio"/> Current
9130.000	9135.000	9140.000	9145.000	9150.000
9155.000	9160.000	9165.000		
9170.000	9175.000	9180.000	9185.000	9190.000
9195.000	9200.000	9205.000		
9210.000	9215.000	9220.000	9225.000	9230.000
9235.000	9240.000	9245.000		
9250.000	9255.000	9260.000	9265.000	9270.000
		(NC)	(C)	9275.000
				9280.000
				9285.000

Table 25-3 Options in CLIENT ASON SNCS - STRUCTURE Tab

Options	Description
Nominal & Current	Nominal and current routes are same
Nominal	Specifies the nominal route
Current	Specifies the current route
Used/Allocated	Specifies used or allocated connections
Used by Foreign Connection	This option is applicable for managed plane connections. Specifies the connection used by Foreign Connection

Table 25-3 Options in CLIENT ASON SNCS - STRUCTURE Tab (continued)

Options	Description
	The blue color Frequency blocks specify the center of frequency

The common set of NFM-T GUI icons

This set of NFM-T GUI icons, which is located to the right of the object icon, is commonly displayed for the majority of the data tables:

- **Save Table Preferences**

[26.8 “Save data table preferences and reset data table preferences to default” \(p. 2218\)](#)

- **Reset Table Preferences to default**

[26.8 “Save data table preferences and reset data table preferences to default” \(p. 2218\)](#)

- **Export to CSV File**

[26.6 “Export a Data Table to a .csv File” \(p. 2209\)](#)

- **Refresh**

Click on the **Refresh** icon to update and refresh the viewing area.

- **Help**

Click on the **Help** icon to display information related to the current viewing area.

For more information

For more information, refer:

- [“Connection setup using the nominal, optimal, and current routes” \(p. 391\)](#)
- [“ASON protection” \(p. 394\)](#)
- [3.9 “Network setup in ASON” \(p. 404\)](#)
- [3.6 “ASON concepts applied in NFM-T” \(p. 379\)](#)
- [10.6 “ASON NPA” \(p. 1438\)](#)
- [10.32 “ASON SNC” \(p. 1521\)](#)

25.14 Command Status tab

What is command status?

Command Status is the current state of your command request, which the system displays only upon certain implementation states (**Implementation Status**) of an infrastructure connection or service.

Command Status tab display is dependent on the Implementation State of the connection

For infrastructures, the **Command Status** tab is only displayed if the **Implementation Status** of the infrastructure connection is **Implemented**, **Fully Allocated**, or **Partially Allocated**.

For services, the **Command Status** tab is only displayed if the **Implementation Status** of the service is **Implemented**, **Fully Allocated**, or **Partially Allocated**.

For pending infrastructure connections and services, the **Command Status** tabbed topic is only displayed if the **Implementation Status** of the alarmed connection is **Allocated**, **Fully Allocated**, **Implemented**, **Implementation Failed**, **Partially Allocated**, or **Pending**.

Command Status tab display

The navigation paths from the main menu to the **Command Status** tab are as follows:

OPERATE > Dashboard > Pending Connections > 360° View > Command Status

OPERATE > Infrastructure Connections > 360° View > Command Status

OPERATE > Services > 360° View > Command Status

Command Status tab operations

Other than the common set of NFM-T GUI icons, the **Command Status** tab does not have any allowed right click actions or icon functions.

The common set of NFM-T GUI icons

This set of NFM-T GUI icons, which is located to the right of the object icon, is commonly displayed for the majority of the data tables:

- **Save Table Preferences**

[26.8 “Save data table preferences and reset data table preferences to default” \(p. 2218\)](#)

- **Reset Table Preferences to Default**

[26.8 “Save data table preferences and reset data table preferences to default” \(p. 2218\)](#)

- **Export to CSV File**

[26.6 “Export a Data Table to a .csv File” \(p. 2209\)](#)

- **Refresh**

Click on the **Refresh** icon to update and refresh the viewing area.

- **Help**

Click on the **Help** icon to display information related to the current viewing area.

25.15 CONTROL PLANES tab

What is the Control Plane?

The *Control Plane* is the operating plane where pure Automatic Switched Optical Network (ASON) connections enable the network to reroute connections if a failure occurs, provided the NE has the necessary processing functions to acknowledge the GMPLS protocols for signalling, path management, and link management.

Within the NFM-T, the *Control Plane* is a generalized term that is used to represent the portion of a network or a connection that uses ASON/GMPLS; and, *Pure Control Plane connections* are infrastructure connections that originate and terminate entirely in ASON.

For GMRE L0 Control Plane provisioning on the 1830 PSS PHN NEs, the OTUk is provisioned in parallel by the network when the ODUk provisioning is done.

For GMRE L1 Control Plane provisioning on the 1830 PSS OCS NEs, the base network is built up until the connectivity between the 1830 PSS OCS network is established at a rate that supports the ODUk Control Plane layer rate. Any optical connectivity that is present in the network through the 1830 PSS PHN NEs is established first to provide connectivity between the 1830 PSS OCS NEs.

CONTROL PLANES tab display

The **CONTROL PLANES** tab is displayed for the **Nodes** and the **NPA** objects. For the **Nodes** object, the **CONTROL PLANES** tab is only displayed if the ASON Control Plane Type field is OCS, PHN, or OCS and PHN.

The navigation paths from the main menu to the **CONTROL PLANES** tab are as follows:

OPERATE > ASON > NPAs > 360° View > CONTROL PLANES

OPERATE > Nodes > 360° View > CONTROL PLANES

Figure 25-34 CONTROL PLANES tab

ALARMS	NODES	CONTROL PLANES	LINKS	TE LINKS	ASON SNCS	3R	PROPERTIES
<input type="checkbox"/> Alarm Status	GMRE Communication State	Name	ASON Control Plan...	Release	Installed Ve...	Native Name	Address
<input type="checkbox"/>	W	GMRE	L0AndL1	13.0.0	13.0.0	EMS:	False
<input type="checkbox"/>	W	GMRE	L0AndL1	13.0.0	13.0.0	EMS:	False
<input type="checkbox"/>	W	GMRE	L0AndL1	13.0.0	13.0.0	EMS:	False
<input type="checkbox"/>	W	GMRE	L0AndL1	13.0.0	13.0.0	EMS:	False
<input type="checkbox"/>	W	GMRE	L0AndL1	13.0.0	13.0.0	EMS:	False

Table 25-4 CONTROL PLANE tab columns

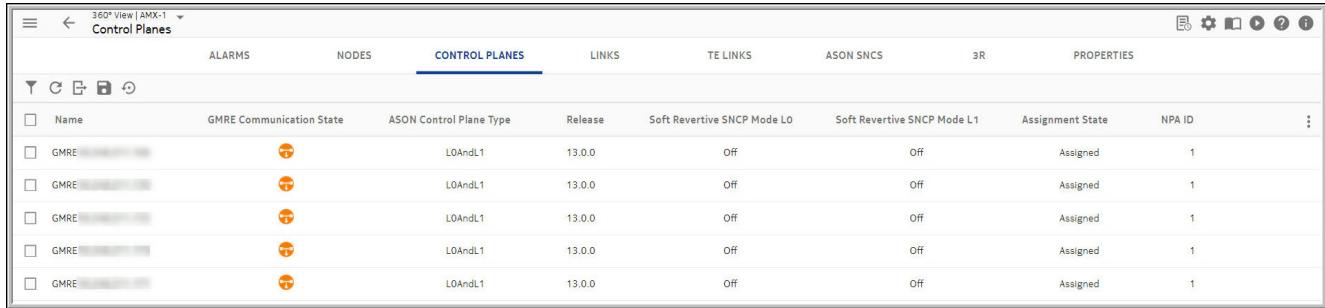
Columns	Description
Alarms Aligned	The Alarms Aligned column displays true (if alarms are aligned) or false (if alarms are not aligned) for a selected node/NE.
Alarms Alignment	The Alarms Alignment column is applicable for a selected 1830 PSS PHN and 1830 PSS OCS node. The following four states are available: <ul style="list-style-type: none"> • Normal • Failed • In Progress • Not Applicable
Alarm Status	The Alarm Status displays the status of alarm that has occurred.
ASON Control Plane Type	The ASON Control Plane Type column displays the Automatic Switched Optical Network (ASON) type for the selected node to be Not Applicable , OCS , or the appropriate type.
Control Plane Type	Specifies the Control Plane type. The default value is Ason
Installed version	The Installed Version column displays the release/version that is installed on the selected node.
GMRE Communication State	The GMRE Communication State column displays the associated network adapters (NAs) communication state. The state is Down or Up .
Name	Specifies the Name of the node
Native Name	The Native Name column displays the name of the node and the IP address of the selected node in the Control Plane.
NPA ID	Specifies the NPA ID
Release	The Release column displays the release of the NE that is associated with a node.
Switched Connection Sync Status	Specifies the status of the switched connection for ASON connections after a switched connection sync is triggered In Progress: The switched connection synchronization is in progress Aligned: The switched connection synchronization is successful Misaligned: The switched connection synchronization is failed. When the user restarts the tomcat server, the status would be <i>Misaligned</i> .

Control Plane SNCP Revertive columns

On the NFM-T, the user can configure the reversion mode for the ASON SNC types in L0 and L1 GMPLS: O-SNCP (not restored in GMRE, SNCP protected) and O-PRC for L0 and E-SNCP (not restored in GMRE, SNCP protected) and E-PRC for L1.

The soft revertive feature applies, for optical configurations, to OTN shelf, PSS24X, PSS8X, PSS36, PSS64, and to uni and bi-directional protection schemes per LSP (ASON SNC) configurable from Deploy template. It applies, for digital configurations, to PHN models (1830 PSS-32, 1830 PSS-16, 1830 PSS-16 II, 1830 PSS-8, 1830 PSS-8x/24x) and OCS models for the uplink cards.

Figure 25-35 CONTROL PLANE Tab - Soft Revertive columns



The screenshot shows the 'Control Planes' tab in the Nokia NFM-T interface. The table has the following columns: Name, GMRE Communication State, ASON Control Plane Type, Release, Soft Revertive SNCP Mode L0, Soft Revertive SNCP Mode L1, Assignment State, NPA ID, and a more options column. There are six rows, each representing a GMRE node with a red warning icon. The 'Soft Revertive SNCP Mode L0' column consistently shows 'L0AndL1'. The 'Assignment State' column shows 'Assigned' and the 'NPA ID' column shows '1'.

NAME	GMRE COMMUNICATION STATE	ASON CONTROL PLANE TYPE	RELEASE	SOFT REVERTIVE SNCP MODE L0	SOFT REVERTIVE SNCP MODE L1	ASSIGNMENT STATE	NPA ID	...
GMRE [red]	[red]	L0AndL1	13.0.0	Off	Off	Assigned	1	
GMRE [red]	[red]	L0AndL1	13.0.0	Off	Off	Assigned	1	
GMRE [red]	[red]	L0AndL1	13.0.0	Off	Off	Assigned	1	
GMRE [red]	[red]	L0AndL1	13.0.0	Off	Off	Assigned	1	
GMRE [red]	[red]	L0AndL1	13.0.0	Off	Off	Assigned	1	

Table 25-5 CONTROL PLANE Tab Columns - Soft Revertive

Columns	Description
Soft Revertive SNCP Timeout L0/L1	The Soft Revertive SNCP Timeout column displays the value set at creation or modification by the user if the Soft Revertive SNCP Mode is MainNominal or AnyNominal.
Soft Revertive SNCP Mode L0/L1	The Soft Revertive SNCP Mode L0/L1 column displays the mode that is selected for the SNCP revertive attribute, it can be NodeDefault, Off, AnyNominal, MainNominal..

CONTROL PLANES tab operations

Depending on the NPA or nodes selected, the **CONTROL PLANES** tab has the following operations:

- **Auto Restoration**

Activate/Deactivate Auto Restoration of the Control Plane in the *NFM-T NE Management Guide*.

- **Fast Photonic Restoration**

Enable/Disable Fast Photonic Restoration of the Control Plane in the *NFM-T NE Management Guide*.

- **Switched Connection Sync**: See Perform Switched Connection Sync in Control Planes tab in *NFM-T OTN Guide*.

- **Jobs**: See Manage Jobs in ASON

- **Upgrade CTP Grid for FlexGrid Support**: see Upgrade CTP Naming for Flexgrid Support

- **Activate GMRE Version**: see Activate GMRE for Control Plane NE.

React UI icons

For more information on the React UI icons and operations, refer:

- “Data Tables - React” (p. 2182)

-
- “Screens icons” (p. 2241)

The common set of NFM-T GUI icons

This set of NFM-T GUI icons is located to the right of the object icon, and commonly displayed for the majority of the data tables:

- **Save Table Preferences**

[26.8 “Save data table preferences and reset data table preferences to default” \(p. 2218\)](#)

- **Reset Table Preferences to Default**

[“Reset table preferences to default icon” \(p. 2200\)](#)

- **Export to CSV File**

[26.6 “Export a Data Table to a .csv File” \(p. 2209\)](#)

- **Refresh**

Click on the **Refresh** icon to update and refresh the viewing area.

- **Help**

Click on the **Help** icon to display information related to the current viewing area.

i **Note:** The user triggers the UNI Sync operation in the **Control Plane** tab. After sync is triggered, the Private Tunnel Sync Status column of the Control Plane displays **In Progress**. The system sends the request to GMRE. When all the responses are processed, the status of the Synchronization Status column is marked as **Aligned**.

For more information

For more information, refer:

- ASON Connection Setup in *NFM-TOTN Guide*.
- ASON Protection and Restoration in *NFM-TOTN Guide*.
- Network Setup in ASON in *NFM-TOTN Guide*.
- ASON Concepts applied in NFM-T in *NFM-TOTN Guide*.

25.16 Correlated Alarms Tab

What is a correlated alarm?

A *correlated alarm* is an alarm that contains internal indicators that identify specific information about the alarm. Correlated alarms are displayed on the Alarm Surveillance (AS) window.

Correlated NML ASAP is the use of Alarm Severity Assignment Profiles (ASAPs) in conjunction with network profiles to set the severity level of the correlated alarms that the Alarm Management system raises.

i **Note:** If a user label is modified for a physical connection, service or infrastructure connection, the existing correlated alarms on such connections will remain with the old user label, only the new correlated alarms will reflect the new user label of the connection.

Correlated Alarms tab display

The **Correlated Alarms** tab is displayed from the **Dashboard** and **Physical Connections** objects.

The navigation paths from the main menu to the **Correlated Alarms** tab are as follows:

OPERATE > Dashboard > Alarmed Physical Connections > 360° View > Correlated Alarms

OPERATE > Physical Connections > ETH > Correlated Alarms

OPERATE > Physical Connections > OTN > Correlated Alarms

OPERATE > Physical Connections > SDH > Correlated Alarms

Correlated Alarms tab operations

The **Correlated Alarms** tab does not have any operations. Icons are only provided for the common set of NFM-T GUI icons

The common set of NFM-T GUI icons

This set of NFM-T GUI icons, which is located to the right of the object icons, is commonly displayed for the majority of the data tables:

- **Auto Refresh**

Depending on the current refresh state, click **Start Auto Refresh** or **Stop Auto Refresh** to begin or end the automatic update and refresh of information that is displayed in the data table.

- **Save Table Preferences**

[26.8 “Save data table preferences and reset data table preferences to default” \(p. 2218\)](#)

- **Reset Table Preferences to Default**

[26.8 “Save data table preferences and reset data table preferences to default” \(p. 2218\)](#)

- **Export to CSV File**

[26.6 “Export a Data Table to a .csv File” \(p. 2209\)](#)

- **Refresh**

Click on the **Refresh** icon to update and refresh the viewing area.

• **Help**

Click on the **Help** icon to display information related to the current viewing area.

25.17 Cross Connections tab

What is a Cross connection?

A **Cross Connection** is a connection within an NE that internally connects one logical port on an NE to one or more logical ports on the same NE. When a cross connection is automatically created, the system assigns a **Connection Name** for all cross-connections in the connection. This name indicates the multiple cross-connections that belong to the same connection.

The cross-connections that are displayed in the **Cross Connections** tab include all cross-connections. Any uncorrelated cross-connections are identified by a blank **Connection Name** field.

A cross-connection can be deleted if it is not a *correlated cross-connection*, which is a cross-connection that is associated with a connection that is provisioned in the NFM-T OTN. *Correlated cross-connections cannot be deleted using the NFM-T OTN.*

Cross Connections tab display

The **CROSS CONNECTIONS** tab is displayed for the **NEs** and **Nodes** object.

The navigation paths from the main menu to the **CROSS CONNECTIONS** tab are as follows:

OPERATE > NEs > 360° View > CROSS CONNECTIONS

OPERATE > Nodes > 360° View > CROSS CONNECTIONS

Cross Connections tab operations

For cross-connections that are not correlated, the following operation is supported::

- **Remove cross-connection**

Select the connection, click the **More**  icon and select **Remove Cross Connection** to delete the cross-connection.

The common set of NFM-T GUI icons

This set of NFM-T GUI icons, which is located on the top of the data table on the left, , is commonly displayed for the majority of the data tables:

- **Auto Refresh**

Depending on your state, click **Start Auto Refresh** or **Stop Auto Refresh** to begin or end the automatic redisplay of information that is displayed in the data table.

- **Save Table Preferences**

[26.8 “Save data table preferences and reset data table preferences to default” \(p. 2218\)](#)

- **Reset Table Preferences to Default**

[26.8 “Save data table preferences and reset data table preferences to default” \(p. 2218\)](#)

- **Export to CSV File**

[26.6 “Export a Data Table to a .csv File” \(p. 2209\)](#)

- **Refresh**

Click the **Refresh** icon to update and refresh the viewing area.

React UI icons

For more information on the React UI icons and operations, refer:

- “[Data Tables - React](#)” (p. 2182)
- “[Screens icons](#)” (p. 2241)

For more information

For more information, refer:

- Uncorrelated cross connections Tab in the NFM-T OTN Guide.
- Cross connections in the NFM-T OTN Guide

25.18 Dark Fiber Tab

Overview

The **Dark Fiber** tab is displayed for a physical link that is associated to a **Dark Fiber**.



Note: A physical link can be associated to only one **Dark Fiber**. However, the same **Dark Fiber** can be associated to many physical links.

See, “[Managing Dark Fibers](#)” (p. 1804), to know more about Dark Fibers.

Dark Fiber tab display

The navigation path from the main menu to dark fiber tab is as follows:

1. **OPERATE > Physical Connections**
2. Click **360° View** icon > **DARK FIBER**.

25.19 End Points Tab

What is an end point?

An *end point* is one end of a connection. The starting and ending points of a connection are distinguished in terms of FROM and TO end points.

End Points tab display

The **END POINTS** tab is displayed for the **Dashboard**, **SNC**, **Infrastructure**, and **Service objects** objects.

The navigation paths from the main menu to the **END POINTS** tab are as follows:

OPERATE > ASON > SNCs > 360° View > END POINTS

OPERATE > Dashboard > Alarmed ASON SNCs > 360° View > END POINTS

OPERATE > Infrastructure Connections > 360° View > END POINTS

OPERATE > Services > 360° View > END POINTS

End Points tab operations

Depending on the type of connection that is selected and its current state, the **END POINTS** tab displays a set of operations.

The following operations can be performed:

- Click the **Properties** icon to view the node properties.
- Click the **More**  icon and select **Equipment Manager**.

Common set of NFM-T GUI icons

This set of NFM-T GUI icons, which is located on top of the data table, is commonly displayed for the majority of the data tables:

- **Refresh**

Click the **Refresh** icon to update and refresh the viewing area.

- **Export to CSV File**

[26.6 “Export a Data Table to a .csv File” \(p. 2209\)](#)

- **Save Table Preferences**

[26.8 “Save data table preferences and reset data table preferences to default” \(p. 2218\)](#)

- **Reset Table Preferences to Default**

[26.8 “Save data table preferences and reset data table preferences to default” \(p. 2218\)](#)

React UI icons

For more information on the React UI icons and operations, see

- “[Data Tables - React](#)” (p. 2182)
- “[Screens icons](#)” (p. 2241)

25.20 ETH Physical Connections Tab

What is a physical connection?

A **physical connection** is a connection that uses wires, cables, or optical fibers to connect two physical ports in a network.

ETH Physical Connections tab display

The **ETH Physical Connections** tab is displayed for the **Nodes** object; when the object is a Node representing an external network.

The navigation paths from the main menu to the tab for ETH physical connections are as follows:

OPERATE > Nodes > ETH Physical Connections

You can navigate to the data table for **ETH Physical Connections** directly from the 360⁰ View window of a node that is an External Node representing an external network.

Selecting one of the physical connections, the navigation to the display window is possible by clicking the right button menu item **Explore**.

The common set of NFM-T GUI icons

This set of NFM-T GUI icons, which is located to the right of the object icons, is commonly displayed for the majority of the data tables:

- **Save Table Preferences**

[26.8 “Save data table preferences and reset data table preferences to default” \(p. 2218\)](#)

- **Reset Table Preferences to Default**

[“Reset table preferences to default icon” \(p. 2200\)](#)

- **Export to CSV File**

[26.6 “Export a Data Table to a .csv File” \(p. 2209\)](#)

- **Refresh**

Click the **Refresh** icon to update and refresh the viewing area.

25.21 LLDP Enabled Ports Tab

What is LLDP?

The *Link Layer Discovery Protocol (LLDP)* is a protocol that operates on the data link layer to exchange device information between directly connected devices. LLDP is enabled at the node level where client ports are configured with Ethernet signal rates. After LLDP is enabled, if any new card that supports LLDP is added to the node, then LLDP must be enabled again. The enabled LLDP ports are displayed at the node level.

LLDP Enabled Ports are viewed at **Node** level through the 360 degree view on the WebUI.

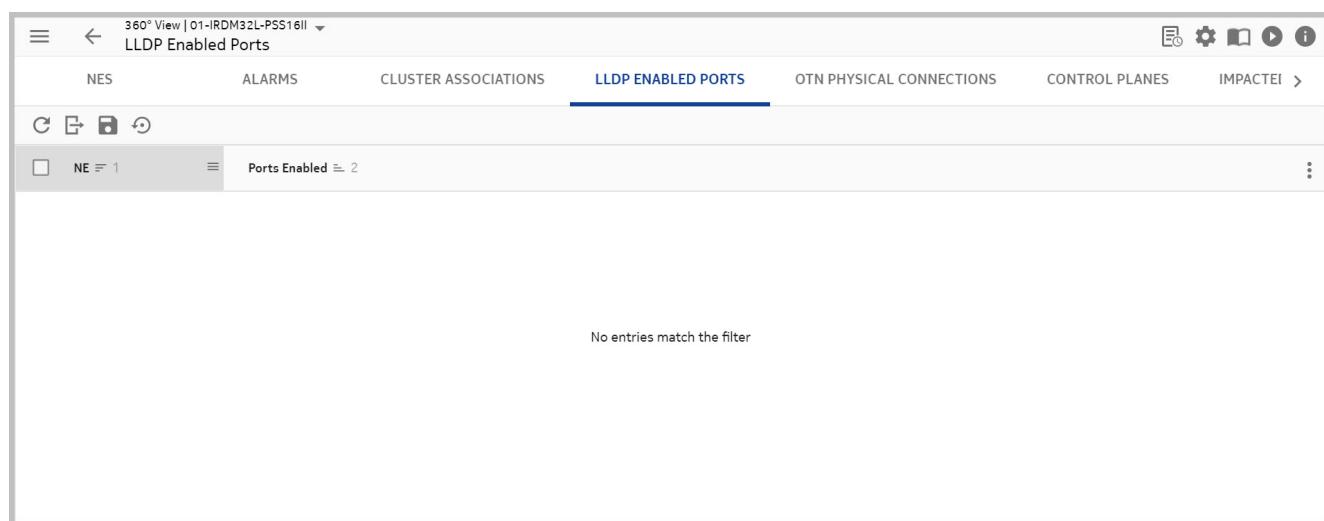
LLDP Enabled Ports tab display

The **LLDP Enabled Ports** tab is displayed for a node.

The navigation path to this tab is as follows:

OPERATE > Nodes > 360° View > LLDP Enabled Ports (tab)

Figure 25-36 LLDP Enabled Ports tab



The following parameters are displayed:

- **NE:** specifies the name of the node
- **Ports Enabled:** specifies the ports where LLDP is enabled on that particular Node/NE

The common set of NFM-T GUI icons

This set of NFM-T GUI icons, which is located to the right of the object icons, is commonly displayed for the majority of the data tables:

- **Save Table Preferences**

[26.8 “Save data table preferences and reset data table preferences to default” \(p. 2218\)](#)

- **Reset Table Preferences to Default**

[26.8 “Save data table preferences and reset data table preferences to default” \(p. 2218\)](#)

- **Export to CSV File**

[26.6 “Export a Data Table to a .csv File” \(p. 2209\)](#)

- **Refresh**

Click on the **Refresh** icon to update and refresh the viewing area.

- **Help**

Click on the **Help** icon to display information related to the current viewing area.

React UI icons

For more information on the React UI icons and operations, see

- [“Data Tables - React” \(p. 2182\)](#)
- [“Screens icons” \(p. 2241\)](#)

25.22 LLDP Parameters Tab

What is LLDP?

The *Link Layer Discovery Protocol (LLDP)* is a protocol that operates on the data link layer to exchange device information between directly connected devices. With LLDP, a device sends local device information to the directly connected devices. Local device information includes its system capabilities, management IP address, device ID, port ID, and so on.

LLDP parameters are supplied at **Node** level through the *Equipment Manager*, at **Ethernet Service** level through the NFM-T GUI.

LLDP Parameters tab display

The **LLDP Parameters** is displayed for an Ethernet service.

The navigation path to this tab is as follows:

OPERATE > Service > LLDP Parameters (tab)

The following parameters are displayed:

- **End Port:** specifies the ID of the receiving port
- **Destination MAC address:** MAC address to which the LLDP frame is forwarded
- **Chassis ID:** specifies the bridge MAC address of the sending device
- **Port ID:** specifies the ID of the sending port
- **System name:** specifies the assigned name of the sending device

For more information, refer to *Equipment Management* section of the NFM-T NE Management Guide.

The common set of NFM-T GUI icons

This set of NFM-T GUI icons, which is located to the right of the object icons, is commonly displayed for the majority of the data tables:

- **Save Table Preferences**

[26.8 “Save data table preferences and reset data table preferences to default” \(p. 2218\)](#)

- **Reset Table Preferences to Default**

[26.8 “Save data table preferences and reset data table preferences to default” \(p. 2218\)](#)

- **Export to CSV File**

[26.6 “Export a Data Table to a .csv File” \(p. 2209\)](#)

- **Refresh**

Click on the **Refresh** icon to update and refresh the viewing area.

React UI icons

For more information on the React UI icons and operations, see

- “[Data Tables - React](#)” (p. 2182)
- “[Screens icons](#)” (p. 2241)

25.23 Fiber Characteristics Tab

What are fiber characteristics?

Fiber characteristics are the parameters—such as fiber type and length, along with design measured span losses and maximum span losses, and minimum and maximum gain—that describe an OTS physical connection and port.

Fiber characteristics tab display

The **Fiber Characteristics** tab is displayed for **Dashboard** and **Physical Connections** objects, providing the physical connection is an OTS connection.

The navigation paths from the main menu to the **Fiber Characteristics** tab are as follows:

OPERATE > Dashboard > Alarmed Physical Connections > Fiber Characteristics

OPERATE > Physical Connections > OTN Physical Connections > Fiber Characteristics

i Note: The **OTS Fiber Characteristic** tab remains blank after an upgrade from R 14.0 to R 14.1 and the system displays an error message:

Fiber characteristics not available. Please execute port synchronization on end nodes.

For some OTS fiber characteristics limitations see [5.12 “OTS fiber characteristics limitations” \(p. 564\)](#)

Fiber Characteristics tab icon and/or right click actions

Other than the common set of NFM-T GUI icons, the **Fiber Characteristics** tab does not have any right click or icon actions.

The common set of NFM-T GUI icons

This set of NFM-T GUI icons, which is located to the right of the object icons, is commonly displayed for the majority of the data tables:

- **Save Table Preferences**

[26.8 “Save data table preferences and reset data table preferences to default” \(p. 2218\)](#)

- **Reset Table Preferences to Default**

[26.8 “Save data table preferences and reset data table preferences to default” \(p. 2218\)](#)

- **Export to CSV File**

[26.6 “Export a Data Table to a .csv File” \(p. 2209\)](#)

- **Refresh**

Click on the **Refresh** icon to update and refresh the viewing area.

React UI icons

For more information on the React UI icons and operations, refer

- “[Data Tables - React](#)” (p. 2182)
- “[Screens icons](#)” (p. 2241)

Fiber Characteristics Table Columns

Table 25-6 Fiber characteristics columns description

Columns	Description
From Port	The From Port column displays the name of the port from where the span starts.
To Port	The To Port column displays the name of the port from where the span ends.
Fiber Type	The Fiber Type column displays the type of the fiber. Value can be notConfigured, DSF, ELEAF, LS, SSMF, TWC, TW+, TWRS. See “ Fiber types ” (p. 2107)
Fiber Length	The Fiber Length column displays the length of the fiber span and is expressed in meters/yards.
Design Span Loss	The Design Span Loss column displays the designed value of the span loss for the fiber, is expressed in decibels.
Measured Span Loss	The Measured Span Loss column displays the measured value of the span loss for the fiber, is expressed in decibels.
Min Span Loss	The Min Span Loss column displays the minimum value of the span loss measured on the fiber, is expressed in decibels.
Max Span Loss	The Max Span Loss column displays the maximum value of the span loss measured on the fiber, is expressed in decibels.
Commissioned Span Loss	The Commissioned Span Loss column displays the initial value designed for the span loss of the fiber, the value is expressed in decibels.
Egress Min Gain	The Egress Min Gain column displays the minimum value gained in fiber egress, the value is expressed in decibels.
Egress Max Gain	The Egress Max Gain column displays the maximum value gained in fiber egress, the value is expressed in decibels.

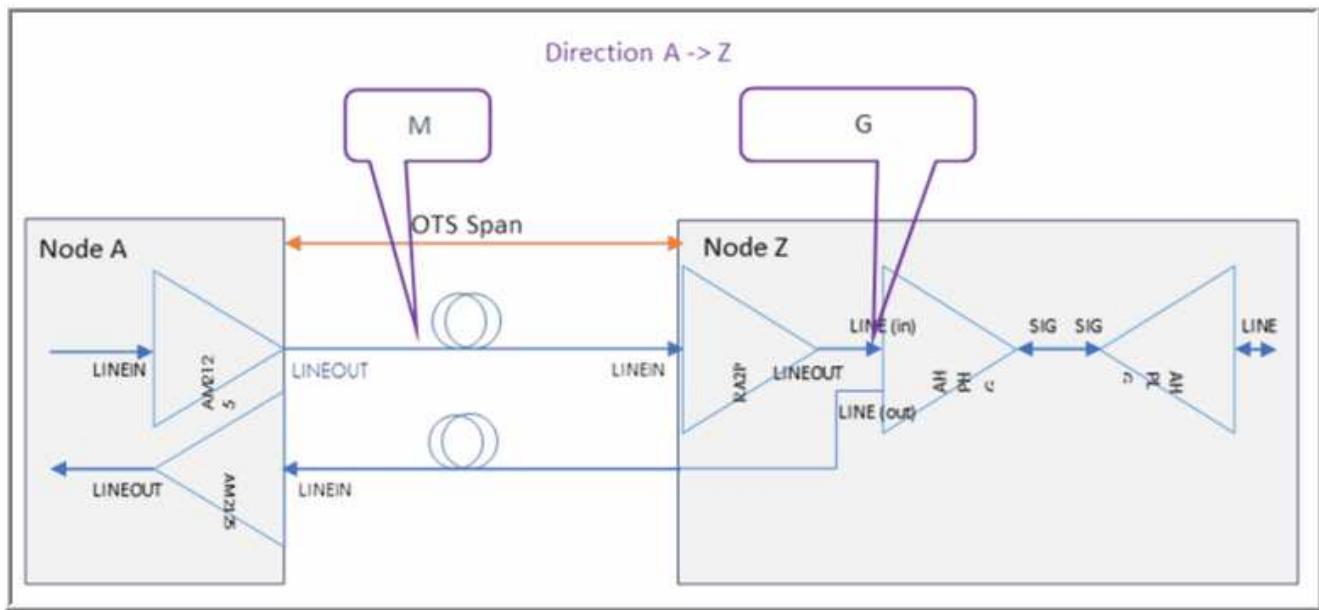
Span Loss

The fiber optic cable span loss measurement is performed on all fibers in a fiber optic cable span to determine total end-to-end fiber loss.

Deviation between Measured Span loss and Fiber Loss

A deviation is expected every time Raman is used in the OTS link, and approximately near to Raman gain. The measurements are between two different points.

Figure 25-37 Span loss and fiber loss



This is because Measured Span Loss (G) is read at EDFA following Raman. It includes the effect of the Raman gain and is not an accurate representation of the loss on the fiber.

Fiber loss measured in NFM-T tries to remove the effect of Raman gain. It tries to derive loss from Transmit egress till the Raman ingress (M), which is more accurate representation of the fiber loss. This difference is going to be near to the Raman Gain. Without Raman in the OTS link, both G and M are measured between the same points (EDFA ingress) and are so equivalent.

Fiber types

The different fiber are:

- DSF (Dispersion Shifted, G.653) - Intended for single channel operation at 1550 nm
- SSMF (Standard Singlemode Fiber, G.652)
- LEAF Large Effective Area Fiber
- Truewave Family (TWC, TW+, TWRS)

25.24 Impacted Connections Tab

What is an impacted connection?

An *impacted connection* can be a physical connection (**Physical Link**), an infrastructure connection (**Infrastructure** or **Logical Link**), or a service (**Service**) that is associated with a selected node or NE and its current operational and alarm state.

Impacted Connections tab display

The **Impacted Connections** tab is displayed for the **Nodes** and **NEs** object.

The navigation paths from the main menu to the **Impacted Connections** tab are as follows:

OPERATE > NEs > 360° View > IMPACTED CONNECTIONS

OPERATE > Nodes > 360° View > IMPACTED CONNECTIONS

Impacted Connections tab operations

Depending on the type of connection that is selected and its current state, the **Impacted Connections** tab has icons or right clicks for the following actions or functions:

- **Alarms**

See Enable the Alarm Profile of *NFM-T Service Assurance Guide*.

See Disable Alarm Reporting of *NFM-T Service Assurance Guide*.

- **Correlate ASAP**

See Correlate a Commissioned Connection to an ASAP of *NFM-T OTN Guide*.

See Correlate an OTN Physical Connection with an ASAP of *NFM-T OTN Guide*.

- **Correlate SRG**

See Correlate an OTN Physical Connection with an SRG of *NFM-T OTN Guide*.

- **Delete**

See Delete a Commissioned Connection of *NFM-T OTN Guide*.

See Delete an OTN Physical Connection of *NFM-T OTN Guide*.

- **Delete Connection and Clients**

See Delete a Commissioned Infrastructure and Clients of *NFM-T OTN Guide*.

See Delete the Clients of OTN Physical Connection of *NFM-T OTN Guide*.

- **Deployment Control**

See Implement/Deimplement an OTN Physical Connection of *NFM-T OTN Guide*.

See Configure the Service State of an OTN Physical Connection of *NFM-T OTN Guide*.

- **Disable Service State**

See Manage the Service State of Connection of *NFM-T OTN Guide*.

- **Display Route on Map**

Select the client, right click on or select the icon for **Display Route on Map** or go to View Tabbed Topics for an Infrastructure Connection or Service of *NFM-T OTN Guide* for details.

- **Enable Service State**

Manage the Service State of Connection of *NFM-T OTN Guide*.

- **Jobs** (for infrastructure connections and services only)

View Jobs for an Infrastructure Connection or Service of *NFM-T OTN Guide*.

- **Manage Protected Connection**

Manage protection groups (MSP/SNCP) for a Protected Connection of *NFM-T OTN Guide*.

- **Misalignment Report**

View a Misalignment Report for an OTN Physical Connection of *NFM-T OTN Guide*.

- **Modify Connection...**

Modify the Route (Reroute) of a Connection of *NFM-T OTN Guide*.

Manage Protection for a Connection of *NFM-T OTN Guide*.

- **Modify Parameters...**

Modify the Parameters of a Connection of *NFM-T OTN Guide*.

- **Modify PM**

Manage PM for a Connection in the *NFM-T Service Assurance Guide*.

Manage PM for an OTN Physical Connection in the *NFM-T Service Assurance Guide*.

- **NIM** (right click only for infrastructure connections)

Manage NIM for a Connection of *NFM-T OTN Guide*.

- **Optical Power** (only for physical connections)

Manage Optica IPower of an OTN OTS Connection of *NFM-T OTN Guide*.

- **OTDR** (right click only for physical connections)

Manage an OTDR Scan for an OTN OTS Physical Connection for *NFM-T OTN Guide*.

View Automatic triggering of the OTDR Scan for *NFM-T OTN Guide*

- **PKT Link over OTN** (right click only for service).

Select the client, right click on or select the icon for **PKT Link over OTN**. The system downloads the MS-GUI and displays the appropriate PKT link connection.

- **Routing Display**

Select the client, right click on or select the icon for **Routing Display** or go to View Various Route Displays for an Infrastructure Connection or Service of *NFM-T OTN Guide* for details.

- **TCM** (right click only for infrastructure connections)

Infrastructure Connections and Services for TCM of *NFM-T OTN Guide*.

The common set of NFM-T GUI icons

This set of NFM-T GUI icons, which is located to the right of the object icons, is commonly displayed for the majority of the data tables:

- **Auto Refresh**

Depending on the current refresh state, click **Start Auto Refresh** or **Stop Auto Refresh** to begin or end the automatic update and refresh of information that is displayed in the data table.

- **Save Table Preferences**

[26.8 “Save data table preferences and reset data table preferences to default” \(p. 2218\)](#)

- **Reset Table Preferences to Default**

[26.8 “Save data table preferences and reset data table preferences to default” \(p. 2218\)](#)

- **Export to CSV File**

[26.6 “Export a Data Table to a .csv File” \(p. 2209\)](#)

- **Refresh**

Click the **Refresh** icon to update and refresh the viewing area.

React UI icons

For more information on the React UI icons and operations, refer:

- [“Data Tables - React” \(p. 2182\)](#)
- [“Screens icons” \(p. 2241\)](#)

25.25 Infrastructures Connections Tab

What is an infrastructure connection?

An *infrastructure* is a connection that acts as a hierarchical server layer to carry customer services. Infrastructure connections can be unterminated or terminated connections.

Infrastructures are categorized on the NFM-T GUI (and are also known) as *infrastructure trails* and *logical links*.

An *infrastructure trail* is a terminated entity that can multiplex or demultiplex client signals. An infrastructure trail connects the interior, logical network ports that are adapted connections with one or more types of link connections.

A *logical link* is an unterminated entity that provides contiguous, fixed connectivity to the far end, which can be terminated or unterminated.

Infrastructure Connections tab display

The **Infrastructures Connections** tab is displayed for the **NEs**, **Nodes**, and **Wave Key Assignments** objects.

The navigation paths from the main menu to the **INFRASTRUCTURE CONNECTIONS** tab are as follows:

OPERATE > NEs > 360° View > INFRASTRUCTURE CONNECTIONS

OPERATE > Nodes > 360° View > INFRASTRUCTURE CONNECTIONS

OPERATE > Wave Key Assignments > [select Frequency] > INFRASTRUCTURE CONNECTIONS

Infrastructures Connections tab icons and More actions

Depending on the type of infrastructure connection (infrastructure or logical link) that is selected and its current state, the **Infrastructures Connections** tab has **More** options  for the following actions or functions:

- **Correlate ASAP**

See Correlate a Commissioned Connection to an ASAP of *NFM-T OTN Guide*.

- **Alarms**

See Enable the Alarm Profile of *NFM-T Service Assurance Guide*.

See Disable Alarm Reporting of *NFM-T Service Assurance Guide*.

- **Delete Connection**

See Delete a Commissioned Connection of *NFM-T OTN Guide*.

- **Delete Connection and Clients**

See Delete a Commissioned Infrastructure and Clients of *NFM-T OTN Guide*.

- **Deployment Control**

See Control the Deployment of a Connection of *NFM-T OTN Guide*.

- **Disable Service State**

See Manage the Service State of Connection of *NFM-T OTN Guide*.

- **Display on Map**

Select the connection and click the More icon connection to view the route on the Network Map.

See View Various Route Displays for an Infrastructure Connection or Service *NFM-T OTN Guide*.

- **Enable Service State**

See Manage the Service State of Connection of *NFM-T OTN Guide*.

- **Jobs**

See View Jobs for an Infrastructure Connection or Service of *NFM-T OTN Guide*.

- **Modify Connection...**

See Modify the Route (Reroute) of a Connection of *NFM-T OTN Guide*.

Manage Protection for a Connection of NFM-T OTN Guide

- **Modify Parameters...**

See Modify the Parameters of a Connection of *NFM-T OTN Guide*.

- **Modify PM**

See Manage PM for a Connection in the *NFM-T Service Assurance Guide*.

- **NIM**

See Manage NIM for a Connection of *NFM-T OTN Guide*.

- **Optical Power**

See View and Refresh Optical Power for an OTUk Infrastructure Connection of *NFM-T OTN Guide*.

Adjust the Optical Power of an OTUk Infrastructure Connection of NFM-T OTN Guide.

See Export the Optical Power of an OTUk Infrastructure Connection of *NFM-T OTN Guide*.

- **Routing Display**

See View Various Route Displays for an Infrastructure Connection or Service of *NFM-T OTN Guide* for details.

- **TCM**

See Infrastructure Connections and Services for TCM of NFM-T OTN Guide.

For more information, refer TCM Connections of *NFM-T OTN Guide*.

- **PM**

See View the Report Profile Association and Uncorrelate the PM Setting for a Connection in the *NFM-T Service Assurance Guide*

- **Create Network Data File**

See Create Network Data File of *NFM-T OTN Guide*.

- **Add Note**

See Manage Note for a Selected Object of *NFM-T OTN Guide*.

- **OA&M Diagnostics(Legacy)**

See Quick Help – The OA&M Diagnostics Window of *NFM-T OTN Guide*.

- **OLC State (Object Life Cycle)**

See Object Life Cycle (OLC) state of *NFM-T OTN Guide*.

- **Schedule ASON Reversion**

See Schedule the Revertive Switching for ASON Routed Connection of *NFM-T OTN Guide*.

- **Structure**
See View and Manage Structure of *NFM-T OTN Guide*.
- **Timeline**
See Manage Timeline of *NFM-T OTN Guide*.
- **Route Details**
See Routes Tab of *NFM-T OTN Guide*.
- **ASON SNC**
See ASON SNC Tab of *NFM-T OTN Guide*.
- **Clone Connection**
See Clone a connection of *NFM-T OTN Guide*.

The common set of NFM-T GUI icons

This set of NFM-T GUI icons, which is located at the top of the data table, is commonly displayed for the majority of the data tables:

- **Auto Refresh**

Click **Start Auto Refresh** or **Stop Auto Refresh** to begin or end the automatic update and refresh of information that is displayed in the data table.

- **Save Table Preferences**

[26.8 “Save data table preferences and reset data table preferences to default” \(p. 2218\)](#)

- **Reset Table Preferences to Default**

[26.8 “Save data table preferences and reset data table preferences to default” \(p. 2218\)](#)

- **Export to CSV File**

[26.6 “Export a Data Table to a .csv File” \(p. 2209\)](#)

- **Refresh**

Click the **Refresh** icon to update and refresh the viewing area.

React UI icons

For more information on the React UI icons and operations, refer:

- [“Data Tables - React” \(p. 2182\)](#)
- [“Screens icons” \(p. 2241\)](#)

25.26 Jobs Tab

What is a Job

A Job is an operation done on the NFM-T system. The system provides a Jobs list for infrastructure connections and their clients and servers and for services and their servers. The user can view jobs that are currently in progress or that have completed in the system.

Jobs tab display

The navigation path from the main menu to the Job tab is as follows: Operate > Jobs.

The Jobs tab has two panels: Details and Job Inventory.

Details

This panel displays the following Job data:

- **Name:** the name of the job. The name identifies the job type and includes also the job creation date, for example **REAL_INFRA_01 Mon Feb 13 10:00:00 IST 2017**. INFRA identifies an infrastructure connected job.
- **Description:** a description of the job.
- **Runs Executed:** number of the execution of this job.
- **Schedule:** If the job is scheduled for another date, the date is displayed.
- **Job Type:** the job type, for example OTN Infrastructure - Provisioning.

Job Inventory

The panel Job Inventory displays a table:

Column	Description
Task Name	Name of task, for example REAL_INFRA_01
Task Type	Type of the task, for example OTN Infrastructure - Provisioning
Description	<i>Optional:</i> Description of the Job

25.27 Internal Links Tab

What is an internal link?

An **internal link** is a connection within an NE. Refer the *Physical Connections* section for more information.

Internal Links tab display

The **Internal Links** tab is displayed from the **NE**, **Shelf**, **Card**, and **Port** objects.

The navigation path from the main menu to the Equipment Manager tree for the **Internal Links** tab is as follows:

OPERATE > Equipment Manager > Node > NE > Internal Links

OPERATE > Equipment Manager > Node > NE > Shelf > Internal Links

OPERATE > Equipment Manager > Node > NE > Shelf > Card > Internal Links

OPERATE > Equipment Manager > Node > NE > Shelf > Card > Port > Internal Links

For the 1830 PSS VWM NEs, the **Internal Links** tab is displayed from the following navigation path:

OPERATE > Nodes

Internal Links tab icons

Use the tree to navigate to the required NE, shelf, card, or port. You can also use the Search box that is above the tree to navigate. Expand the tree to access shelves and slots. Select the required object and click on the **Internal Links** tab.

The **Internal Links** tab helps to view the uni-directional and bi-directional physical connections within the NE. The icons on the right side are enabled when you select a PM enabled connection. If there are no internal links at the selected object-level, then no internal links are displayed.

Figure 25-38 Data Tables - Internal Links Tab

Connection Name	A-End TP	Z-End TP	Direction	Layer Rate	PM24H	PM15M
NE_250/OPS-6-2-B/SF...	OPS-6-2-B	SFD-6-8-9220	Bi-Directional	OS		
NE_250/SFD-6-8-9190...	SFD-6-8-9190	11QPA4B-6-13-L1	Uni-Directional	OS		
NE_250/MCS-6-5-AD2/...	MCS-6-5-AD2	OPS-6-2-A	Bi-Directional	OS		

You can select a link from the list and perform one of the following actions:

- **PM Enabled Points for PM Enabled Connection**
- **Modify PM params**



Note: If any of the cards do not have a connection, then the TL links do not support PM operations.

The common set of OTN NFM-T GUI icons

The following icons are commonly displayed for most of the panels on the top right corner:

- **Refresh**

Click the **Refresh** icon to update and refresh the viewing area.

- **Reset All Column Filters**

Click the **Reset All Column Filters** icon to reset all filters that are applied on the columns of the table displayed.

- **Help**

Click on the **Help** icon to display information related to the current viewing area.

25.28 Link Connections Tab

What is a link connection?

A *link connection*, which is sometimes abbreviated as an *LC*, is a connection that transports a client signal between the end ports of its serving connection. Link connections are also known as *channels*.

The NFM-T OTN network supports two types of link connections:

- *External link connections* are link connections from servers between two NEs.
- *Internal link connections* are link connections from servers (OS) that are internal to an NE (for example, link connection of an internal OS).

Link Connections tab display

The **Link Connections** tab is displayed for the **Dashboard**, **Infrastructure Connections**, **Looped Back Connections**, and **Physical Connections** objects.

The navigation paths from the main menu to the **Link Connections** tab are as follows:

OPERATE > Dashboard > Alarmed Physical Connections > Link Connections

OPERATE > Infrastructure Connections > Link Connections

OPERATE > Looped Back Connections > Link Connections

OPERATE > Physical Connections > OTN Physical Connections > Link Connections

The following table provides the column name and description for the columns in the **LINK CONNECTIONS** tab.

Table 25-7 LINK CONNECTIONS tab – Column and description

Column	Description
Center Frequency	The Center Frequency column displays the LCs in the current provisioning operation. The values displayed in this column are <i>Available</i> and <i>Invalid</i> .
Effective Rate	See 7.88 “OTN Protected Connections data columns” (p. 1098) .
Frequency	See 7.88 “OTN Protected Connections data columns” (p. 1098) .
From NE	The From NE column displays the NE from where the 2-ended connection originates.
From Node	The From Node column displays the Node from where the 2-ended connection originates.
From Port	The From Port column displays the Port from where the 2-ended connection originates.

Table 25-7 LINK CONNECTIONS tab – Column and description (continued)

Column	Description
In Use Connection	The In Use Connection column displays the link connection in use.
State	The State column displays the state of the link connection. The values displayed in this column are Available, Reserved, or Used in InEffect/Implemented.
To NE	The To NE column displays the NE where the 2-ended connection terminates.
To Node	The To Node column displays the Node where the 2-ended connection terminates.
To Port	The To Port column displays the Port where the 2-ended connection terminates.

Link Connections tab icon and/or right click actions

You can only view a data table that contains a list of link connections from the **Link Connections** tab. No right click action is allowed from the **Link Connections** tab for an alarmed physical connection, an OTN physical connection, an infrastructure connection, or a looped back connection.

The common set of NFM-T GUI icons

This set of NFM-T GUI icons, which is located to the right of the object icons, is commonly displayed for the majority of the data tables:

- **Auto Refresh**

For certain connection types only, click **Start Auto Refresh** or **Stop Auto Refresh** to begin or end the automatic update and refresh of information that is displayed in the data table.

- **Save Table Preferences**

[26.8 “Save data table preferences and reset data table preferences to default” \(p. 2218\)](#)

- **Reset Table Preferences to Default**

[26.8 “Save data table preferences and reset data table preferences to default” \(p. 2218\)](#)

- **Export to CSV File**

[26.6 “Export a Data Table to a .csv File” \(p. 2209\)](#)

- **Refresh**

Click on the **Refresh** icon to update and refresh the viewing area.

- **Help**

Click on the **Help** icon to display information related to the current viewing area.

React UI icons

For more information on the React UI icons and operations, see “[Data Tables - React](#)” (p. 2182).

25.29 Links Tab

What is a Link?

A *link*, which is also known as an ASON *Link*, is an I-NNI link or a physical drop link that is associated with a selected ASON NPA.

A *drop link* is an external OS connection that is assigned to an NPA in the Automatic Switched Optical Network (Control Plane, G.7718). A drop link connection is the link between the Managed Plane domain and the Control Plane domain.

An *I-NNI link*, which is an Internal-Network-to-Network Interface, is a link that is inside an ASON domain for OMS GMRE L0 and for OTU in GMRE L1.

Links tab display

The **LINKS** tab is displayed for the **NPA** object.

The navigation path from the main menu to the **LINKS** tab is as follows:

OPERATE > ASON > NPA > 360° View > LINKS

For MRN Tunnels, the **Client Links** tab is enabled. The navigation path from the main menu to the **CLIENT LINK** tab is as follows:

OPERATE > ASON > SNC > CLIENT LINK

LINKS tab More Options

The **LINKS** tab has the following **More** options  :

- **ASON Administrative State**

[10.27 “Set the ASON administrative state of links” \(p. 1504\).](#)

- **Add Links to ASON**

[10.15 “Add links and remove links from ASON” \(p. 1462\)](#)

- **Auto Restoration**

[10.20 “Enable or disable auto restoration of links” \(p. 1480\)](#)

- **Change ASON WRT**

[10.18 “Change ASON WTR” \(p. 1475\)](#)

- **Jobs**

Select the link and either right click and select **Jobs** or click the **Jobs** icon to display the current jobs for the selected link.

- **Link Maintenance**

[10.25 “Perform link maintenance” \(p. 1497\)](#)

- **Misalignment Report**

[10.14 “Access and view the misalignment report for a link” \(p. 1461\)](#)

Select the link, click **More** options  icon and select **Misalignment Report** to display the report for the selected link.

- **Remove Links from ASON**

[10.15 “Add links and remove links from ASON” \(p. 1462\)](#)

- **TE Link Assignment**

[10.17 “Assign an ASON I-NNI link to a TE Link and SRG” \(p. 1473\)](#)

The common set of NFM-T GUI icons

This set of NFM-T GUI icons, which is located to the left of the object icon, is commonly displayed for the majority of the data tables:

- **Save Table Preferences**

[26.8 “Save data table preferences and reset data table preferences to default” \(p. 2218\)](#)

- **Reset Table Preferences to Default**

[26.8 “Save data table preferences and reset data table preferences to default” \(p. 2218\)](#)

- **Export to CSV File**

[26.6 “Export a Data Table to a .csv File” \(p. 2209\)](#)

- **Refresh**

Click the **Refresh** icon to update and refresh the viewing area.

Need More Information

Need More Information, refer:

- [3.7 “ASON connection setup” \(p. 391\)](#)
- [3.8 “ASON protection and restoration” \(p. 394\)](#)
- [3.9 “Network setup in ASON” \(p. 404\)](#)
- [3.6 “ASON concepts applied in NFM-T” \(p. 379\)](#)
- [10.6 “ASON NPA” \(p. 1438\)](#)
- [10.32 “ASON SNC” \(p. 1521\)](#)

25.30 Nominal Route Problems Tab

What is a nominal route?

A *nominal route* is the initial route of a connection through the Automatic Switched Optical Network (Control Plane, G.7718). For optical connections, you would set up the nominal route in conjunction with the Engineering and Planning Tool (EPT) to establish an optimal route through the network. The route that a connection takes through the network is known as the *current route*. In most cases, the current route and the nominal route are the same. If a failure occurs, ASON reroutes traffic around the failure automatically and restores service.

So, a *nominal route problem* is a problem (an alarm severity type) that the system has detected on an **Implemented ASON subnetwork connection (SNC)** that is in the **Nominal Route**.

Nominal Route Problems tab display

The **Nominal Route Problems** tab is displayed for the **Dashboard** and **SNC** objects.

The navigation paths from the main menu to the **Nominal Route Problems** tab are as follows:

OPERATE > ASON > SNCs > Nominal Route Problems

OPERATE > Dashboard > Alarmed ASON SNCs > Nominal Route Problems

Nominal Route Problems tab icon and/or right click Table actions

Depending on the type of connection that is selected and its current state, the **Nominal Route Problems** tab only displays the common set of NFM-T GUI icons. No right click actions are allowed.

The common set of NFM-T GUI icons

This set of NFM-T GUI icons, which is located to the right of the object icons, is commonly displayed for the majority of the data tables:

- **Save Table Preferences**

[26.8 “Save data table preferences and reset data table preferences to default” \(p. 2218\)](#)

- **Reset Table Preferences to Default**

[26.8 “Save data table preferences and reset data table preferences to default” \(p. 2218\)](#)

- **Export to CSV File**

[26.6 “Export a Data Table to a .csv File” \(p. 2209\)](#)

- **Refresh**

Click on the **Refresh** icon to update and refresh the viewing area.

- **Help**

Click on the **Help** icon to display information related to the current viewing area.

25.31 Notes Tab

What is a note?

A Note allows users to add and share information about the operations performed on Nodes, NEs, Equipment Manager, Physical Connections, Infrastructure Connections, Protected Connections, Services, and Dark Fibers.

Notes tab display

The navigation path for this tab is:

OPERATE > Nodes > 360⁰View > NOTES

OPERATE > NEs > 360⁰ View > NOTES

OPERATE > Physical Connections > 360⁰ View > NOTES

OPERATE > Infrastructure Connections > 360⁰ View > NOTES

OPERATE > Protected Connections > 360⁰ View > NOTES

OPERATE > Services > 360⁰ View > NOTES

OPERATE > Dark Fibers > Notes

OPERATE > Equipment Manager

For more information, see [24.9 “Manage Note for a Selected Object” \(p. 2002\)](#).

Manage notes

You can add, modify, delete, and export a note to a .CSV file for a selected object. For more information on managing the notes, see [24.9 “Manage Note for a Selected Object” \(p. 2002\)](#).

The common set of NFM-T GUI icons

This set of NFM-T GUI icons, located to the right of the object icons, are commonly displayed for the majority of the data tables:

- **Save Table Preferences**

[26.8 “Save data table preferences and reset data table preferences to default” \(p. 2218\)](#)

- **Reset Table Preferences to Default**

[26.8 “Save data table preferences and reset data table preferences to default” \(p. 2218\)](#)

- **Export to CSV File**

[26.6 “Export a Data Table to a .csv File” \(p. 2209\)](#)

- **Refresh**

Click **Refresh** icon to update and refresh the viewing area.

- **Help**

Click **Help** icon to display information related to the current viewing area.

React UI icons

For more information on the React UI icons and operations, see

- “[Data Tables - React](#)” (p. 2182)
- “[Screens icons](#)” (p. 2241)

25.32 OLP Tab

What is an OLP?

Optical Line Protection (OLP) system increase the stability and reliability of the optical network avoiding the problems related to optical fiber faults and line interruption.

OLP tab display

The **OLP** tab is displayed in OTN Physical Connection objects.

The navigation path for OLP tab is:

OPERATE > Physical Connections > 360° view > OTN Physical Connections

OLP tab icon and/or right click actions

You can only view the internal OTS and external OTS from the OLP tab. Other than the common set of WebUI icons, the OLP tab does not have any right click or icon actions.

The common set of NFM-T GUI icons

This set of NFM-T GUI icons, which is located to the right of the object icons, is commonly displayed for the majority of the data tables:

- **Save Table Preferences**

[26.8 “Save data table preferences and reset data table preferences to default” \(p. 2218\)](#)

- **Reset Table Preferences to Default**

[26.8 “Save data table preferences and reset data table preferences to default” \(p. 2218\)](#)

- **Export to CSV File**

[26.6 “Export a Data Table to a .csv File” \(p. 2209\)](#)

- **Refresh**

Click on the **Refresh** icon to update and refresh the viewing area.

- **Help**

Click on the **Help** icon to display information related to the current viewing area.

React UI icons

For more information on the React UI icons and operations, see

- [“Data Tables - React” \(p. 2182\)](#)
- [“Screens icons” \(p. 2241\)](#)

25.33 OTN Physical Connections Tab

What is a physical connection?

A *physical connection* is a connection that uses wires, cables, or optical fibers to connect two physical ports in a network.

OTN Physical Connections tab display

The **OTN Physical Connections** tab is displayed for the **Nodes** object; the **PHYSICAL CONNECTIONS** tab is displayed for the **SHARED RISK GROUPS** object. Both tabs display the same information and the same icon and right click functions.

The navigation paths from the main menu to the tab for OTN physical connections are as follows:

OPERATE > Network Profiles > SHARED RISK GROUPS > PHYSICAL CONNECTIONS

OPERATE > Nodes > OTN Physical Connections

Note:

You can navigate to the data table for **OTN Physical Connections/Physical Connections** directly from the **OPERATE > Physical Connections > OTN** navigation path and perform the same icon and right click functions and actions as you would from the **OPERATE > Network Profiles > SHARED RISK GROUPS > PHYSICAL CONNECTIONS** and **OPERATE > Nodes > OTN Physical Connections** navigation paths.

OTN Physical Connections tab operations

Depending on the physical connection that is selected and its current state, both the **OTN Physical Connections** and **PHYSICAL CONNECTIONS** tabs have icons and right clicks for the following actions or functions:

- **Add**

See Quick Help – The Create Physical Connection Window in *NFM-T OTN Guide*.

See Create an OTN Physical Connection section in *NFM-T OTN Guide*.

- **Correlate ASAP**

See Correlate an OTN Physical Connection with an ASAP in *NFM-T OTN Guide*.

- **Correlate SRG**

See Correlate an OTN Physical Connection with an SRG in *NFM-T OTN Guide*.

See Correlate an SRG with a Physical Connection in *NFM-T OTN Guide*.

- **Deployment Control**

See Implement/Deimplement an OTN Physical Connection in *NFM-T OTN Guide*.

Configure the Service State of an OTN Physical Connection in *NFM-T OTN Guide*.

- **Delete**

See Delete an OTN Physical Connection in *NFM-T OTN Guide*.

- **Misalignment Report**

See View a Misalignment Report for an OTN Physical Connection in *NFM-T OTN Guide*.

- **Modify Labels**

See Modify the Label of an OTN Physical Connection or/and of its Port on an ENE in *NFM-T OTN Guide*.

- **Modify PM**

See Manage PM for an OTN Physical Connection in the *NFM-T Service Assurance Guide*.

- **Optical Power**

See *View the Optical Power of an OTS Connection* of Manage Optical Power of an OTN OTS Connection in the *NFM-TOTN Guide*.

See *Adjust the Optical Power of an OTN OTS Connection* of Manage Optical Power of an OTN OTS Connection in the *NFM-T OTN Guide*.

See *Export the Optical Power for an OTN OTS Physical Connection to Excel* of Manage Optical Power of an OTN OTS Connection in the *NFM-T OTN Guide*.

See *View and Refresh the Optical Power for the Client of an OTN OTS Connection* of Manage Optical Power of an OTN OTS Connection in the *NFM-T OTN Guide*.

- **Routing Display**

Click on the Routing Display icon on the connection row to see its Routing Display window. See *View the Routing Display of a selected connection* in the *NFM-T OTN Guide*.

The common set of NFM-T GUI icons

This set of NFM-T GUI icons, which is located to the right of the object icons, is commonly displayed for the majority of the data tables:

- **Save Table Preferences**

[26.8 “Save data table preferences and reset data table preferences to default” \(p. 2218\)](#)

- **Reset Table Preferences to Default**

“Reset table preferences to default icon” (p. 2200)

- **Export to CSV File**

[26.6 “Export a Data Table to a .csv File” \(p. 2209\)](#)

- **Refresh**

Click on the **Refresh** icon to update and refresh the viewing area.

- **Help**

Click on the **Help** icon to display information related to the current viewing area.

25.34 Optical Intrusion Tab

What is Optical Intrusion?

An **optical intrusion** is an intrusion to the line fiber. This tab is used to clear the Optical Intrusion alarm.

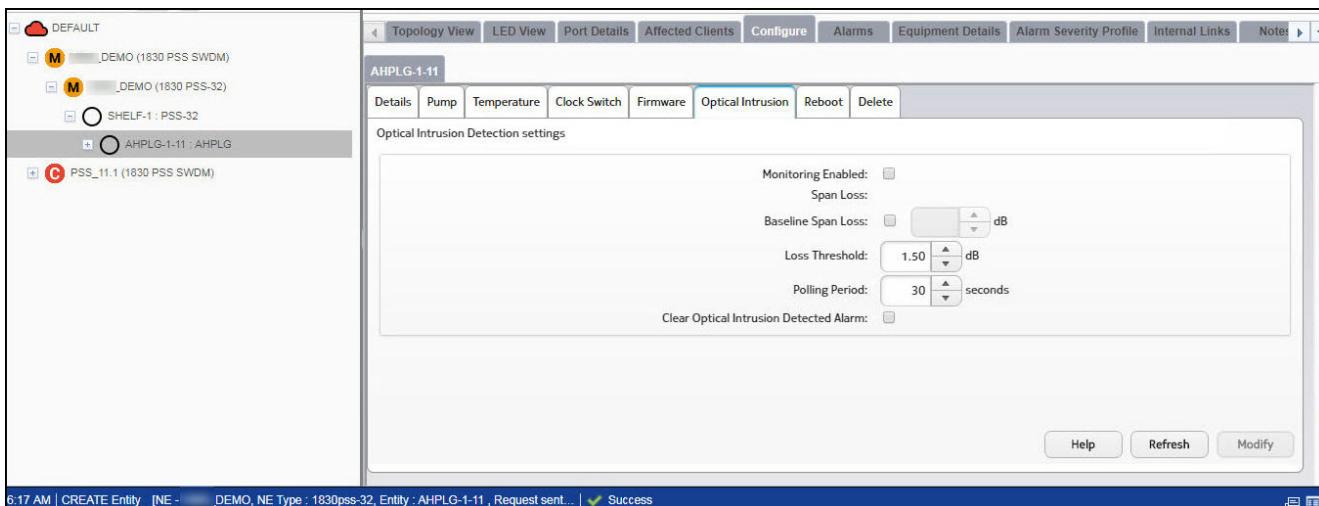
Optical Intrusion tab display

The **Optical Intrusion** tab is displayed for A2325A, AHPHG, AHPLG, ALPHG, AM2032A, AM2125A, AM2125B, AM2318A, AM2625A, IPREAMP, and OSCT cards.

The navigation path from the main menu to the Optical Intrusion tab is as follows:

OPERATE > Equipment Manager > Configure > Optical Intrusion > Optical Intrusion Detection settings.

Figure 25-39 Optical Intrusion tab



The common set of NFM-T GUI icons

This set of NFM-T GUI icons, which is located to the right of the object icons, is commonly displayed for the majority of the data tables:

- **Refresh**

Click on the **Refresh** icon to update and refresh the viewing area.

- **Help**

Click on the **Help** icon to display information related to the current viewing area.

React UI icons

For more information on the React UI icons and operations, see

- “[Data Tables - React](#)” (p. 2182)
- “[Screens icons](#)” (p. 2241)

25.35 OTDR Profiles Tab

OTDR Profiles

OTDR profiles help schedule an OTDR scan with defined parameters. The profiles are applicable only at the NE level for NEs R12.0 onwards. NFM-T provides two types of OTDR profiles: standard profiles and custom profiles.

The OTDR profiles for different packs are:

- For an OTDR/OTDRWB pack, there are six standard profiles and three custom profiles.
- For an OTDRM pack, there are four standard profiles and three custom profiles.

For NEs prior to R12.0, in OTDR scan profile, four standard profiles (**PROFILE1**, **PROFILE2**, **PROFILE3** and **PROFILE4**) and one custom profile **None** also, known as Legacy custom profile is supported. Legacy custom profile is applicable at port level and cannot be used across ports of other OTS links in that NE.

Baseline and Troubleshoot scan always use the standard profiles by default and is capable of finding the fiber length for most of the scenarios. There are cases where fiber lengths are greater than 100 km and NFM-T reports EOF_KEY_NOT_FOUND after the Baseline or Troubleshoot scans. For such cases, you can perform OTDR scan using the custom profiles which have the capability to scan 260 km fiber length and also you can tune some of the parameters to perform the deep scan. This will increase the possibility of determining the fiber length in adverse scenarios. Current known issue with NFM-T is that, NFM-T will not be able to store these custom settings in the Database. Therefore, set the custom settings each time whenever a scan needs to be performed using the custom profile. To use the Custom profile, use the option **OTDR > Baseline/Troubleshoot > Schedule option**.

During OTDR Baseline scan, there is a possibility that OTDR scan result (.sor) file will not have an end of fiber key event. Hence fiber length cannot be determined.

As a best effort, NFM-T performs the following action when EOF_KEY_NOT_FOUND issue is encountered:

1. If EOF_KEY_NOT_FOUND issue is encountered for the first scan, then NFM-T will select another standard profile and retry OTDR scan on that port till either one of the following:
 - retry scan is successful to determine the fiber length
 - all standard profiles are tried and have failed with EOF_KEY_NOT_FOUND
 - scan fails with some other error
2. If the EOF_KEY_NOT_FOUND issue is encountered in subsequent scans, then NFM-T will consider the previous successful scan for determining the fiber length.

Manage OTDR profiles

Perform the following steps to view and manage the OTDR Profiles:

1

—
Navigate to **OPERATE > NEs**.

Result: The system displays a data table that lists all the NEs.

2

Select the required NE from the list, click the corresponding 360° View  icon.

Result: The 360° View tab for the NE is displayed.

3

Navigate to the **OTDR PROFILES** tab.

Result: The standard OTDR profiles for the NE are displayed.

The following parameters for each profile is displayed:

- Pack Name
- Profile ID
- Description
- Pulse Length (ns)
- Range (km)
- Resolution (m)
- Averaging Time (mm:ss)
- Event Threshold
- IOR
- Last Updated

Figure 25-40 Standard OTDR profiles

The screenshot shows a software interface titled "Otdr Profiles". At the top, there are tabs for "ALARMS", "CLUSTER ASSOCIATIONS", "PROPERTIES", "OTDR PROFILES" (which is currently selected), and "NOTES". Below the tabs is a toolbar with icons for search, refresh, and other functions. The main area is a table with columns: "Pack Name", "Profile ID", "Description", "Pulse Length (ns)", "Range (km)", "Resolution (m)", "Averaging Tim...", and a "More" icon. There are 10 rows of data, each representing a different OTDR profile. The last row shows a status bar with "Last Update 14:13:12 GMT+0530 (India Standard Time)" and "Total: 10".

Pack Name	Profile ID	Description	Pulse Length (ns)	Range (km)	Resolution (m)	Averaging Tim...	More
OTDRM	1	160 Km scan	3000	120	20	3:0	
OTDRM	2	80 Km scan	1000	80	10	3:0	
OTDRM	3	40 Km scan	100	40	2	3:0	
OTDRM	4	10 Km scan	30	10	1	3:0	
OTDR	1	260 Km scan	10000	260	10	3:0	
OTDR	2	160 Km scan	3000	160	5	3:0	
OTDR	3	80 Km scan	1000	80	2.5	3:0	
OTDR	4	40 Km scan	100	40	0.64	3:0	
OTDR	5	20 Km scan	30	20	0.32	3:0	
OTDR	6	10 Km scan	10	10	0.16	3:0	

To fetch custom profiles from NE

4

Note: To view the custom profiles, perform a synchronization activity to fetch profiles from NE.

Hover over the rows in the profile list, click the **More** options icon on any of the rows.

Result: The available options **ProfileSync** and **Jobs** are displayed.

5

Click **ProfileSync**. This fetches the custom profiles from the NE.

Result: The three custom profiles for OTDR/OTDRWB pack and three custom profiles for OTDRM pack are displayed. The status bar displays the success message of the synchronization.

The custom profiles can be edited and saved for use in the OTDR scan.

Figure 25-41 Custom profiles

Pack Name	Profile ID	Description	Pulse Length (ns)	Range (km)	More options
OTDRM	6	Custom profile	3000	120	
OTDRM	7	Custom profile	3000	120	
OTDR	1	260 Km scan	10000	260	
OTDR	2	160 Km scan	3000	160	
OTDR	3	80 Km scan	1000	80	
OTDR	4	40 Km scan	100	40	
OTDR	5	20 Km scan	30	20	
OTDR	6	10 Km scan	10	10	
OTDR	7	Custom profile	20000	260	
OTDR	8	Custom profile	20000	260	
OTDR	9	Custom profile	20000	260	

To edit custom profiles

6

Click the **More options** icon corresponding to the custom profile.

Result: The available options **Edit**, **ProfileSync**, and **Jobs** are displayed.

7

Click **Edit**.

Result: The **Edit** window is displayed.

8

Modify the **Description**, **Pulse Length (ns)**, **Range (km)**, **Resolution (m)**, **Averaging Time (mm:ss)**, and **Event Threshold** as required and click **OK**.

Result: The custom profile is updated with the modified values.

To verify the job status

9

Click the **More** options  icon corresponding to the custom profile.

Result: The available options **Edit**, **ProfileSync**, and **Jobs** are displayed.

10

Click **Jobs**.

Result: The **Jobs** window displays the status of the operation (Profile Sync or Edit) performed.

For more information on jobs and for the detailed tasks that are related to jobs, see *Operate – Jobs* section of Design, deploy and operate connections in NFM-T OTN Guide.

END OF STEPS

React UI icons

For more information on the React UI icons and operations, refer:

- “[Data Tables - React](#)” (p. 2182)
- “[Screens icons](#)” (p. 2241)

25.36 PM Enabled Points Tab

What is a PM enabled point?

A *PM enabled point* is the termination point (near or far end) of a service, infrastructure connection, or physical connection in which performance monitoring has been enabled and is being recorded for monitoring. Data displayed for PM enabled points includes identification of the PM enabled point by node/NE/port labels along with the granularity of the monitoring, the monitored rate, the layer rate, NML/NE threshold crossing alerts (TCAs), and other data.

From R19.9 **TP Label** is identified with the port name.

PM Enabled Points tab display

The **PM Enabled Points** tab is displayed for the **Dashboard**, **Infrastructure Connections**, **Looped Back Connections**, **Physical Connections**, and **Services** objects.

The navigation paths from the main menu to the **PM Enabled Points** tab are as follows:

Operate > Dashboard > Alarmed Connections > 360° View > PM Enabled Points
Operate > Dashboard > Alarmed Physical Connections > 360° View > PM Enabled Points
Operate > Dashboard > Pending Connections > 360° View > PM Enabled Points
Operate > Infrastructure Connections > 360° View > PM Enabled Points
Operate > Loopback Connections > 360° View > PM Enabled Points
Operate > Physical Connections > OTN Physical Connections > 360° View > PM Enabled Points
Operate > Services > 360° View > PM Enabled Points

PM Enabled Points tab Alarmed Connections, Infrastructure Connections, Loopback Connections, Pending Connections, and Services

Depending on the type of connection that is selected and its current state, the **PM Enabled Points** tab has options for the following actions or functions:

- **Alarms**

["Task: Enable Alarm Profile" \(p. 932\)](#)

- **Correlate ASAP** (right click only)

["Task: Correlate a commissioned connection to an ASAP" \(p. 925\)](#)

- **Delete Connection**

[7.51 "Delete a commissioned connection" \(p. 919\)](#)

- **Delete Connection and Clients** (for infrastructures only)

[7.52 "Delete a commissioned infrastructure and clients" \(p. 922\)](#)

- **Deployment Control**

[7.49 "Control the deployment of a connection" \(p. 915\)](#)

- **Disable Service State** (right click only)

[7.60 “Manage the service state of connection” \(p. 975\)](#)

- **Display Route on Map**

Right click on the connection to view it on the Network Map or go to [7.76 “View tabbed topics for an infrastructure connection or service” \(p. 1032\)](#) for details.

- **Enable Service State** (right click only)

[7.60 “Manage the service state of connection” \(p. 975\)](#)

- **Jobs**

[7.71 “View Jobs for an infrastructure connection or service” \(p. 1016\)](#)

- **Modify Connection...**

[7.63 “Modify Route \(Reroute\) of a connection” \(p. 987\)](#)

[7.58 “Manage protection for a connection in Managed Plane and Control Plane” \(p. 960\)](#)

- **Modify Parameters...**

[7.62 “Modify the parameters of a connection” \(p. 981\)](#)

- **Modify PM** (right click only)

Manage PM for a Connection in the *NFM-T Service Assurance Guide*

- **NIM** (right click only)

[7.57 “Manage NIM for a connection” \(p. 954\)](#)

- **Optical Power** (for infrastructures only)

[“Task: View and Refresh Optical Power for an OTUk Infrastructure Connection” \(p. 1868\)](#)

[“Task: Adjust the optical power of an OTUk infrastructure connection” \(p. 1877\)](#)

[“Task: Export the optical power of an OTUk infrastructure connection” \(p. 1875\)](#)

- **PKT Link Over OTN** (for services only)

Right click on the connection to view it on the MS-GUI.

- **Routing Display**

Right click on the connection to view its Routing Display or go to [7.77 “View various route displays for an infrastructure connection or service” \(p. 1036\)](#) for details.

- **TCM** (right click only)

[7.93 “Create TCM in Control Plane and Managed Plane connections” \(p. 1117\)](#)

[7.94 “Create TCM in Mixed Plane connection” \(p. 1120\)](#)

[7.97 “TCM TPs from the NE” \(p. 1130\)](#)

For more information, refer [2.28 “TCM connections” \(p. 268\)](#)

PM Enabled Points tab for Alarmed Physical Connections and OTN Physical Connections

Depending on the physical connection that is selected and its current state, the **PM Enabled Points** tab has options for the following actions or functions:

- **Correlate ASAP** o(right click only)

[7.29 “Correlate an OTN physical connection with an ASAP” \(p. 830\)](#)

- **Correlate SRG**

[7.28 “Correlate an OTN physical connection with an SRG” \(p. 827\)](#)

[6.6 “Correlate a SRG with a Physical Connection” \(p. 610\)](#)

- **Deployment Control**

[7.31 “Implement/Deimplement an OTN physical connection” \(p. 835\)](#)

[7.26 “Configure the service state of an OTN physical connection” \(p. 822\)](#)

- **Delete Connection**

[7.22 “Delete an OTN physical connection” \(p. 813\)](#)

- **Delete Connection with Clients**

Select the client, right click on or select the icon for **Delete Connection with Clients** and continue to follow system prompts to delete the client.

- **Misalignment Report** (right click only)

[7.40 “View a misalignment report for an OTN physical connection” \(p. 886\)](#)

- **Modify Labels**

[7.39 “Rename an OTN physical connection or/and of its port on an ENE” \(p. 884\)](#)

- **Modify PM** (right click only)

Manage PM for an OTN Physical Connection in the *NFM-T Service Assurance Guide*.

- **Optical Power**

[“Task: View the Optical Power of an OTS Connection” \(p. 1846\)](#)

[“Task: Adjust the Optical Power of an OTN OTS Connection” \(p. 1852\)](#)

[“Task: Export the Optical Power for an OTN OTS Physical Connection to Excel” \(p. 1856\)](#)

[“Task: View and refresh the optical power for the client of an OTN OTS connection” \(p. 1849\)](#)

- **Routing Display...** (right click only)

[“Task: Display a connection on the Routing Display” \(p. 1042\)](#)

The common set of NFM-T GUI icons

This set of NFM-T GUI icons on the top of the data table, is commonly displayed for the majority of the data tables:

- **Save Table Preferences**

[26.8 “Save data table preferences and reset data table preferences to default” \(p. 2218\)](#)

• **Reset Table Preferences to Default**

[26.8 “Save data table preferences and reset data table preferences to default” \(p. 2218\)](#)

• **Export to CSV File**

[26.6 “Export a Data Table to a .csv File” \(p. 2209\)](#)

• **Refresh**

Click on the **Refresh** icon to update and refresh the viewing area.

25.37 PGs Tab

What are PGs?

PGs are *protection groups*, which, for a selected protected connection, include the association of the switch end and active route, the switch reason and request, along with the working, active, and protection ports. Protection switching is performed only within an established protection group. When a protection group does not exist, protection switching does not occur.

PGs tab display

The **PGs** tab is displayed from the **Protected Connections** object.

The navigation path from the main menu to the PGs tab is as follows:

Operate > Protected Connections > 360° view > PGS

The common set of NFM-T GUI icons

A set of NFM-T GUI icons on the top of the data table is commonly displayed for the majority of the data tables:

The icons are:

- **Refresh**
Click on the **Refresh** icon to update and refresh the viewing area.
- **Export to CSV File**
[26.6 "Export a Data Table to a .csv File" \(p. 2209\)](#)
- **Save Table Preferences**
[26.8 "Save data table preferences and reset data table preferences to default" \(p. 2218\)](#)
- **Reset Table Preferences to Default**
[26.8 "Save data table preferences and reset data table preferences to default" \(p. 2218\)](#)

React UI icons

For more information on the React UI icons and operations, see

- ["Data Tables - React" \(p. 2182\)](#)
- ["Screens icons" \(p. 2241\)](#)

25.38 Protection Tab

What is a protection and a protected connection?

Protection is an optical networking Fault Management feature that provides reliable communication if a route failure occurs.

A *protected connection* is an infrastructure connection or service connection that has been assigned the **Protection Level** of **Protected** or **Segment Protected**.

PROTECTION tab display

The **PROTECTION** tab is displayed for the Protected Connections object. The navigation path from the main menu to the **PROTECTION** tab is as follows:

Operate > Protected Connections > 360⁰ view > PROTECTION

Operations on PROTECTION tab

PROTECTION tab does not have any icons or supported operations.

For more information

For more information, refer:

- “Protected Connections” topic in NFM-T OTN Guide
- “View Protected Connections” topic in NFM-T OTN Guide
- “OTN Protected Connections Data Column” topic in NFM-T OTN Guide
- “Perform Synchronize Switch Position” topic in NFM-T OTN Guide

25.39 Properties Tab

What are properties?

Properties are the attributes, qualities, or characteristics of an object in the NFM-T Platform, such as an NE, node, subnetwork connection, physical connection, network profile, or network protection architecture.

Properties tab display

The **Properties** tab is displayed for the **ASON**, **Dashboard**, **NEs**, **Nodes**, **Network Profiles**, and the **OTN Physical Connection** objects.

The navigation path from the main menu to the **Properties** tab is as follows:

OPERATE> ASON > NPAs > 360° View > PROPERTIES

OPERATE > ASON > SNCs > 360° View > PROPERTIES

OPERATE > Dashboard > Alarmed ASON SNCs > PROPERTIES

OPERATE > Dashboard > Alarmed Physical Connections > 360° View > PROPERTIES

OPERATE > NEs > 360° View > PROPERTIES

OPERATE > Nodes > PROPERTIES

OPERATE > Network Profiles > Alarm Profiles > 360° View > PROPERTIES

OPERATE > Network Profiles > Color Profiles > 360° View > PROPERTIES

OPERATE > Network Profiles > Shared Risk Groups > 360° View > PROPERTIES

OPERATE > Physical Connections > OTN Physical Connections > 360° View > PROPERTIES

Operations on Properties tab

The **Properties** tab does not have any icon other than the **OK** icon, which you can use to save the data that is currently displayed in the **Properties** tab for the object that you selected.

25.40 Private Tunnel Tab

What is Private Tunnel

This tab support the synchronization of switched connection and ODU private tunnels from GMRE.

This tab is enabled for switched connections.

GMRE provides back the SNC type Switched connection with related information (end-to-end from UNI-C ENE to UNI-C ENE) plus the ODU SNC type Private Tunnel.

As GMRE does not provides notification for ODU Private tunnel parameters modification following Client Router Switched Connection modification requests, this Synchronize command allows the user to resynchronize also ODU tunnel parameters.

ODU private tunnel is the ODU ASON SNC and GMRE provides event notifications for changes to the LSP parameters. ASON will automatically synchronize the changes. Synchronization command is required as a recovery mechanism if events are lost or some action due to which GMRE and ASON are not in synchronization.

Private Tunnel Display

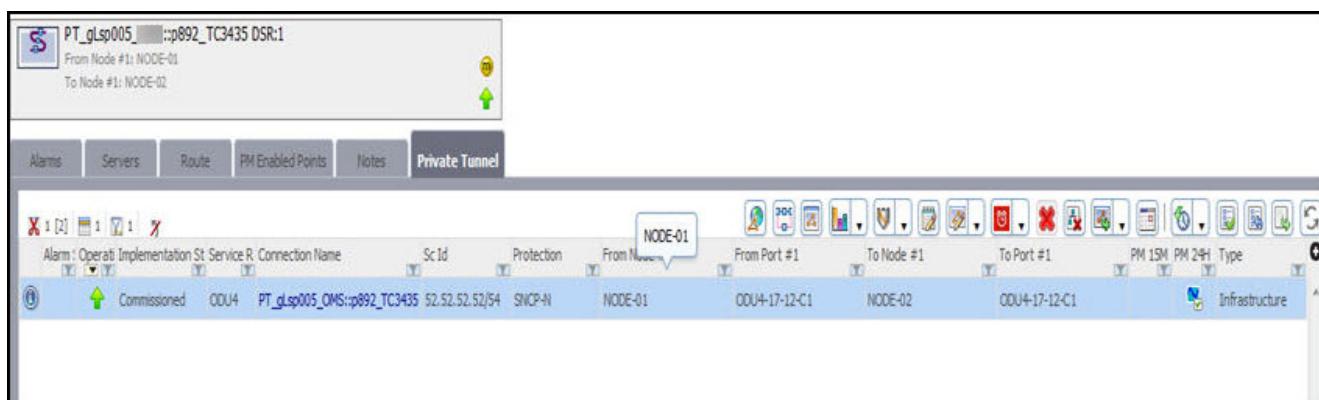
The navigation paths from the main menu to the **Private Tunnel** tab is as follows:

Operate > Services

Select a service of switched connection type. The system displays the Private Tunnel tab.

This tab is populated with Switched Connection parameters.

Figure 25-42 Private Tunnel Tab



Select a private tunnel and right click. For more details on the right click actions of the tunnels, see Table 10-12, "Deployment Control for Infrastructure Connections and Services" in NFM-T OTN Guide.

25.41 Repeaters Tab

Repeaters tab display

The **Repeaters** tab is displayed for the **Dashboard** and **Physical Connections** objects, providing a physical connection on an 1830 SLTE or 1830 LX or 1830 LX OSC-WC or GenericNE_RedC is present in the system.

The navigation path from the main menu to the **Repeaters** tab is as follows:

OPERATE > Physical Connections > 360° View > REPEATERS

1830 SLTE

The 1830 SLTE, which is an external, stand-alone NE, is used to maintain constant output power for subsea repeaters, regardless of the incoming channel number on the submarine cable. The 1830 SLTE, which can be connected to 1830 PSS-32 and 1830 PSS-16 NEs, is placed between the 1830 PSS line (after the amplifiers) and the submarine section. The 1830 PSS SLTE can connect multiple 1830 PSS nodes to the same submarine section. Unlike other NEs, the NFM-T Platform does not auto discover the 1830 SLTE; however, it is treated as a managed node with limited capabilities.

1830 LX

The 1830 LX, *1830 Link eXtender*, is a standalone NE that functions as a repeater. The 1830 LX can be provisioned in Managed Plane and Control Plane configurations for submarine or for long haul terrestrial applications in conjunction with 1830 PSS-32 NEs in DWDM networks.

1830 LX OSC-WC

The 1830 LX OSC-WC (Optical Supervisory Channel Wavelength Converter), is a new 1830 LX box that is used to extend the reach of 1830 PSS OSC in 1830 LX applications. 1830 LX OSC-WC is the same as other 1830 LX boxes, and has its own IP address. 1830 LX OSC-WC is a bi-directional box.

GenericNE_RedC?

RA3P is a Raman pump (for example, an external Raman amplifier). RA3P NE is managed as a generic NE in NFM-T. It is an UltraSpan Raman 3-pump counter propagating Raman amplifier provided by the RED-C Optical Networking company. It is similar to RA2P-96 (or RA2P, RA4P); a uni-directional Raman amplifier. RA3P functions as a repeater.

Repeaters tab operations

Repeaters tab displays the following fields:

- Properties: additional information of the repeater is displayed by clicking the information icon.
- Port Label: the label of the port.
- Direction: Direction of the NE. For 1830 SLTE and GenericNE_RedC, the icon shows uni-directional. For 1830 LX and 1830 LX OSC-WC, the icon shows bi-directional.
- Repeater label: Label of the repeater selected.

-
- Node Type: Type of node-1830 SLTE or 1830 LX or 1830 LX OSC-WC or GenericNE_RedC
 - ID: ID of the repeater.

The **REPEATERS** tab has a function for **Equipment Manager**. Select the connection, right click on or select the icon for **Equipment Manager** to display the connection in the Equipment Manager.

The common set of NFM-T GUI icons

This set of NFM-T GUI icons, which is located to the right of the object icons, is commonly displayed for the majority of the data tables:

- **Save Table Preferences**

[26.8 “Save data table preferences and reset data table preferences to default” \(p. 2218\)](#)

- **Reset Table Preferences to Default**

[“Reset table preferences to default icon” \(p. 2200\)](#)

- **Export to CSV File**

[26.6 “Export a Data Table to a .csv File” \(p. 2209\)](#)

- **Refresh**

Click the **Refresh** icon to update and refresh the viewing area.

- **Help**

Click the **Help** icon to display information related to the current viewing area.

React UI icons

For more information on the React UI icons and operations, see

- [“Data Tables - React” \(p. 2182\)](#)
- [“Screens icons” \(p. 2241\)](#)

25.42 Routes Tab

What is a route?

A **route** is the navigation path that a connection takes through the system. The starting and ending points of routes are distinguished in terms of FROM and TO points.

The initial set up of a connection in ASON involves the establishment of the nominal route, which is the initial route through the network.

The route that a connection takes through the network is known as the current route. In most cases, the current route and the nominal route are the same.

If a failure occurs, ASON reroutes traffic around the failure automatically and restores the service. The current route follows a path that differs from the nominal route. Once the failure is repaired, the traffic can be switched back to the nominal route to ensure optimal routing through the network. The system stores the details of the nominal route and retrieves the current route upon demand when needed.

Routes page display

The **Routes** page is displayed for the **Dashboard** and **SNC** objects.

The navigation paths from the main menu to the **Routes** page are as follows:

Dashboard > **Alarmed ASON SNCs** > **More options**  > **Routes**

Operate > **ASON** > **SNCs** > **More options**  > **Routes**

Routes page split screen

The **Routes** tab includes a split screen for the **Nominal Route** and **Current Route** data tables.

Routes page operations

Depending on the type of connection that is selected and its current state, the **Routes** page only displays the common set of WebUI icons. No right click actions are allowed.

 **Note:** The Routes page will be shown as menu option to launch in legacy WebUI view.

GMPLS Restoration Time Reporting on Routes tab

The Routes tab displays the **Restored Time**, that is the date when the restoration is done, and the **Restoration Duration(sec)**, that is how long the GMRE takes to restore the nominal route. The **Restoration Duration(sec)**, is the time displayed in seconds.

 **Note:** These values are reported by GMRE application starting from release R11.1. These values are displayed in **Routes** tab only if GMRE release is equal to or older than R11.1. If the GMRE application release is older than R11.1 these columns display empty values.

These data are displayed for either L0, L1, MRN and overlay GMPLS configurations.

Figure 25-43 Routes tab - GMPLS Restoration Time Reporting

Resource Type	Type	NOMINAL ROUTE	ASON Administrative State	Time	PN	CURRENT ROUTE	Active Path R...	Restored Time	Restored Duration(sec)	A...
Main		MTNM_03-PSS8X-CDCF/30AN300-21-1-7				MTNM_03-PSS8X-CDCF/30AN300-21-1-7		10/7/2021 5:32:45 PM	1	
Main		ODUFlex-Resizing_03-11/2UC400E-2UC400-21-11-1...		PN=5		MTNM_03-PSS8X-CDCF/OTUODU4-21-6-1		10/7/2021 5:32:45 PM	1	
Main		MTNM_11-PSS12X-CDCF/OTUODU4-21-11-1		PN=5		ODUFlex-Resizing_03-11/4UC400-21-6-1/OTU...		10/7/2021 5:32:45 PM	1	
Main		MTNM_11-PSS12X-CDCF/30AN300-21-4-7				MTNM_11-PSS12X-CDCF/OTUODU4-21-6-1		10/7/2021 5:32:45 PM	1	
Spare		MTNM_03-PSS8X-CDCF/30AN300-21-1-7				MTNM_11-PSS12X-CDCF/30AN300-21-4-7		10/7/2021 5:32:45 PM	1	
Spare		MTNM_03-PSS8X-CDCF/OTUODU4-21-6-1		PN=5						
Spare		ODUFlex-Resizing_03-11/4UC400-21-6-1/OTU4-Trail12		PN=5						
Spare		MTNM_11-PSS12X-CDCF/OTUODU4-21-6-1		PN=5						
Main		MTNM_03-PSS8X-CDCF/OTUODU4-21-11-1								
Spare		MTNM_11-PSS12X-CDCF/30AN300-21-4-7								

The common set of NFM-T GUI icons

This set of NFM-T GUI icons on the top of the data table, is commonly displayed for the majority of the data tables:

- **Save Table Preferences**

[26.8 “Save data table preferences and reset data table preferences to default” \(p. 2218\)](#)

- **Reset Table Preferences to Default**

[26.8 “Save data table preferences and reset data table preferences to default” \(p. 2218\)](#)

- **Export to CSV File**

[26.6 “Export a Data Table to a .csv File” \(p. 2209\)](#)

- **Refresh**

Click the **Refresh** icon to update and refresh the viewing area.

25.43 SDH Physical Connections Tab

SDH Physical Connections tab display

The **SDH Physical Connections** tab is displayed for the **Nodes** object; when the object is a Node representing an external network.

The navigation paths from the main menu to the tab for SDH physical connections are as follows:

OPERATE > Nodes > SDH Physical Connections

You can navigate to the data table for **SDH Physical Connections** directly from the 360° View window of a Node that is an External Node representing an External Network.

By selecting one of the physical connections, the navigation to the display window is possible by clicking the right button menu item **Explore**.

The common set of NFM-T GUI icons

This set of NFM-T GUI icons, which is located to the right of the object icons, is commonly displayed for the majority of the data tables:

- **Save Table Preferences**

[26.8 “Save data table preferences and reset data table preferences to default” \(p. 2218\)](#)

- **Reset Table Preferences to Default**

[“Reset table preferences to default icon” \(p. 2200\)](#)

- **Export to CSV File**

[26.6 “Export a Data Table to a .csv File” \(p. 2209\)](#)

- **Refresh**

Click on the **Refresh** icon to update and refresh the viewing area.

- **Help**

Click on the **Help** icon to display information related to the current viewing area.

25.44 Servers Tab

What is a server?

A server is an object that provides a service to another object.

Infrastructure trails can have other infrastructure trails or physical connections as servers.

Services always have servers. Services can never have clients. When accessing a service, the system provides you with access to the servers of the selected service, which are its infrastructures, logical links, and physical connections.

Physical connections can never have servers; they can only have clients.

Servers tab display

The **Servers** tab is displayed from the **Dashboard**, **Infrastructure Connections**, **Looped Back Connections**, and **Services** objects.

The navigation paths from the main menu to the **Servers** tab are as follows:

Operate > Dashboard > Alarmed Connections > 360°view > Servers

Operate > Dashboard > Pending Connections > 360°view > Servers

Operate > Infrastructure Connections > 360°view > Servers

Operate > Loopedback Connections > 360°view > Servers

Operate > Services > 360°view > Servers

SERVERS tab Table and Graph subtabs

The **SERVERS** tab has subtabs for **Table** and **Graph**:

- The **Table** subtab, which is the default view, provides a standard NFM-T GUI data table for the selected object.
- The **Graph** displays a linear representation of the server connection with choices for **Expand All**, **Collapse All**, or **Refresh**.

SERVERS tab operations

Depending on the type of server connection that is selected and its current state, the **Table** subtab for the **SERVERS** tab has icons or right clicks for the following actions or functions:

- **Alarms**

[“Task: Enable Alarm Profile” \(p. 932\)](#); part of [7.53 “Manage alarms for a connection” \(p. 924\)](#)

[“Task: Disable Alarm Reporting” \(p. 931\)](#); part of [7.53 “Manage alarms for a connection” \(p. 924\)](#)

- **Correlate ASAP** (right click only)

[“Task: Correlate a commissioned connection to an ASAP” \(p. 925\)](#); part of [7.53 “Manage alarms for a connection” \(p. 924\)](#)

- **Delete Connection**

[7.51 “Delete a commissioned connection” \(p. 919\)](#)

• **Deployment Control**

[7.49 “Control the deployment of a connection” \(p. 915\)](#)

• **Display Route on Map**

Select the client, right click on or select the icon for **Display Route on Map** or go to [7.77 “View various route displays for an infrastructure connection or service” \(p. 1036\)](#) for details.

• **Jobs**

[7.71 “View Jobs for an infrastructure connection or service” \(p. 1016\)](#)

• **Modify Connection...**

[7.63 “Modify Route \(Reroute\) of a connection” \(p. 987\)](#)

Manage PM for a Connection in the *NFM-T Service Assurance Guide*

• **Modify Parameters...**

[7.62 “Modify the parameters of a connection” \(p. 981\)](#)

• **Modify PM** (right click only)

Manage PM for a Connection in the *NFM-T Service Assurance Guide*

• **Routing Display**

Select the client, right click on or select the icon for **Routing Display** or go to [7.77 “View various route displays for an infrastructure connection or service” \(p. 1036\)](#) for details.

The common set of NFM-T GUI icons

This set of NFM-T GUI icons, which is located to the right of the object icons, is commonly displayed for the majority of the data tables:

• **Auto Refresh**

Depending on the current refresh state, click **Start Auto Refresh** or **Stop Auto Refresh** to begin or end the automatic update and refresh of information that is displayed in the data table.

• **Save Table Preferences**

[26.8 “Save data table preferences and reset data table preferences to default” \(p. 2218\)](#)

• **Reset Table Preferences to Default**

[26.8 “Save data table preferences and reset data table preferences to default” \(p. 2218\)](#)

• **Export to CSV File**

[26.6 “Export a Data Table to a .csv File” \(p. 2209\)](#)

• **Refresh**

Click on the **Refresh** icon to update and refresh the viewing area.

• **Help**

Click on the **Help** icon to display information related to the current viewing area.

For More Information

For More Information, refer [2.23 “Client or server relationships” \(p. 247\)](#)

25.45 Server SRGs tab

What is a Server SRG?

An **SERVER SRG**, which is a *Shared Risk Group*, is a user-defined group of associated physical links and, in some cases, logical links that represent a common failure point, such as a conduit. An SRG is one type of a NFM-T network profile.

To reroute traffic successfully if a failure occurs, the network needs additional information, which is supplied by the user establishment of SRGs and a Network Protection Architecture (NPA) for the network.

Server SRGs tab display

The navigation paths from the main menu to the **SERVER SRG** tab are as follows:

OPERATE > ASON > NPAs > ASON > NPA > 360° View > LINKS > 360° View > SERVER SRG.

Server SRGs tab operations

Depending on the physical connection or ASON link that is selected and its current state, the **SERVER SRG** tab has icons and operations for the following actions or functions:

- **Create**
[6.4 “Create a SRG” \(p. 605\)](#)
- **Remove**
[6.9 “Delete a Shared Risk Group” \(p. 619\)](#)

The common set of NFM-T GUI icons

This set of NFM-T GUI icons, which is located to the right of the object icon, is commonly displayed for the majority of the data tables:

- **Save Table Preferences**
[26.8 “Save data table preferences and reset data table preferences to default” \(p. 2218\)](#)
- **Reset Table Preferences to Default**
[26.8 “Save data table preferences and reset data table preferences to default” \(p. 2218\)](#)
- **Export to CSV File**
[26.6 “Export a Data Table to a .csv File” \(p. 2209\)](#)
- **Refresh**

Click on the **Refresh** icon to update and refresh the viewing area.

- **Help**

Click on the **Help** icon to display information related to the current viewing area.

Want more info?

Go to:

- “Connection setup using the nominal, optimal, and current routes” (p. 391)
- “ASON protection” (p. 394)
- 3.9 “Network setup in ASON” (p. 404)
- 3.6 “ASON concepts applied in NFM-T” (p. 379)
- 10.6 “ASON NPA” (p. 1438)
- 10.32 “ASON SNC” (p. 1521)

25.46 Server Physical Connections tab

Server Physical Connections tab display

The navigation paths from the main menu to the tab for OTN physical connections are as follows:

ASON > NPA > 360° View > LINKS > 360° View > CLIENT SERVER PHYSICAL CONNECTIONS tab.

OTN Physical Connections tab operations

Click the **More**  icon for the following actions or functions:

i Note: Depending on the physical connection selected and its current state, some of the options below may vary.

- **Add**

See Quick Help – The Create Physical Connection Window in *NFM-T OTN Guide*.

See Create an OTN Physical Connection section in *NFM-T OTN Guide*.

- **Correlate ASAP**

See Correlate an OTN Physical Connection with an ASAP in *NFM-T OTN Guide*.

- **Correlate SRG**

See Correlate an OTN Physical Connection with an SRG in *NFM-T OTN Guide*.

See Correlate an SRG with a Physical Connection in *NFM-T OTN Guide*.

- **Deployment Control**

See Implement/Deimplement an OTN Physical Connection in *NFM-T OTN Guide*.

Configure the Service State of an OTN Physical Connection in *NFM-T OTN Guide*.

- **Delete Connection**

See Delete an OTN Physical Connection in *NFM-T OTN Guide*.

- **Misalignment Report**

See View a Misalignment Report for an OTN Physical Connection in *NFM-T OTN Guide*.

- **Modify PM**

See Manage PM for an OTN Physical Connection in the *NFM-T Service Assurance Guide*.

- **Optical Power**

See *View the Optical Power of an OTS Connection* of Manage Optical Power of an OTN OTS Connection in the *NFM-TOTN Guide*.

See *Adjust the Optical Power of an OTN OTS Connection* of Manage Optical Power of an OTN OTS Connection in the *NFM-T OTN Guide*.

See *Export the Optical Power for an OTN OTS Physical Connection to Excel* of Manage Optical Power of an OTN OTS Connection in the *NFM-T OTN Guide*.

See *View and Refresh the Optical Power for the Client of an OTN OTS Connection* of Manage Optical Power of an OTN OTS Connection in the *NFM-T OTN Guide*.

- **Routing Display**

Click the Routing Display icon on the connection row to see its Routing Display window. See *View the Routing Display of a selected connection* in the *NFM-T OTN Guide*.

The common set of NFM-T GUI icons

This set of NFM-T GUI icons at the top of the data table, , is commonly displayed for the majority of the data tables:

- **New Physical Connection**

Click the Plus icon to create a new physical connection.

- **Save Table Preferences**

[26.8 “Save data table preferences and reset data table preferences to default” \(p. 2218\)](#)

- **Reset Table Preferences to Default**

[“Reset table preferences to default icon” \(p. 2200\)](#)

- **Export to CSV File**

[26.6 “Export a Data Table to a .csv File” \(p. 2209\)](#)

- **Refresh**

Click the **Refresh** icon to update and refresh the viewing area.

- **Filter**

Click the **Filter** icon to filter the list of server physical connections.

25.47 Service Connections Tab

What is a service?

A service is a connection between the boundary ports of a service provider network that provides service to an end-user/customer of the network. A service is an end-to-end connection that carries the customer's service as a container in a low order (LO) or high order (HO) trail. A service connects the logical ports that are entirely used to carry a unique service.

Services are also known as *paths*.

Service Connections display

This tab is displayed for the **NEs** and **Nodes** objects.

The navigation paths from the main menu to the **Service Connections** tab are as follows:

OPERATE > NEs > 360° View > SERVICE CONNECTIONS.

OPERATE > Nodes > 360° View > SERVICE CONNECTIONS.

Note:

You can navigate to the data table for Services directly from the **OPERATE > Services > 360° View** navigation path.

Service Connections tab operations

Depending on the current state of the selected service, the **Service Connections** tab has the following operations:

- **Alarms**

See *Enable the Alarm Profile of Manage Alarms for a Connection in the NFM-T OTN Guide*

See *Disable Alarm Reporting of Manage Alarms for a Connection in the NFM-T OTN Guide*

- **Correlate ASAP**

See *Correlate a Commissioned Connection to an ASAP of Manage Alarms for a Connection in the NFM-T OTN Guide*

- **Delete Connection**

See *Delete a Commissioned Connection of NFM-T OTN Guide*

- **Deployment Control**

See *Control the Deployment of a Connection of NFM-T OTN Guide*

- **Disable Service State** (right click only)

See *Manage the Service State of Connection of NFM-T OTN Guide*

- **Display Route on Map**

Right click on the connection to view it on the Network Map or go to View Various Route Displays for an Infrastructure Connection or Service for details.

- **Enable Service State** (right click only)

See Manage the Service State of Connection of *NFM-T OTN Guide*

• **Jobs**

See View Jobs for an Infrastructure Connection or Service of *NFM-T OTN Guide*

• **Modify Connection**

See Modify the Route (Reroute) of a Connection of *NFM-T OTN Guide*

See Manage Protection for a Connection of *NFM-T OTN Guide*

• **Modify Parameters**

See Modify the Parameters of a Connection of *NFM-T OTN Guide*

• **Modify PM**

See Manage PM for a Connection in the *NFM-T Service Assurance Guide*

• **NIM**

See Manage NIM for a Connection in the *NFM-T OTN Guide*

• **PKT Link Over OTN**

Right click on the connection to view it on the MS-GUI

• **Routing Display**

See View the Routing Display of a selected connection of *NFM-T OTN Guide*

• **TCM**

See Create TCM of *NFM-T OTN Guide*

See Retrieve TCM TPs from the NE of *NFM-T OTN Guide*

Need more information, refer: TCM Connections of *NFM-T OTN Guide*

The common set of NFM-T GUI icons

This set of NFM-T GUI icons at the top of the data table is commonly displayed for the majority of the data tables:

• **Auto Refresh**

For certain connection types only, click **Start Auto Refresh** or **Stop Auto Refresh** to begin or end the automatic update and refresh of information that is displayed in the data table.

• **Save Table Preferences**

[26.8 “Save data table preferences and reset data table preferences to default” \(p. 2218\)](#)

• **Reset Table Preferences to Default**

[“Reset table preferences to default icon” \(p. 2200\)](#)

• **Export to CSV File**

[26.6 “Export a Data Table to a .csv File” \(p. 2209\)](#)

• **Refresh**

Click the **Refresh** icon to update and refresh the viewing area.

React UI icons

For more information on the React UI icons and operations, see

- “[Data Tables - React](#)” (p. 2182)
- “[Screens icons](#)” (p. 2241)

25.48 Service Testing Result Tab

What is Service Testing Result?

The *service testing result* provides the result of the service testing in the 1830 PSD NEs.

Service Testing Result tab display

The **SERVICE TESTING RESULTS** tab is displayed for the service objects of 1830 PSD NEs, Release 2.0 and above.

The navigation paths from the main menu to the **SERVICE TESTING RESULTS** tab are as follows:

OPERATE > Services > More icon> Service State

OPERATE > Protected Connections > 360° View > SERVICE TESTING RESULTS

OPERATE > ADMINISTER > Service Testing Log > 360° View > SERVICE TESTING RESULTS

Service Testing Result tab icon or more operation

Icons

For 1830 PSD NEs, depending on the type of service that is selected and its current state, the **SERVICE TESTING RESULTS** tab displays the common set of NFM-T GUI icons.

See [26.3 “Data table icons and actions” \(p. 2199\)](#) for the icon details.

EXPORT operation

From the **SERVICE TESTING RESULTS** tab, click **EXPORT** to export the data in a PDF format.

Service Testing Result parameters

Parameter	Description
Start Time AZ	Start time of PRBS testing from A to Z direction.
End Time AZ	End time of PRBS testing from A to Z direction.
AZ BER Measurements	Sample time, number of Bit Errors, Bit Error Rate, total test time and result for each BER measurement in A to Z direction.
Start Time ZA	Start time of PRBS testing from Z to A direction.
End Time ZA	End time of PRBS testing from Z to A direction.
ZA BER Measurements	Sample Time, Number of Bit Errors, Bit Error Rate, Total Test Time and Result for each BER measurement in Z to A direction.
Test Status	Status of the service testing.

Parameter	Description
Failure Reason	Reason for failure in any commands or if the bit error rate is greater than the threshold value.
BER Measurement Result	Result of the PRBS testing.
BER Threshold	Threshold value which is set in the System Preferences .
Latency Start Time	Start time of the latency testing.
Latency End Time	End time of the latency testing.
Average Latency	Average value of the latency testing.
Min Latency	Minimum value of the latency testing.
Max Latency	Maximum value of the latency testing.
Latency Measurements	Sample time and latency value for each latency measurement.

25.49 SNC Mismatches Tab

What is an SNC mismatch?

An **SNC mismatch**, which is a subnetwork connection mismatch, is a type of inconsistent connection in which one of the following events occur:

- A cross-connection is associated with a Commissioned or Implemented connection that is not provisioned in the NE.
- An OCH, ODUk, DSR, or OC-n/STM-n Multiplex Section connection is established using automatic or manual routing when an OS topological link that is associated with a Commissioned or Implemented connection is discovered or rearranged outside of the NFM-T and is not provisioned in the NE.

SNC Mismatches tab display

The **SNC Mismatches** tab is displayed for the **Network Inconsistencies** object.

The navigation path from the main menu to the SNC Mismatches tab is as follows:

Operate > Network Inconsistencies > SNC Mismatches

SNC Mismatches tab operations

Depending on the SNC mismatch that is selected and its current state, the **SNC Mismatches** tab has icons and right clicks for the following actions or functions:

- **Acknowledge** (right click only)
[“Task: Acknowledge an SNC Mismatch” \(p. 1180\)](#)
- **Deployment Control**
[“Task: Control the Deployment of an SNC Mismatch” \(p. 1180\)](#)
- **Restore** (right click only)
[“Task: Restore an SNC Mismatch” \(p. 1181\)](#)
- **Routing Display**
[“Task: View an SNC Mismatch on the Routing Display” \(p. 1182\)](#)

The common set of NFM-T GUI icons

This set of NFM-T GUI icons, which is located to the right of the object icon, is commonly displayed for the majority of the data tables:

- **Auto Refresh**

Depending on your state, click **Start Auto Refresh** or **Stop Auto Refresh** to begin or end the automatic update and cleansing of information that is displayed in the data table.

- **Save Table Preferences**

[26.8 “Save data table preferences and reset data table preferences to default” \(p. 2218\)](#)

- **Reset Table Preferences to Default**

[26.8 “Save data table preferences and reset data table preferences to default” \(p. 2218\)](#)

- [**Export to CSV File**](#)

[26.6 “Export a Data Table to a .csv File” \(p. 2209\)](#)

- [**Refresh**](#)

Click on the **Refresh** icon to update and refresh the viewing area.

- [**Help**](#)

Click on the **Help** icon to display information related to the current viewing area.

25.50 SNCP Tab

What is SNCP?

SNCP is *subnetwork connection protection*. SNCP can be specified for infrastructure connections (trails) or services in order to create protected cross connections on 1830 PSS OCS NEs or on 2UC400, 4UC400, 30AN400, 4AN400 circuit packs pack or a port on the Virtual Plane (which is a port with slot identifier equal to 71).

SNCP page

The **SNCP** page is displayed for the **Alarmed ASON SNCs** and **SNCs** objects if **Protection** for the connection is set to **SNCP** and the **Configuration State** of the connection is **Implemented**.

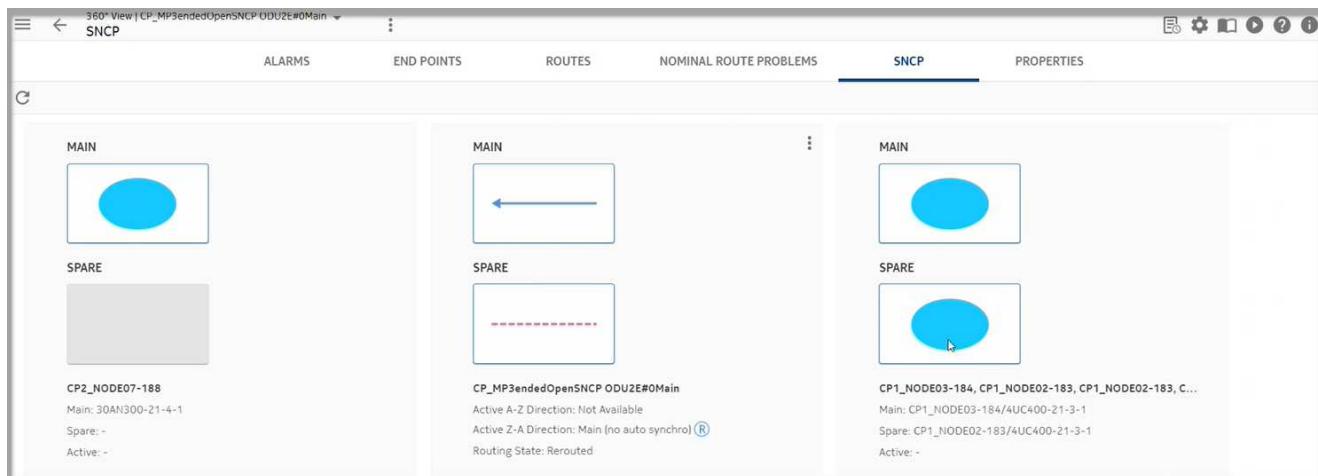
The navigation path from the main menu to the **SNCP** page is as follows:

Operate > ASON > SNCs > 360° View > SNCP tab.

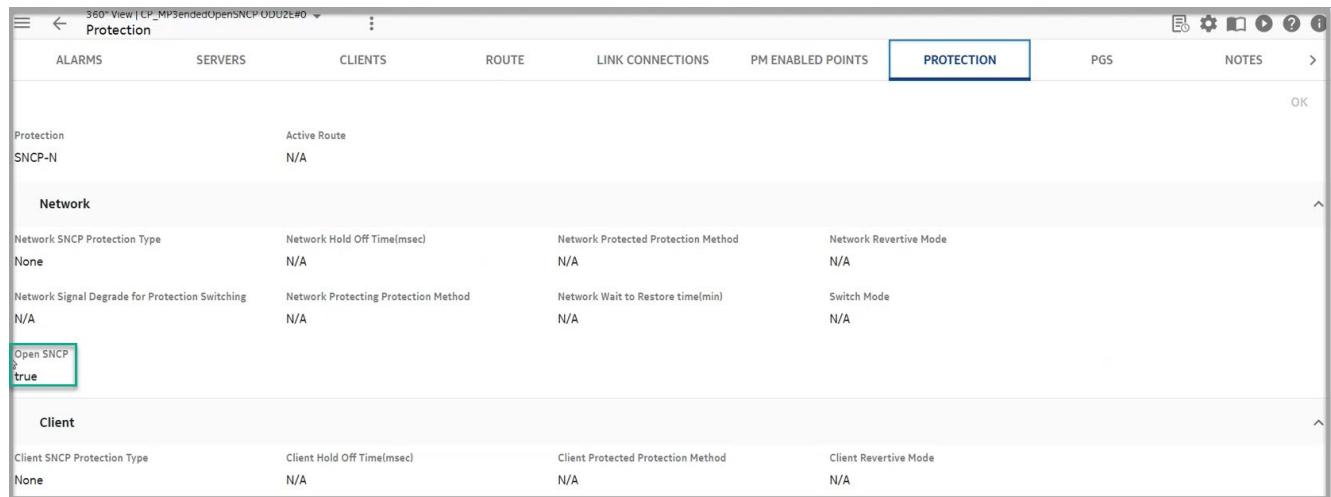
Click the **More**  icon at the end of the row of the selected ASON SNC and select the SNCP Management option. The actions you can perform are: **Synchronize Switch Position**, **Force main**, **Force spare**, **Manual main**, **Manual spare**, **Release**.

The navigation path to the **Alarmed ASON SNCs** page from the **Dashboard** is:

Operate > Dashboard > Alarmed ASON SNCs > 360° View > SNCP tab.



A connection can be identified as Open SNCP by navigating to **OPERATE > Protected Connection > 360 view > PROTECTION** tab, if the Open SNCP parameter is set to true.



Common set of NFM-T GUI icons

Click the NFM-T GUI Refresh icon on top of the SNCP panel to update and refresh the viewing area.

For more information

For more information, refer:

- [4.8 “SNC protection” \(p. 495\)](#)
- [10.41 “Manage SNCP in ASON SNC” \(p. 1553\)](#)

25.51 SRGs Tab

What is an SRG?

An **SRG**, which is a *Shared Risk Group*, is a user-defined group of associated physical links and, in some cases, logical links that represent a common failure point, such as a conduit. An SRG is one type of a NFM-T network profile.

To reroute traffic successfully if a failure occurs, the network needs additional information, which is supplied by the user establishment of SRGs and a Network Protection Architecture (NPA) for the network.

SRGs tab display

The **SRGs** tab is displayed for the **Dashboard** and **Physical Connections** objects.

The navigation paths from the main menu to the **SRGS** tab are as follows:

Operate > Dashboard > Alarmed Physical Connections > 360°view > SRGS

Operate > Dashboard > Unavailable ASON Links > SRGS

Operate > Physical Connections > 360°view > SRGS

Note:

You can navigate to the data table for SRGs directly from the **Operate > Network Profiles > Shared Risk Groups** navigation path and view the same data table and perform the same functions and actions as you would from the ... > **Dashboard** >... and ... > **Physical Connections**>... navigation paths.

SRGs tab operations

Depending on the physical connection or ASON link that is selected and its current state, the **SRGs** tab has icons and right clicks for the following actions or functions:

- **Create Shared Risk Group**

[6.4 “Create a SRG” \(p. 605\)](#)

- **Remove**

[6.9 “Delete a Shared Risk Group” \(p. 619\)](#)

The common set of NFM-T GUI icons

This set of NFM-T GUI icons at the top of the data table, is commonly displayed for the majority of the data tables:

- **Filter**

Click the **Filter** icon to filter the SRG data.

- **Save Table Preferences**

[26.8 “Save data table preferences and reset data table preferences to default” \(p. 2218\)](#)

- **Reset Table Preferences to Default**

[26.8 “Save data table preferences and reset data table preferences to default” \(p. 2218\)](#)

- [**Export to CSV File**](#)

[26.6 “Export a Data Table to a .csv File” \(p. 2209\)](#)

- [**Refresh**](#)

Click on the **Refresh** icon to update and refresh the viewing area.

- [**Help**](#)

Click on the **Help** icon to display information related to the current viewing area.

For more Information

For more Information, refer:

- [“Connection setup using the nominal, optimal, and current routes” \(p. 391\)](#)
- [“ASON protection” \(p. 394\)](#)
- [3.9 “Network setup in ASON” \(p. 404\)](#)
- [3.6 “ASON concepts applied in NFM-T” \(p. 379\)](#)
- [10.6 “ASON NPA” \(p. 1438\)](#)
- [10.32 “ASON SNC” \(p. 1521\)](#)

25.52 Status Tasks Tab

What is Status Tasks?

Status Tasks is the status of a scheduled job, or *task*, which includes the start/stop date/time and time zone of the scheduled job, the repetition rate of the scheduled job, and the domain of the scheduled job.

Status Tasks tab display

The **Status Tasks** tab is displayed for the **Scheduler** object.

The navigation path from the main menu to the **Status Tasks** tab is as follows:

Administer > Scheduler > Status Tasks

Status Tasks tab operations

Depending on the type of connection that is selected and its current state, the **Status Tasks** tab only displays the common set of NFM-T GUI icons. No right click actions are allowed.

The common set of NFM-T GUI icons

This set of NFM-T GUI icons, which is located to the right of the object icons, is commonly displayed for the majority of the data tables:

- **Save Table Preferences**

[26.8 “Save data table preferences and reset data table preferences to default” \(p. 2218\)](#)

- **Reset Table Preferences to Default**

[26.8 “Save data table preferences and reset data table preferences to default” \(p. 2218\)](#)

- **Export to CSV File**

[26.6 “Export a Data Table to a .csv File” \(p. 2209\)](#)

- **Refresh**

Click on the **Refresh** icon to update and refresh the viewing area.

- **Help**

Click on the **Help** icon to display information related to the current viewing area.

25.53 Structure Tab

What is structure?

Structure is the arrangement of and the relationship among the parts of a selected infrastructure connection or physical connection.

Structure tab display

The **Structure** tab is displayed for the **Dashboard**, **Infrastructure Connections**, and **Physical Connections** objects.

The navigation paths from the main menu to the **Structure** tab are as follows:

Operate > Dashboard > Alarmed Connections > More [More] > Structure

Operate > Dashboard > Alarmed Physical Connections > More [More] > Structure

Operate > Dashboard > Pending Connections > More [More] > Structure

Operate > Infrastructure Connections > More [More] > Structure

Operate > Physical Connections > OTN Physical Connections > 360°View > Structure

Legend for Structure Tab

The figure is a legend for the structure tab, displayed for:

Operate > Infrastructure Connections > More [More] > Structure

Operate > Physical Connections > OTN Physical Connections > 360°View > Structure

Figure 25-44 Legend for Structure Tab

LEGEND

Used/Allocated

Reserved

Invalid Selection

Unused/Available

Used by Connection

Navigate to Connection Info

Structure tab operations for alarmed connections, infrastructure connections, pending connections

Depending on the type of infrastructure connection (infrastructure or logical link) that is selected and its current state, the **Structure** tab has the following operations or functions:

- **Alarms**

[“Task: Enable Alarm Profile” \(p. 932\)](#)

- **Correlate ASAP** (right click only)

[“Task: Correlate a commissioned connection to an ASAP” \(p. 925\)](#)

- **Delete Connection**

[7.51 “Delete a commissioned connection” \(p. 919\)](#)

- **Delete Connection and Clients**

[7.52 “Delete a commissioned infrastructure and clients” \(p. 922\)](#)

- **Deployment Control**

[7.49 “Control the deployment of a connection” \(p. 915\)](#)

- **Disable Service State** (right click only)

[7.60 “Manage the service state of connection” \(p. 975\)](#)

- **Display Route on Map**

Right click on the connection to view it on the Network Map or go to [7.77 “View various route displays for an infrastructure connection or service” \(p. 1036\)](#) for details.

- **Enable Service State** (right click only)

[7.60 “Manage the service state of connection” \(p. 975\)](#)

- **Jobs**

[7.71 “View Jobs for an infrastructure connection or service” \(p. 1016\)](#)

- **Modify Connection...**

[7.63 “Modify Route \(Reroute\) of a connection” \(p. 987\)](#)

[7.58 “Manage protection for a connection in Managed Plane and Control Plane” \(p. 960\)](#)

- **Modify Parameters...**

[7.62 “Modify the parameters of a connection” \(p. 981\)](#)

- **Modify PM** (right click only)

Manage PM for a Connection in the *NFM-T Service Assurance Guide*

- **NIM** (right click only)

[7.57 “Manage NIM for a connection” \(p. 954\)](#)

- **Optical Power**

["Task: View and Refresh Optical Power for an OTUK Infrastructure Connection" \(p. 1868\)](#)

["Task: Adjust the optical power of an OTUK infrastructure connection" \(p. 1877\)](#)

["Task: Export the optical power of an OTUK infrastructure connection" \(p. 1875\)](#)

- **Routing Display**

Right click on the connection to view its Routing Display or go to [7.77 "View various route displays for an infrastructure connection or service" \(p. 1036\)](#) for details.

- **TCM** (right click only)

[7.93 "Create TCM in Control Plane and Managed Plane connections" \(p. 1117\)](#)

[7.94 "Create TCM in Mixed Plane connection" \(p. 1120\)](#)

[7.97 "TCM TPs from the NE" \(p. 1130\)](#)

Want more info? Go to [2.28 "TCM connections" \(p. 268\)](#)

Structure tab operations for alarmed physical connections and otn physical connections

Depending on the physical connection that is selected and its current state, the **Structure** tab has the following operations or functions:

- **Correlate ASAP** (right click only)

[7.29 "Correlate an OTN physical connection with an ASAP" \(p. 830\)](#)

- **Correlate SRG**

[7.28 "Correlate an OTN physical connection with an SRG" \(p. 827\)](#)

[6.6 "Correlate a SRG with a Physical Connection" \(p. 610\)](#)

- **Deployment Control**

[7.31 "Implement/Deimplement an OTN physical connection" \(p. 835\)](#)

[7.26 "Configure the service state of an OTN physical connection" \(p. 822\)](#)

[6.8 "Control the deployment of the Physical Connections associated with a Shared Risk Group" \(p. 617\)](#)

- **Delete Connection**

[7.22 "Delete an OTN physical connection" \(p. 813\)](#)

- **Delete Connection with Clients**

Select the client, right click on or select the icon for **Delete Connection with Clients** and continue to follow system prompts to delete the client.

- **Misalignment Report** (right click only)

[7.40 "View a misalignment report for an OTN physical connection" \(p. 886\)](#)

- **Modify Labels**

[7.39 “Rename an OTN physical connection or/and of its port on an ENE” \(p. 884\)](#)

- **Modify PM** (right click only)

Manage PM for an OTN Physical Connection in the *NFM-T Service Assurance Guide*

- **Optical Power**

[“Task: View the Optical Power of an OTS Connection” \(p. 1846\)](#)

[“Task: Adjust the Optical Power of an OTN OTS Connection” \(p. 1852\)](#)

[“Task: Export the Optical Power for an OTN OTS Physical Connection to Excel” \(p. 1856\)](#)

- **Routing Display...** (right click only)

[“Task: Display a connection on the Routing Display” \(p. 1042\)](#)

The common set of NFM-T GUI icons

This set of NFM-T GUI icons at the top of the data table, is commonly displayed for the majority of the data tables:

- **Auto Refresh**

For certain connection types only, click **Start Auto Refresh** or **Stop Auto Refresh** to begin or end the automatic update and refresh of information that is displayed in the data table.

- **Save Table Preferences**

[26.8 “Save data table preferences and reset data table preferences to default” \(p. 2218\)](#)

- **Reset Table Preferences to Default**

[26.8 “Save data table preferences and reset data table preferences to default” \(p. 2218\)](#)

- **Export to CSV File**

[26.6 “Export a Data Table to a .csv File” \(p. 2209\)](#)

- **Refresh**

Click the **Refresh** icon to update and refresh the viewing area.

- **Help**

Click the **Help** icon to display information related to the current viewing area.

25.54 Switched Connections Tab

What is Switched Connections

The **Switched Connections** tab is enabled for control plane connections.

This tab displays the switched connections riding on the selected private tunnel.

This tab is enabled with connection parameters and displays all the DSR connections.

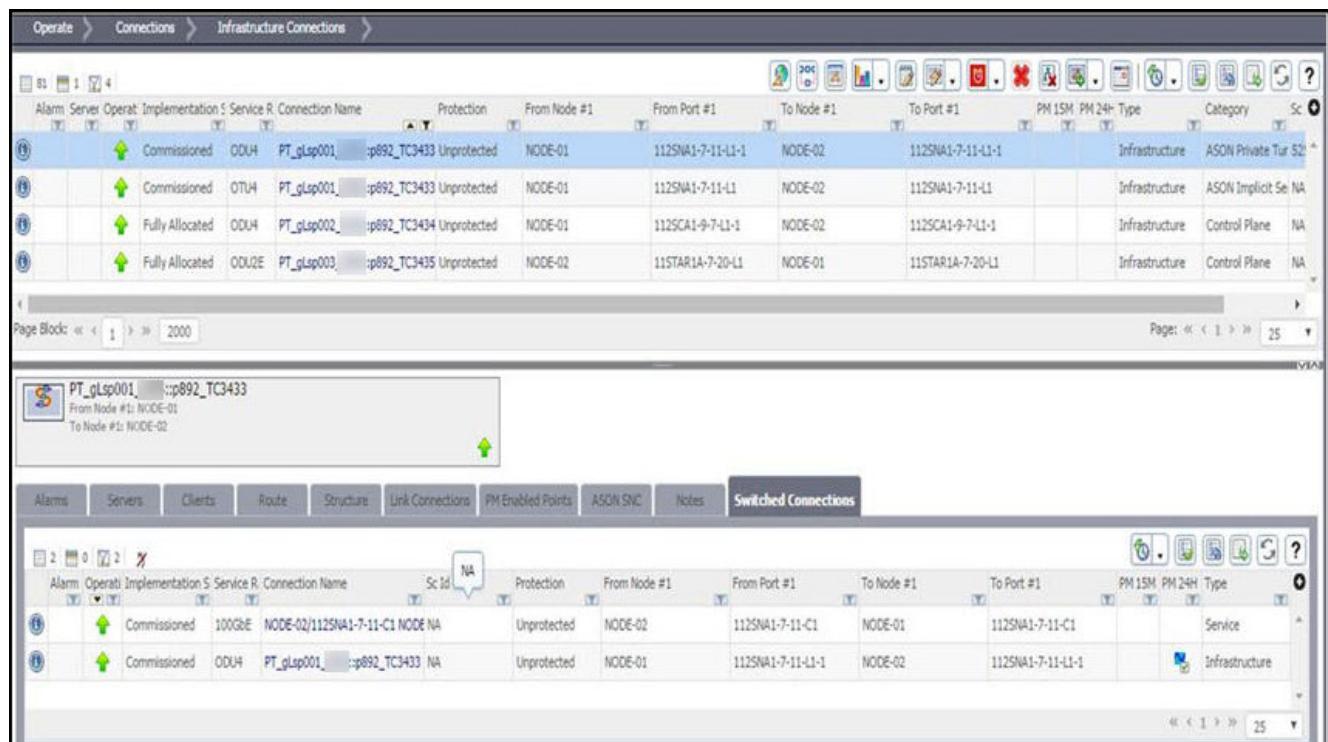
Switched Connections Display

The navigation paths from the main menu to the **Switched Connections** tab is as follows:

Operate > Infrastructure Connections

This tab is populated with Switched Connection parameters and is enabled only for Commissioned private tunnel connections.

Figure 25-45 Switched Connections tab



Select a switched connection and right click. For more details on the right click actions of the tunnels, see [Table 7-12, "Deployment control for Infrastructure Connections and Services" \(p. 915\)](#).

25.55 TE Links Tab

What is a TE link?

A *Traffic Engineered link*, or a *TE link*, is a unique application entity that is configured through grouping component links. The groupings can be based on different attributes such as SRGs, link metrics, or latency parameters.

TE Links tab display

The **TE Links** tab is displayed for the **NPA**, **COLOR PROFILES**, and **SHARED RISK GROUPS** object.

The navigation paths from the main menu to the various subtabs to the **TE LINKS** tab are the following:

Operate > ASON > NPAs > 360° View > TE LINKS

Operate > Network Profiles > COLOR PROFILES > 360° View > Matched By > TE Links

Operate > Network Profiles > COLOR PROFILES > 360° View > Used In > TE Links

Operate > Network Profiles > SHARED RISK GROUPS > 360° View > TE LINKS

TE Links tab icon and actions

Depending on the TE Links options as per the mentioned navigations, **TE Links** tab has the following options, when you click the **More**  icon at the end of the selected row:

- **Jobs**

Select the **TE Link**, and click **More**  icon and select **Jobs** to display the current Jobs for the TE link.

- **Misalignment Report**

Select the **TE Link**, and click **More** options  icon and select **Misalignment Report** to display the report for the selected TE link.

- **Modify TE-Link**

[10.24 “Modify TE Links” \(p. 1495\)](#)

The common set of NFM-T GUI icons

This set of NFM-T GUI icons at the top of the data table, is commonly displayed for the majority of the data tables:

- **Save Table Preferences**

[26.8 “Save data table preferences and reset data table preferences to default” \(p. 2218\)](#)

- **Reset Table Preferences to Default**

[26.8 “Save data table preferences and reset data table preferences to default” \(p. 2218\)](#)

- **Export to CSV File**

[26.6 “Export a Data Table to a .csv File” \(p. 2209\)](#)

- **Refresh**

Click the **Refresh** icon to update and refresh the viewing area.

- **Help**

Click the **Help** icon to display information related to the current viewing area.

For more information

For more information, refer:

- [“Connection setup using the nominal, optimal, and current routes” \(p. 391\)](#)
- [“ASON protection” \(p. 394\)](#)
- [3.9 “Network setup in ASON” \(p. 404\)](#)
- [3.6 “ASON concepts applied in NFM-T” \(p. 379\)](#)
- [10.6 “ASON NPA” \(p. 1438\)](#)
- [10.32 “ASON SNC” \(p. 1521\)](#)

25.56 Test Analysis Tab

What is Test Analysis?

The OTDR scan can be performed from the Test Analysis tab of EQM before turning on a service in a network. The in-service test involves checking the fiber's span loss, reflectivity, and so on.

NFM-T supports OTDR scan on the ASWG and A4PSWG cards. The OTDR scan can also be performed on the following ports of legacy amplifier cards, which do not have dedicated OTDR ports, using the MON-OTDR card:

- ASWG and A4PSWG cards
- LDs with LINEIN, LINEOUT ports: ASG and ASGLP
- A2325A, AHPHG, AHPLG, ALPHG: LINE port with In or Out direction
- IROADMF, 1ROADV, IROADM9: LINEIN, LINEOUT
- RA2P: LINEIN
- AM2032A, AM2125A, AM2125B, AM2318A, AM2625A and A2P2125 cards: LINEIN,LINEOUT

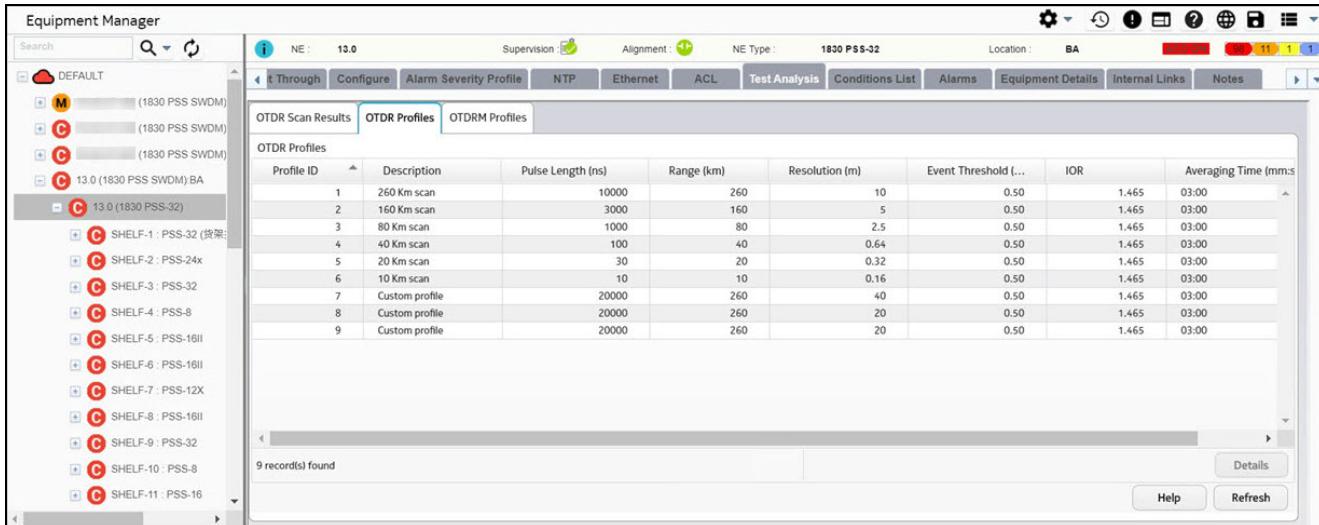
Test Analysis tab display

The **Test Analysis** tab is displayed for the LINEIN and LINEOUT ports of the amplifier cards associated with the OTDR/OTDRM card directly or through a MON-OTDR card.

The navigation path from the main menu to the Equipment Manager tree for the **Test Analysis** tab is as follows:

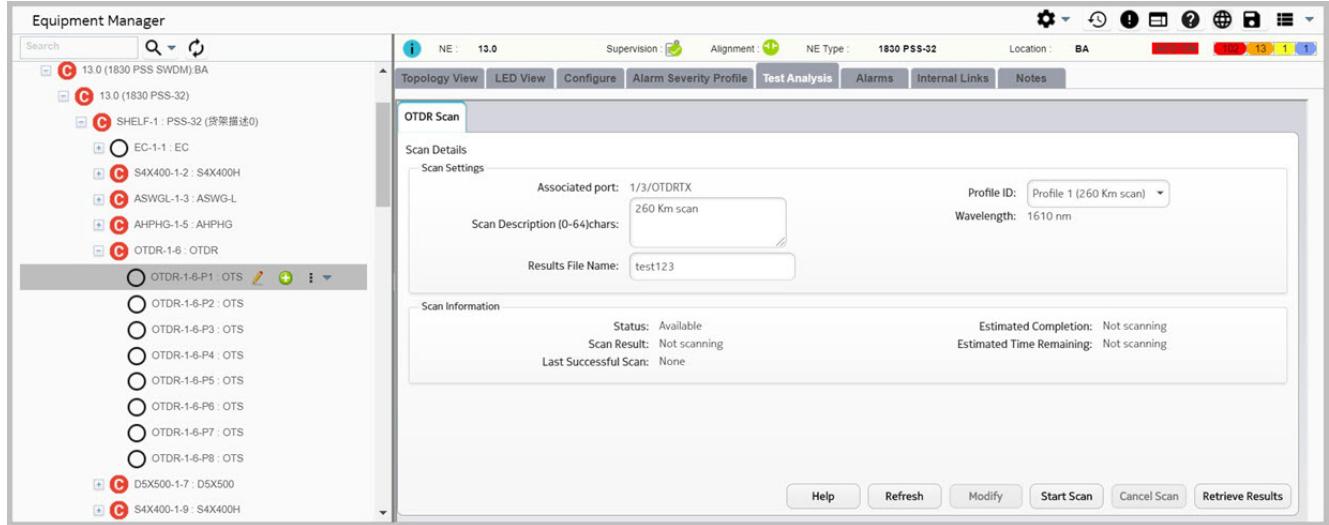
OPERATE > Equipment Manager > Node > NE > Test Analysis

Figure 25-46 Test Analysis Tab - NE



OPERATE > Equipment Manager > Node > NE > Shelf > Card > Port > Test Analysis

Figure 25-47 Test Analysis Tab - Port



Test Analysis tab operations

For Test Analysis tab on a supported port, make the necessary association between the OTDR/OTDRM, amplifier, and MON-OTDR cards as required. Click on the LINEIN or LINEOUT port and then click on the **Test Analysis** tab.

Configure the parameters as required and perform one of the following actions:

- **Modify:** Click **Modify** to save your changes.
- **Start Scan:** Click **Start Scan** to start the OTDR scan with the specified settings.
- **Cancel Scan:** Click **Cancel Scan** to stop a scan in progress.
- **Retrieve Files:** Click **Retrieve Files** to retrieve the files containing the scan information to the local machine.

See the following procedure for more information:

- Manage OTDR/OTDRM/OTDRWB/MON-OTDR cards in Equipment Manager of *NFM-T OTN Guide*

Scan Now Tab

EQM supports a standalone page which associates OTDR ports between two NEs.

The standalone scan displays two tabs with information of two different NEs. Modify and scan operations can be performed simultaneously.

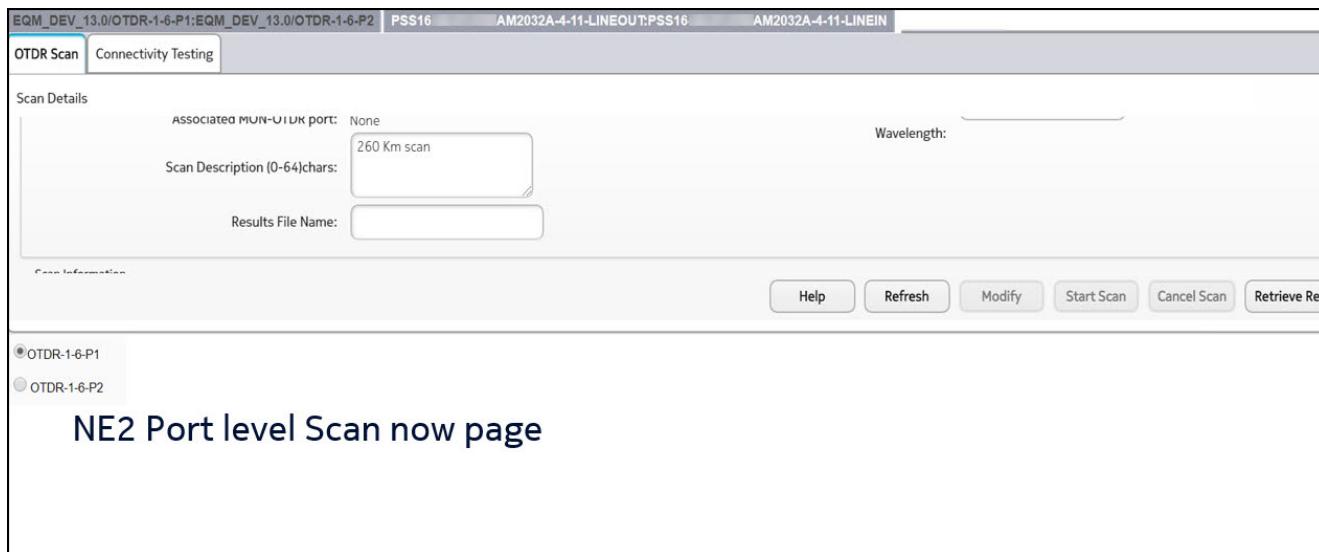
For the OTDR supported physical connection, navigate as:

OPERATE > Physical Connections > More : > OTDR > Manual Scan Now

Figure 25-48 NE1 Port level Scan now page



Figure 25-49 NE2 Port level Scan now page



NE2 Port level Scan now page

The common set of NFM-T GUI icons

Click the **Refresh** icon to update and refresh the viewing area.

React UI icons

For more information on the React UI icons and operations, see

- “Data Tables - React” (p. 2182)

-
- “Screens icons” (p. 2241)

25.57 Trails Tab

What is a Trail?

A *Trail*, is a terminated entity that can multiplex or demultiplex client signals. The client side adapting entity (a GbE ODU0, for example) is also a trail. A trail is composed by a network connection and two functions, trail termination functions, that do maintenance actions (OAM).

Trails tab display

The **Trails** tab is displayed for the **Nodes** object if the nodes are of specific types, for example 1626LM node type.

The navigation path from the main menu, various subtabs to the **Trails** tab is:

Operate > Nodes

The common set of NFM-T GUI icons

This set of NFM-T GUI icons at the top of the data table is commonly displayed for the majority of the data tables:

- **Save Table Preferences**

[26.8 “Save data table preferences and reset data table preferences to default” \(p. 2218\)](#)

- **Reset Table Preferences to Default**

[26.8 “Save data table preferences and reset data table preferences to default” \(p. 2218\)](#)

- **Export to CSV File**

[26.6 “Export a Data Table to a .csv File” \(p. 2209\)](#)

- **Refresh**

Click the **Refresh** icon to update and refresh the viewing area.

- **Help**

Click the **Help** icon to display information related to the current viewing area.

For more Information

For more Information, refer Infrastructure Connections and Services of *NFM-T OTN Guide*

React UI icons

For more information on the React UI icons and operations, see

- [“Data Tables - React” \(p. 2182\)](#)
- [“Screens icons” \(p. 2241\)](#)

25.58 Uncorrelated Cross Connections Tab

What is an uncorrelated cross connection?

An *uncorrelated cross-connection* is a connection within a managed NE that internally connects one logical port on an NE to one or more logical ports on the same NE; but, it is not associated with a connection that is provisioned in the NFM-T OTN. Uncorrelated cross-connections exist on the NE and are created outside the NFM-T OTN, for example, by using the ZIC.

Important!

When an uncorrelated cross-connection becomes a part of a connection that is either Implemented/Completed or Commissioned, the management system automatically reclassifies the uncorrelated cross-connection as a *correlated cross-connection*.

UNCORRELATED CROSS CONNECTIONS tab display

The **UNCORRELATED CROSS CONNECTIONS** tab is displayed for the **Network Inconsistencies** and the **Wave Key Assignments** objects.

The navigation paths from the main menu to the **UNCORRELATED CROSS CONNECTIONS** tab are the following:

Operate > Network Inconsistencies > **UNCORRELATED CROSS CONNECTIONS**

Operate > Wave Key Assignments > [select Frequency] > 360° view> **UNCORRELATED CROSS CONNECTIONS**

Uncorrelated Cross Connections tab - More options

The **UNCORRELATED CROSS CONNECTIONS** tab has **More** options  icon for the following action:

- Remove Cross Connection

The common set of NFM-T GUI icons

This set of NFM-T GUI icons, which is located to the right of the object icon, is commonly displayed for the majority of the data tables:

- Save Table Preferences

[26.8 “Save data table preferences and reset data table preferences to default” \(p. 2218\)](#)

- Reset Table Preferences to Default

[26.8 “Save data table preferences and reset data table preferences to default” \(p. 2218\)](#)

- Export to CSV File

[26.6 “Export a Data Table to a .csv File” \(p. 2209\)](#)

- Refresh

Click the **Refresh** icon to update and refresh the viewing area.

For more information

For more information, refer:

- [25.17 “Cross Connections tab” \(p. 2095\)](#)
- [2.13 “Cross Connections” \(p. 216\)](#)

26 Data Tables - React UI

26.1 Overview

Purpose

This chapter explains the WebUI data tables, related actions and the icons. It also explains the major information across various functions of the WebUI.

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Data Tables - React

26.2 Data table description

Data table definition

A *data table* is a common NFM-T GUI structure where data is systematically displayed, for a user-requested network management object, in a list format.

Data tables for network management objects

Users can view data tables for a variety of network management objects, such as nodes, physical connections, infrastructure connections and services.

Example: The following figure illustrates a data table view for a list of service.

Figure 26-1 Data tables – View example

The screenshot shows a data table interface with the following details:

- Header:** Select View, Operational State (selected), Alarm Status, Client Signal Type, Implementation State, Commissioned Status, Manage Columns.
- Filter Buttons:** ALL, DOWN, UP, DEGRADED.
- Toolbar:** Filter, Sort, Refresh, Add, etc.
- Table Rows:** 5 rows of data. Each row includes a checkbox, a green upward arrow icon, and the following columns:
 - Name: WDM Connection ... (OTS)
 - Shape: Four Ended
 - Implementation ...: Implemented
 - Working State: Normal
- Bottom Left:** Last Update: 09/10/2021 17:54:16
- Bottom Right:** Total: 232

In a data table view for a network management object, the NFM-T GUI enables to view lists of data for the requested object. Within the rows of the data table, users can view lists of all configured objects. Within the columns of the data table, users can view pertinent information pertaining to all objects listed.

At the bottom left corner of the data table, the date and time of the last update is displayed.

Figure 26-2 Data tables - Last update

Last Update 16:07:34 GMT+0200 (W, Europe Summer Time)

Pagination and page controls

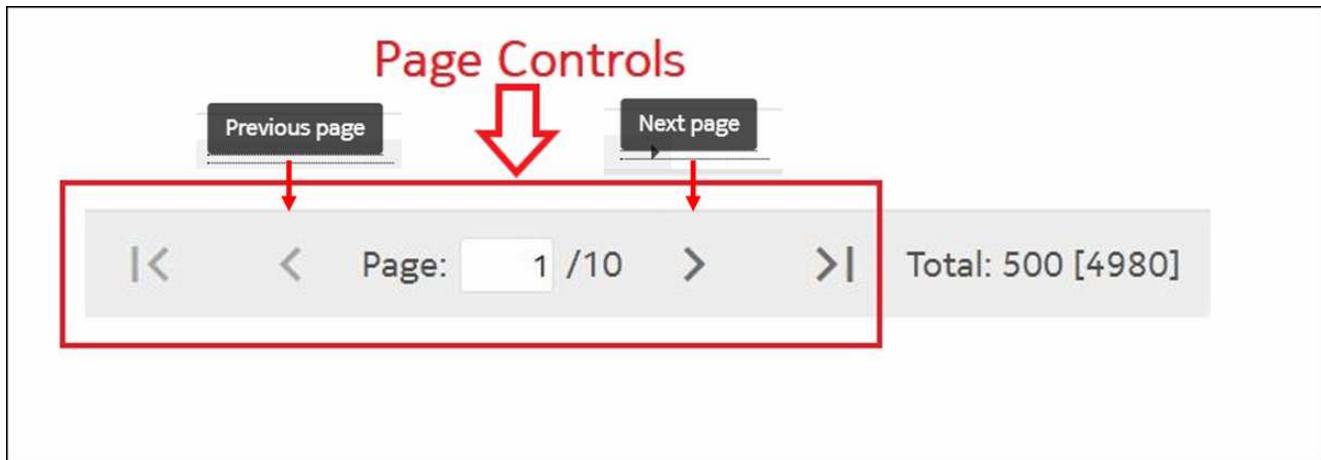
At the bottom right corner of a data table, the system displays the page controls, number of records on the page, and the total number of records on the current query.

The [Figure 26-3, “Page controls” \(p. 2182\)](#) depicts the page controls section which hosts **First page**, **Previous page**, **Next page**, and **Last page icons**.

The navigation on the **Previous page** and **Next page** icons supports two types of clicks:

- Short click - Scrolls to the immediate next page.
- Long click - Depending on the selection pressure and the time length you click on it, it navigates to further pages. For example: The longer you select and hold the icon, the more number of pages it scrolls to.

Figure 26-3 Page controls



At the bottom right corner of the screen adjacent to **Total:**, the number of records on the page and the total number of records on the current query is displayed.

The following table lists the number of records that are displayed on a data table as per the lists/screens in NFM-T GUI.

Table 26-1 Number of records per data table

Data Table	Records Per Page
Physical Connections	500
Infrastructure Connections	500
Services	500
Protected Connections	500
Network Inconsistencies	200

Table 26-1 Number of records per data table (continued)

Data Table	Records Per Page
Nodes	1000
NEs	1000
All Records	10000
My Records	50
SNCs	5000
NPAs	5000
Reversion Control Group	1000

The [Figure 26-4, “Example: number of records on physical connections page” \(p. 2184\)](#) depicts a Physical Connections list that contains 4980 records and is displaying 500 records in the first page.

Figure 26-4 Example: number of records on physical connections page

The screenshot shows a data table titled "Physical Connections" under the "Operate | Connections" tab. The table has 11 columns: Oper..., WDM Co..., Name, Shape, Implementat..., Working State, and three status columns (OPERATIONAL STATE, ALARM STATUS, CLIENT SIGNAL TYPE) which are currently selected. There are also four other filter options: IMPLEMENTATION STATE, COMMISSIONED STATUS. The table displays 500 records out of a total of 4980. The bottom right corner of the table area shows the text "Total: 500 [4980]".

The data tables in the NFM-T GUI also provide the following features for users to better access the data that is pertinent to them:

- [“Select objects in a data table” \(p. 2185\)](#)
- [“Sort a single column in a data table” \(p. 2187\)](#)

- “Manage the columns displayed in a data table” (p. 2192)
- “View additional attributes for a selected item in a data table” (p. 2194)
- “Three dots more... icon” (p. 2196)
- “Go to previous page” (p. 2196)
- “See recently visited pages” (p. 2197)

Select objects in a data table

Users can select objects in a data table.

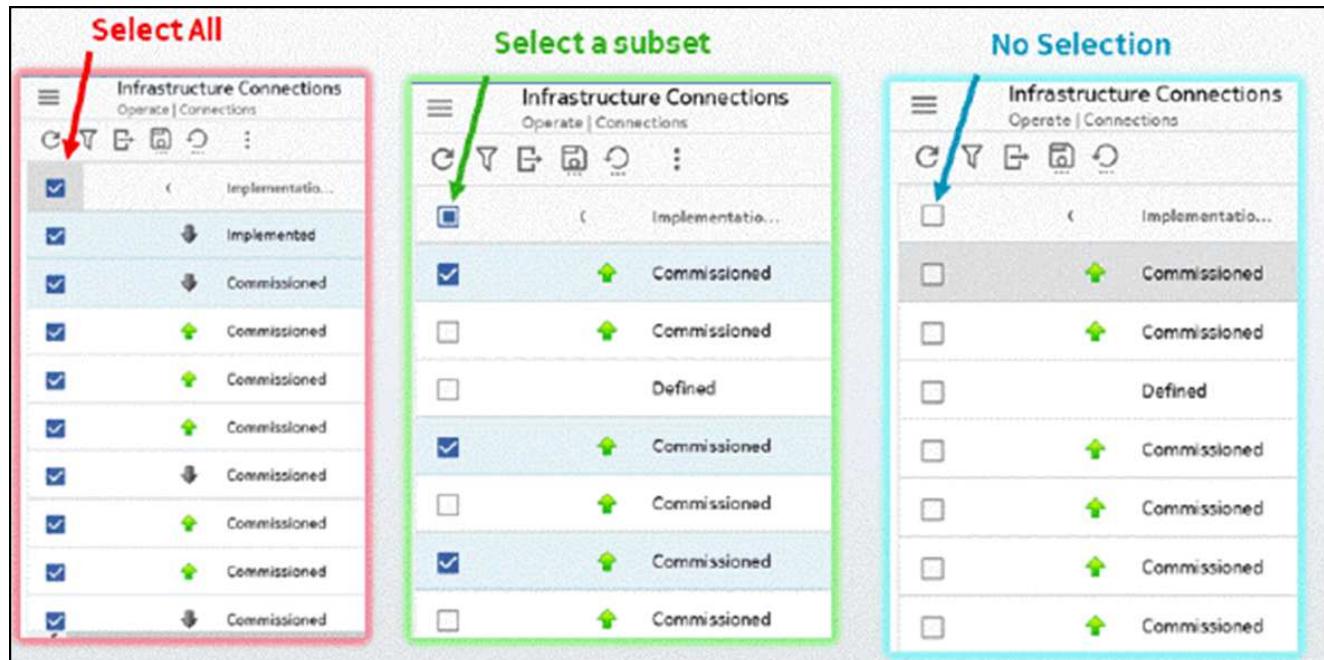
Selection check boxes are displayed to the left of the rows in a data table. The check box on the column heading allows to select all the rows and also indicates the type of section.

- A selected check mark on the column heading indicates that all the rows in the page are selected.

Note: This does not select the complete data set but only the retrieved rows on the page of selection. See [Table 26-1, “Number of records per data table” \(p. 2183\)](#) to know the page limit for various lists in the NFM-T GUI.

- A solid square in the check box indicates that a subset is selected.
- A clear check box indicates no row in the page is selected.

Figure 26-5 Data tables – select objects



Actions on selected objects

The selected objects can have a set of actions that can be performed on that selected object. If the set of selected objects allow actions, the three dots More icon is displayed on the upper right corner of the window.

Figure 26-6 Data tables - multiple selection actions

A screenshot of a data table interface. At the top, there are filter buttons for Operational State (selected), Alarm Status, Client Signal Type, Implementation Status, and Commissioned Status. Below the filters is a toolbar with buttons for ALL, DOWN, UP, and DEGRADED. A red circle highlights the 'Selected: 3' button in the top right corner of the table area. The table has columns for Selection, Name, Shape, Implementation Status, and Working State. Four rows are selected, corresponding to the 'Selected: 3' count. A red arrow points from the 'Selected: 3' button to the three selected rows. The bottom of the table shows a last update timestamp and a total row count of 232.

Select View					
		OPERATIONAL STATE	ALARM STATUS	CLIENT SIGNAL TYPE	IMPLEMENTATION STATUS
ALL		DOWN	UP	DEGRADED	
<input type="checkbox"/>	Opera...	WDM Connection ...	Name	Shape	Implementation ...
<input type="checkbox"/>	OTS	01-DT-8x-Hamburg/IROADM-2-4...	Four Ended	Implemented	Normal
<input checked="" type="checkbox"/>	OTS	01-L1-DT-8x-Hamburg/IROADM-2...	Four Ended	Implemented	Normal
<input checked="" type="checkbox"/>	OPS	02-DT-32-Berlin/10AN400-11-4...	Simple	Implemented	Normal
<input checked="" type="checkbox"/>	OPS	02-DT-32-Berlin/10AN400-12-15...	Simple	Implemented	Normal
<input type="checkbox"/>	OPS	02-DT-32-Berlin/20AN80-11-13...	Simple	Implemented	Normal

Clicking on this icon, the common actions menu is displayed and the user can execute the selected action on the set of selected objects.

Figure 26-7 Data tables - multiple selection menu

A screenshot of a data table interface similar to Figure 26-6. It includes filter buttons for Operational State (selected), Alarm Status, Effective Rate, Implementation Status, and OLC State. The table has columns for Selection, Name, Rate, and Protection. A red box highlights a context menu that appears over the table. The menu items are: Modify Connection, Create Network Data File, Deployment Control, OLC State, Correlate ASAP, and Schedule Job. A red arrow points from the menu to the 'Modify Connection' item. The bottom of the table shows a last update timestamp and a page navigation bar.

Select View						
		OPERATIONAL STATE	ALARM STATUS	EFFECTIVE RATE	IMPLEMENTATION STATUS	OLC STATE
ALL		NA	UP	DOWN	DEGRADED	
<input type="checkbox"/>	Connect...	Rate	Name	Protection	From Node #1	From Port
<input type="checkbox"/>	Commissioned	OMS	01-DT-8x-Hamburg/IROADM-2-4-LINEOUT 10-D...	Unprotected	01-DT-8x-Hamburg	IROADM-2-...
<input checked="" type="checkbox"/>	Commissioned	OMS	01-L1-DT-8x-Hamburg/IROADM-2-4-LINEOUT 1...	Unprotected	01-L1-DT-8x-Ham...	IROADM-2-...
<input checked="" type="checkbox"/>	Commissioned	ODU4	02-DT-32-Berlin/ODUPOOL-17-1_1359577 02...	Unprotected	02-DT-32-Berlin	ODU4-18-7
<input checked="" type="checkbox"/>	Commissioned	OTU2	02-DT-32-Berlin/OTU-11-12-10 02-DT-32-Berlin...	Unprotected	02-DT-32-Berlin	OTU-11-12-12
<input checked="" type="checkbox"/>	Commissioned	OTU2	02-DT-32-Berlin/OTU-11-12-12 02-DT-32-Berlin...	Unprotected	02-DT-32-Berlin	OTU-11-12-12

Sort a single column in a data table

Users can sort a single column in a data table in several ways, depending on the type of information that is displayed in the column.

Clicking on the column headings sorts the column in ascending order or descending order. A small icon is displayed if the user mouse hovers the column name, the icon identifies the sort order.

Users can click on the column name to sort the data in the selected column in ascending order.

Users can then return the column to its original order and or sort the data in the column in descending order by clicking again on the column name.

Figure 26-8 Data tables – single sort ascending/descending

Connection Name
test-infra-olp OTU4#1 ODU4:1
test-infra-olp OTU4#1
test-encoding-wn OTU4X2#...
test-encoding-wn OTU4X2#...
test-encoding-wn OTU4X2#...
test-encoding-wn OTU4X2#...

Any customizations that users make to a data table can be saved by clicking on the “[Save Table Preferences icon](#)” (p. 2269) icon. Users can click on the “[Reset Table Preferences to Default icon](#)” (p. 2267) icon to return to the original default view of the particular table.

Filter columns in a data table

Many of the columns in the data tables have a **Filter** icon that users can click on to extract selected information that they want to view from the data table. Filters make viewing the voluminous rows of objects that are listed in a data table easier.



Note: The filter per column always lists all the supported values in that column, also if the column is already filtered on one or more values.

The “[Filter icon](#)” (p. 2256) is located to the right of the column heading.

The following figure illustrates the locations of the **Filter** icon in the data table for services.

Figure 26-9 Data tables – filter locations – infrastructure connections

ALL	NA	UP	DOWN	DEGRADED	OPERATIONAL STATE	ALARM STATUS	EFFECTIVE RATE	IMPLEMENTATION STATUS	OLC STATE	MANAGE COLUMNS
<input type="checkbox"/> O	Connecti...	Rate	Name	<input type="button" value="Protect..."/>	From Node #1	From Port #1				
<input type="checkbox"/>	Commissioned	ODU2	Trail1-11DMP12	Unprotected		11DPM12-1-16-L'				
<input type="checkbox"/>	Commissioned	OMS	Swisscom-MP-Site15/PORT-1-4-LINEOUT Swisscom...	Unprotected	Swisscom-MP-Site15	PORT-1-4-LINEOU				
<input type="checkbox"/>	Commissioned	OMS	Swisscom-MP-Site10/PORT-2-7-LINEOUT Swisscom...	Unprotected	Swisscom-MP-Site10	PORT-2-7-LINEOU				
<input type="checkbox"/>	Commissioned	OTU4	02-DT-32-Berlin/OTU-18-10-1 02-DT-32-Berlin/...	Unprotected	02-DT-32-Berlin	OTU-18-10-1				
<input type="checkbox"/>	Commissioned	ODU2E	Hairpin-4-10GbE-5 ODU2E#1:3	Unprotected	02-DT-32-Berlin	ODU2E-17-5-13				

When the column is filtered an icon is displayed near the column name to indicate an applied filter.

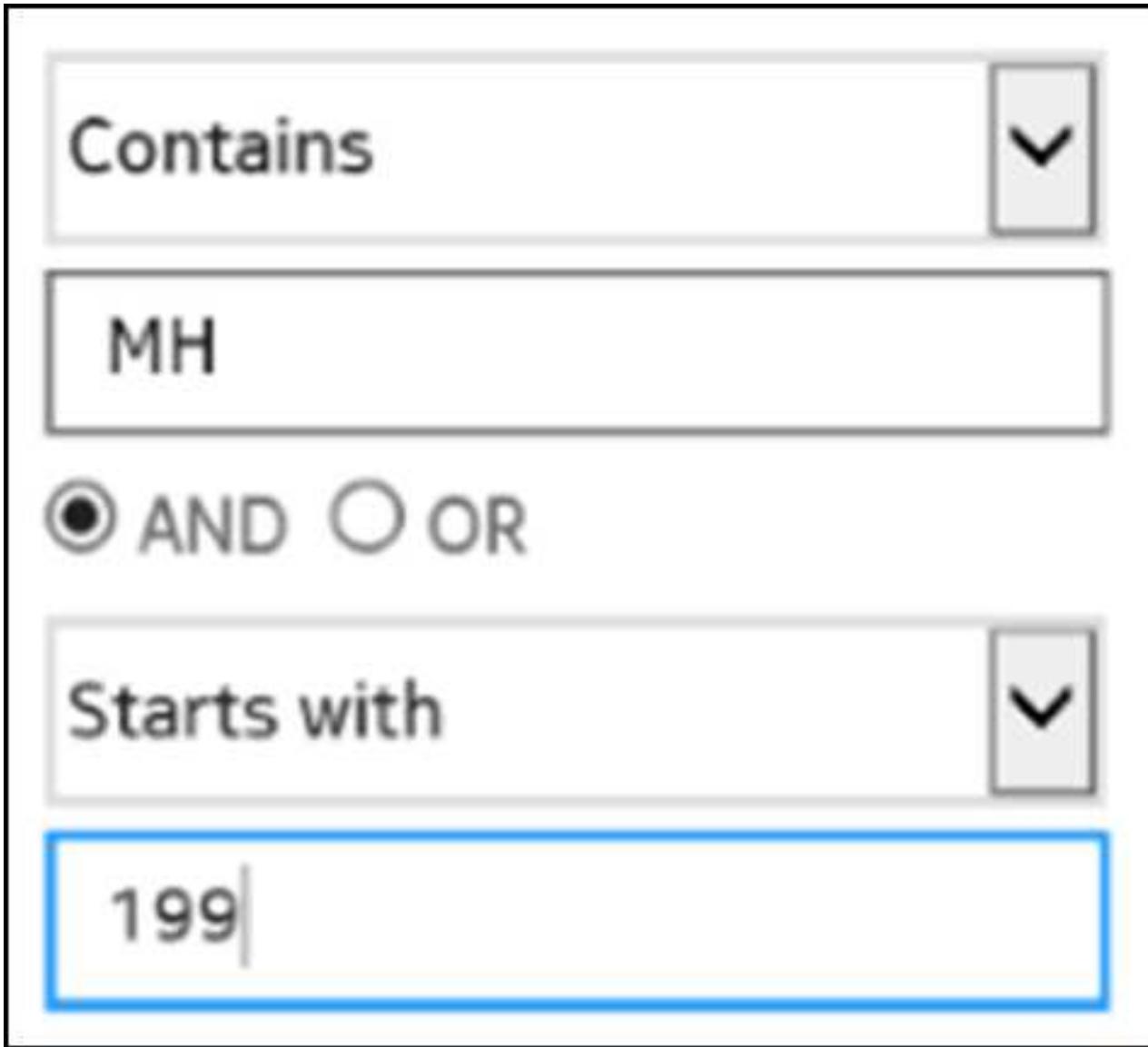
Filter on strings

The data table columns that are strings are filtered by clicking on the filter icon and inserting the value: *begins with*, *contains*, or *ends with*.

Three options are available to manage the string filter:

- Case sensitive: if the item is checked, the filter is applied case sensitive.
- Exclude matching items: if the item is checked, the filter excludes the matching items from the list.
- Use wildcards: * is used for any sequence of characters, ? for any character.

Figure 26-10 Data tables – filter on strings



Filter on values

The data table columns that contain values belonging to a set of selectable values are filtered by clicking on the filter icon and selecting the values from the displayed list.

Figure 26-11 Data tables – filter on values

Protection	<input checked="" type="checkbox"/> Select all
Unprotected	<input checked="" type="checkbox"/> Unprotected
Unprotected	<input checked="" type="checkbox"/> SNCP-N
Unprotected	<input checked="" type="checkbox"/> OCHP
Unprotected	<input checked="" type="checkbox"/> SNC-I
Unprotected	<input checked="" type="checkbox"/> Protected
SNCP-N	<input checked="" type="checkbox"/> OCHP Server
Unprotected	<input checked="" type="checkbox"/> Protected
Unprotected	<input checked="" type="checkbox"/> SNCP
Unprotected	<input checked="" type="checkbox"/> SNC-N
Unprotected	<input checked="" type="checkbox"/> SNC-Nc

See “[Data Set Filter Icon and Window](#)” (p. 2203), to apply filter on the complete data set of a data table.

Manage the columns displayed in a data table

Click on the hamburger menu item, a menu is displayed dedicated to the filter and columns management for the displayed data table.

The menu allows the following actions:

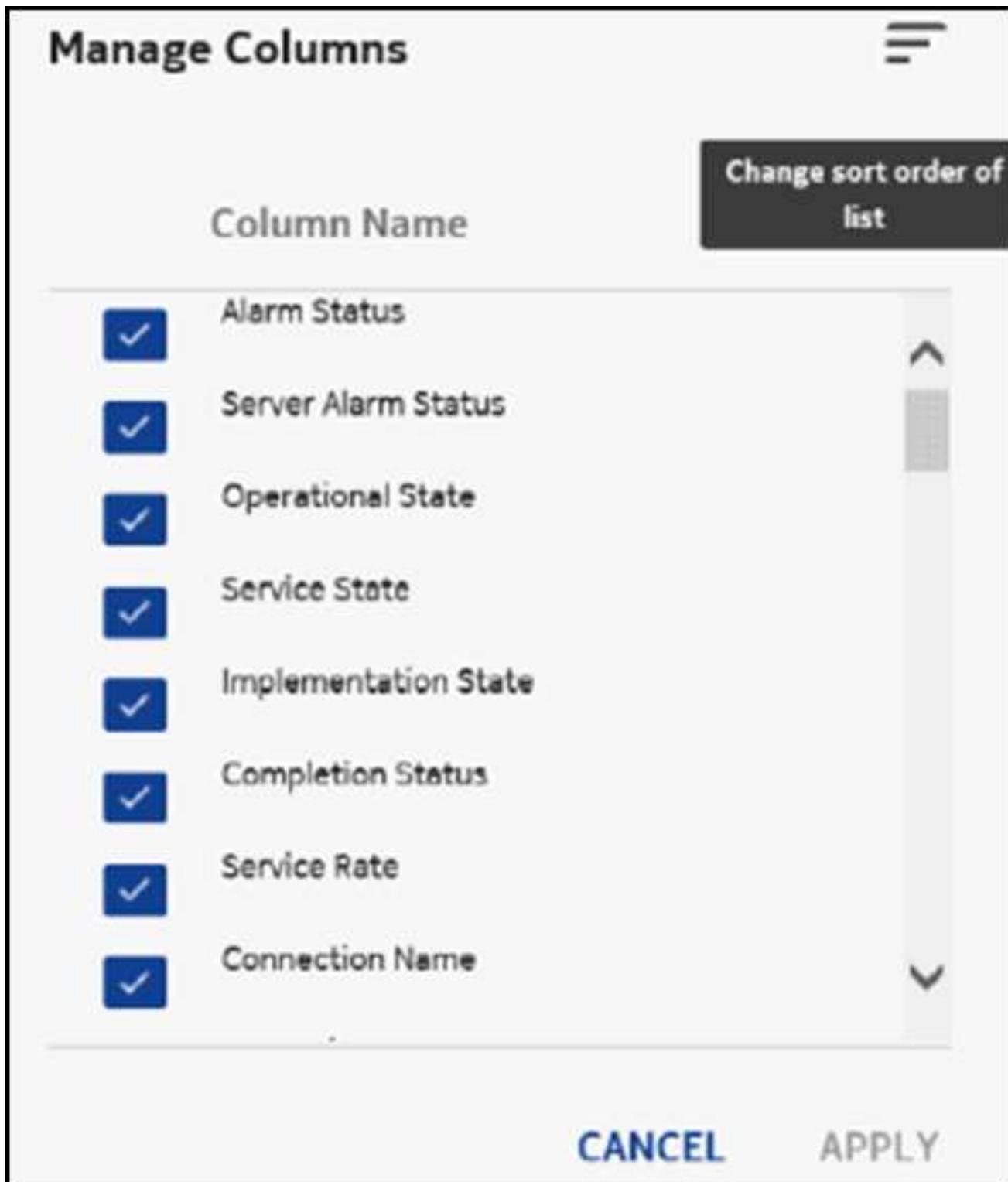
- **Clear Sorting:** Clears the actual sorting applied on the table and returns to default listing.
- **Clear Filters:** Clears the actual filters applied on the table and returns to no filters listing. The **clear** button is available to all the individual table filter pop-ups. The button clears out all the filters from the individual columns.
- **Manage Columns:** Opens a pop-up box that allows to select the columns to be displayed in the data table.

Note: This option is not available in following screens

- Physical Connections
 - Infrastructure Connections
 - Services
- **Autosize All Columns:** Resizes all columns to fit the window size.
 - **Reset All Columns:** Resets all columns to the original size.

Users can click on the three dots sign that is located in the upper right corner of the data table and select the path **Manage Columns** to customize the columns that are displayed in the data table. By checking or unchecking the column headings that are available for display, users can customize their views.

Figure 26-12 Data tables – manage columns

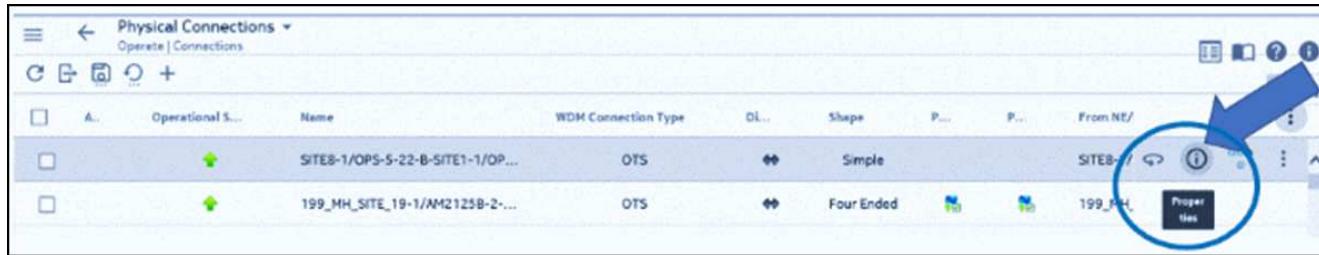


Any customizations that users make to a data table can be saved by clicking on the “[Save Table Preferences icon](#)” (p. 2269) icon. Users can click on the “[Reset Table Preferences to Default icon](#)” (p. 2267) icon to return to the original default view of the particular table.

View additional attributes for a selected item in a data table

Users can select the **Properties**  icon to view additional information about a selected item.

Figure 26-13 Data tables –  icon



Example: Users can select the **Properties**  icon to view additional information about a particular connection.

Figure 26-14 Data tables – i icon – additional information for a selected object

Properties: 02-DT-32-Berlin/10AN400-11-4-1-02-DT-32-Berlin/10AN400-12-15-1			
GENERAL			
Direction Bidirectional	Grid Type -	ASAP Name default ASAP	WDM Connection Type OPS
WDM Link Type OTN	Implementation State Implemented		
OTHER PROPERTIES			
Operational State Up	Name 02-DT-32-Berlin/10AN400-11-4-1-0...	From NE/Port #1 02-DT-32-Berlin/10AN400-11-4-1	To NE/Port #1 02-DT-32-Berlin/10AN400-12-15-1
Alarm Status Cleared	PM 15m Started	PM 24h Started	Protection Unprotected
Service State Not In Service	Administrative State In Service	OLC State In Service	Cluster Normal
Colors Bits 0000.0000.0000.0000.0000.0000.0...	Access Control Domain unknown unknown	OTDR Supported False	Latest Note
ASAP Not Set	Repeater False	ASELL Status NA	
LATENCY			
ASON			
ASON AutoRestoration -			
INTERNAL PROPERTIES			
Color Profile ID 1	Link Type Legacy	interShelf interShelf	Overlay Support False
UltraLong Span False	Fiber Route Associated False		
CLOSE			

The **Properties** window is enhanced to include different panes to segregate information related to an item. Some of the different panes are **GENERAL**, **OTHER PROPERTIES**, **INTERNAL PROPERTIES**, and so on. All the parameters required for debugging purpose is included in the **INTERNAL PROPERTIES** pane. The enhanced **Properties** window is applicable from the main

window and 360° View of the following **OPERATE** menus: **Physical Connections, Infrastructure Connections, Services, Protected Connections, Looped Back Connections, Nodes, and NEs.**

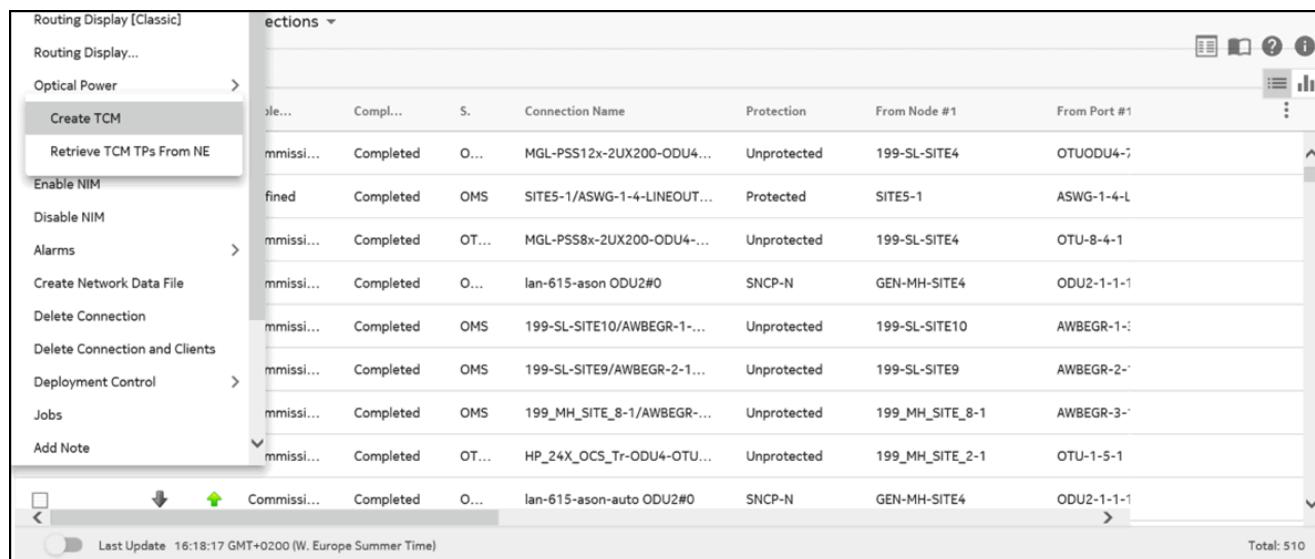
Three dots more... icon

Users can select an item in a data table by clicking on the three dots more icon  to view a list of additional navigation options or actions for that item. Not all items have additional navigation options or the same navigation options.

The selection of the three dots more icon  displays the following results: view additional information, perform additional actions, or select other navigation options.

Example: Users can select **three dots more...**  on a selected infrastructure connection and they can perform the additional navigation that is displayed:

Figure 26-15 Data tables – more... action example – item



Actions						
Action	Compl...	S.	Connection Name	Protection	From Node #1	From Port #1
Create TCM	Completed	O...	MGL-PSS12x-2UX200-ODU4...	Unprotected	199-SL-SITE4	OTUODU4-1
Retrieve TCM TPs From NE	Completed	O...	MGL-PSS8x-2UX200-ODU4...	Unprotected	199-SL-SITE4	OTU-8-4-1
Enable NIM	Completed	OMS	SITES5-1/ASWG-1-4-LINEOUT...	Protected	SITES5-1	ASWG-1-4-L
Disable NIM	Completed	OT...	MGL-PSS8x-2UX200-ODU4...	Unprotected	199-SL-SITE4	OTU-8-4-1
Alarms	Completed	OT...	MGL-PSS8x-2UX200-ODU4...	Unprotected	199-SL-SITE4	OTU-8-4-1
Create Network Data File	Completed	O...	lan-615-ason ODU2#0	SNCP-N	GEN-MH-SITE4	ODU2-1-1-1
Delete Connection	Completed	OMS	199-SL-SITE10/AWBEGR-1...	Unprotected	199-SL-SITE10	AWBEGR-1-1
Delete Connection and Clients	Completed	OMS	199-SL-SITE9/AWBEGR-2-1...	Unprotected	199-SL-SITE9	AWBEGR-2-1
Deployment Control	Completed	OMS	199-MH-SITE_8-1/AWBEGR...	Unprotected	199-MH-SITE_8-1	AWBEGR-3-1
Jobs	Completed	OMS	199-MH-SITE_8-1/AWBEGR...	Unprotected	199-MH-SITE_8-1	AWBEGR-3-1
Add Note	Completed	OT...	HP_24X_OCS_Tr-ODU4-OTU...	Unprotected	199-MH-SITE_2-1	OTU-1-5-1

Example: Users can select a node, select More... on the card for the node, and perform the additional navigation that is displayed:

Three dots more... on a set of selected items in a data table for additional menu options

When you select more than one item in a list, the common **three dots more...**  icon is displayed on the left upper side of the data table where the common actions and navigation that can be applied to all the selected objects. The single icon on the data table row is no longer available for the selected items. Click the common icon to select the navigation or action to perform.

Go to previous page

Users can go back to the previously displayed page by clicking on the back arrow in the top left corner.

Figure 26-16 Data tables – go to previous page



See recently visited pages

Users can see the list of recently visited pages by clicking the arrow on the right of the page title, the page title is displayed and the list of recently visited pages, select the page in the list to go back to that page.

Figure 26-17 Data tables – see recently visited pages



26.3 Data table icons and actions

Common cross-screen functions icons

Common cross-screen function icons are located on the upper right corner for all the data tables.

Table 26-2 Data tables - common cross-screen functions icons

Icon	Description
	Displays the system command log in a new window. For details on the use of the Show System Command Log icon, refer to 26.10 "View the System Command Log" (p. 2223) .
	Displays the NFM-T documentation web library in a new window
	Displays the NFM-T Set Preferences window.
	Displays the NFM-T video tutorials window.
	Displays the current screen help page in a new window.
	Displays a box with the information about the NFM-T release.

Common table actions icons

Common table actions icons are located on the upper left corner for all the data tables

Icon	Icon Label	Description
	Refresh	Allows to refresh the data displayed in the table. Data are read from the database and displayed.

Icon	Icon Label	Description
	Filter	Allows to setup a data set filter on the table. See "Data Set Filter Icon and Window" (p. 2203) for details.
	Export to .csv	Allows to export the table data to a .csv file. See 26.6 "Export a Data Table to a .csv File" (p. 2209) for details.
	Save Table Preferences	Allows the users to save any table manipulations or customizations that they have set for the particular table.
	Reset	Any table manipulations or customizations that they have set for the particular table are reset to the default view of the table.

Display icons

Display icons are located on the upper right corner under the Help and Log icons for all the data table.

Icon	Description
	Displays the current data table as a list.
	Displays the current data table as a graphic. This option is available on specific data tables.

Reset table preferences to default icon

The **Reset Table Preferences to Default** icon is displayed for most data tables on the NFM-T GUI. When users click this icon, any table manipulations or customizations that they have set for the particular table are reset to the default view of the table.

Figure 26-18 Data tables – reset table preferences to default icon



Save Table Preferences icon

The **Save Table Preferences** icon is displayed for most data tables on the NFM-T GUI. When users click this icon, any table manipulations or customizations that they have set for the particular table are saved.

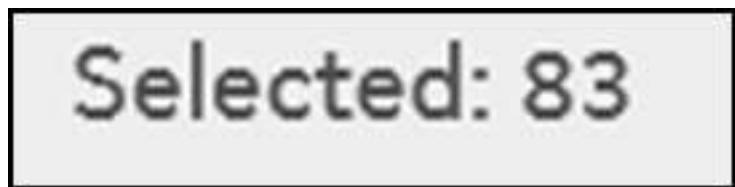
Figure 26-19 Data Tables – Save Table Preferences Icon



Selected Objects icon

The **Selected Objects** icon is displayed with all data tables. It is located in the lower right corner of the data table. The **Selected Objects** icon displays a count of the number of objects that the user has selected for viewing.

Figure 26-20 Data Tables – Selected Objects icon



Total Objects icon

The **Total Objects** icon is displayed with all data tables. It is located in the lower right corner of the data table. The **Total Objects** icon displays the number of rows of objects that are listed in the data table; meaning, the number of rows of objects that are listed from the beginning of the data table to the end of the data table.

Figure 26-21 Data Tables – Total Objects Icon



Total Objects - Snippet icon

If the number of the total rows of objects exceeds the threshold limit of the data table display, the **Total Objects** icon is overlaid with a **Snippet** icon (a pair of scissors) and a set of numerical values is displayed to the right of the **Snippet** icon. The value on the left indicates how many rows of objects are currently being displayed, which is a *snippet* of the data; the bracketed value on the right indicates the total number of actual rows of objects.

For instances in which the **Snippet** icon is displayed, users are encouraged to filter the data table to view required rows of objects.

Note: The display of the **Total Objects** icon overlaid with the **Snippet** icon is reserved only for data tables that can have voluminous rows of objects, such as the **Services** data table.

Figure 26-22 Data Tables – Selected Objects – Snippet – Icon



26.4 Data Table Filtering Icons

Filter icon

Many data table columns are accompanied with a **Filter** icon that is located to the right of the column heading. For details on the use of the **Filter** icon, refer to “[Filter columns in a data table](#)” (p. 2189).

Figure 26-23 Data Tables – Filter Icon



Data Set Filter Icon and Window

The **Data Set Filter** icon is displayed for most data tables on the NFM-T GUI. When users click this icon, a Data Set Filter pop-up box is displayed where users can customize the filtering on the displayed table.

Figure 26-24 Data Set Filter Icon

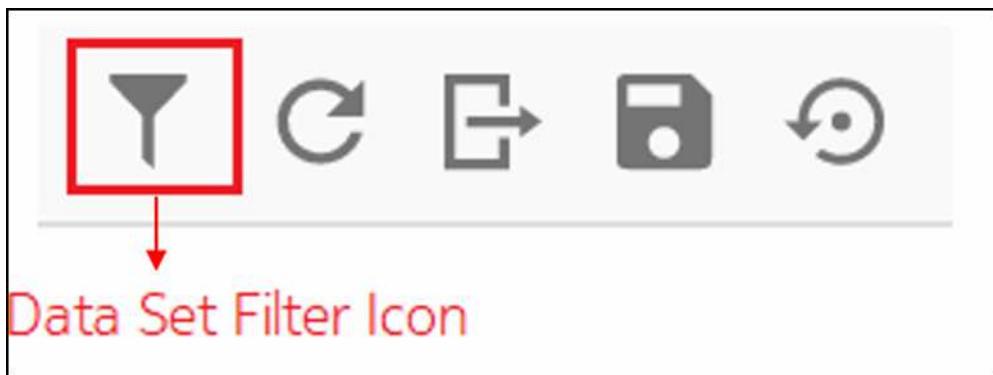
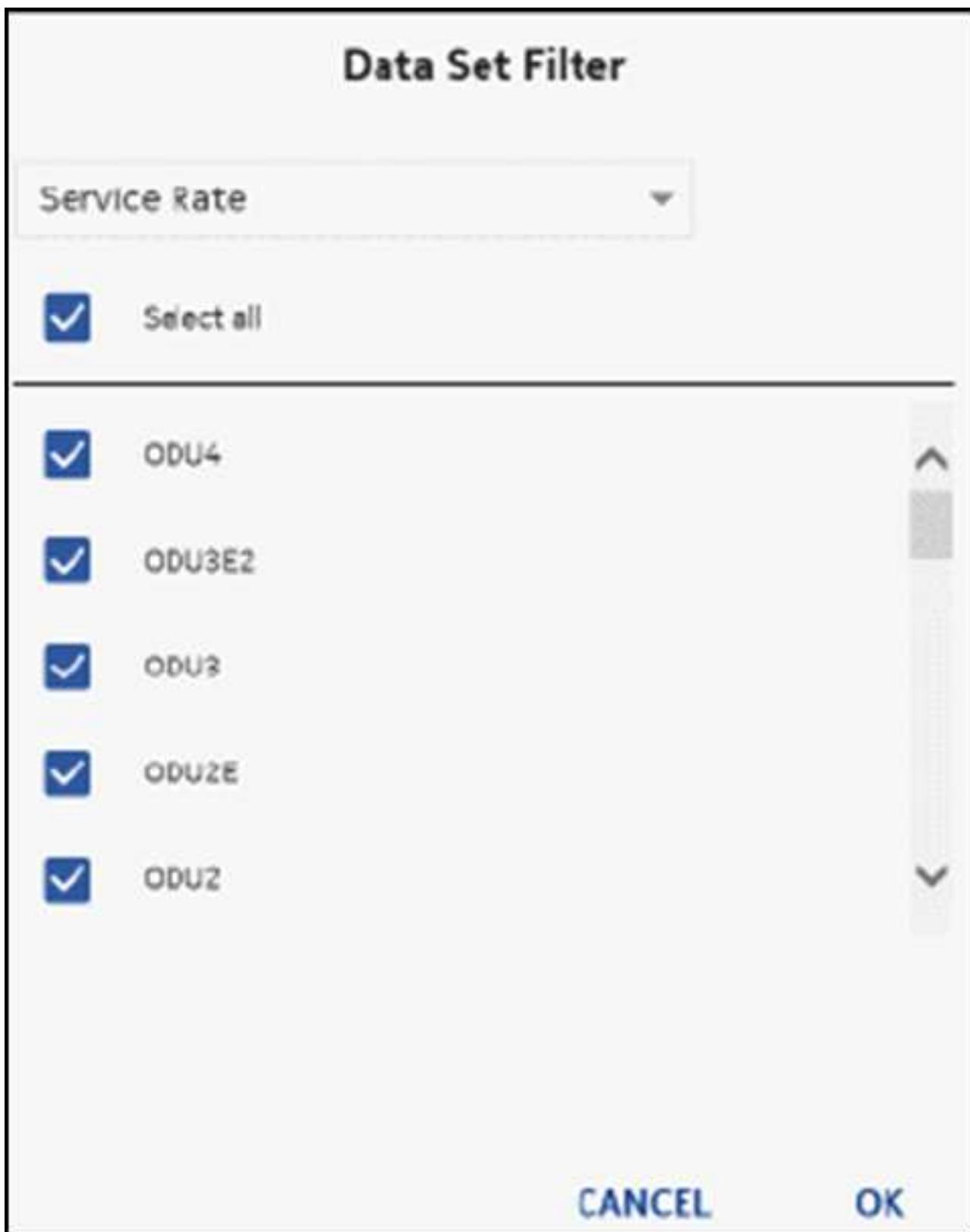


Figure 26-25 Data Tables – Data Set Filter Box



By clicking on the drop-down list the columns that can be inserted in the filter set are displayed.

Figure 26-26 Data Tables – data set filter columns



Select the desired column, to display the related filters. The default is no filter, all the possible values are selected. To set a filter check the filter values and clear the remaining.

This operation is applicable for selected columns. To confirm the filtering data set, click OK. The selected data set filter is applied to the table and the displayed data are consequently refreshed.

The applied filter is indicated as a filter chip on the toolbar, adjacent to the icons on the toolbar. Hover-over the chip to see the criteria of the filter that is applied.

This figure indicates the filter chip applied to the complete data set of a data table list.

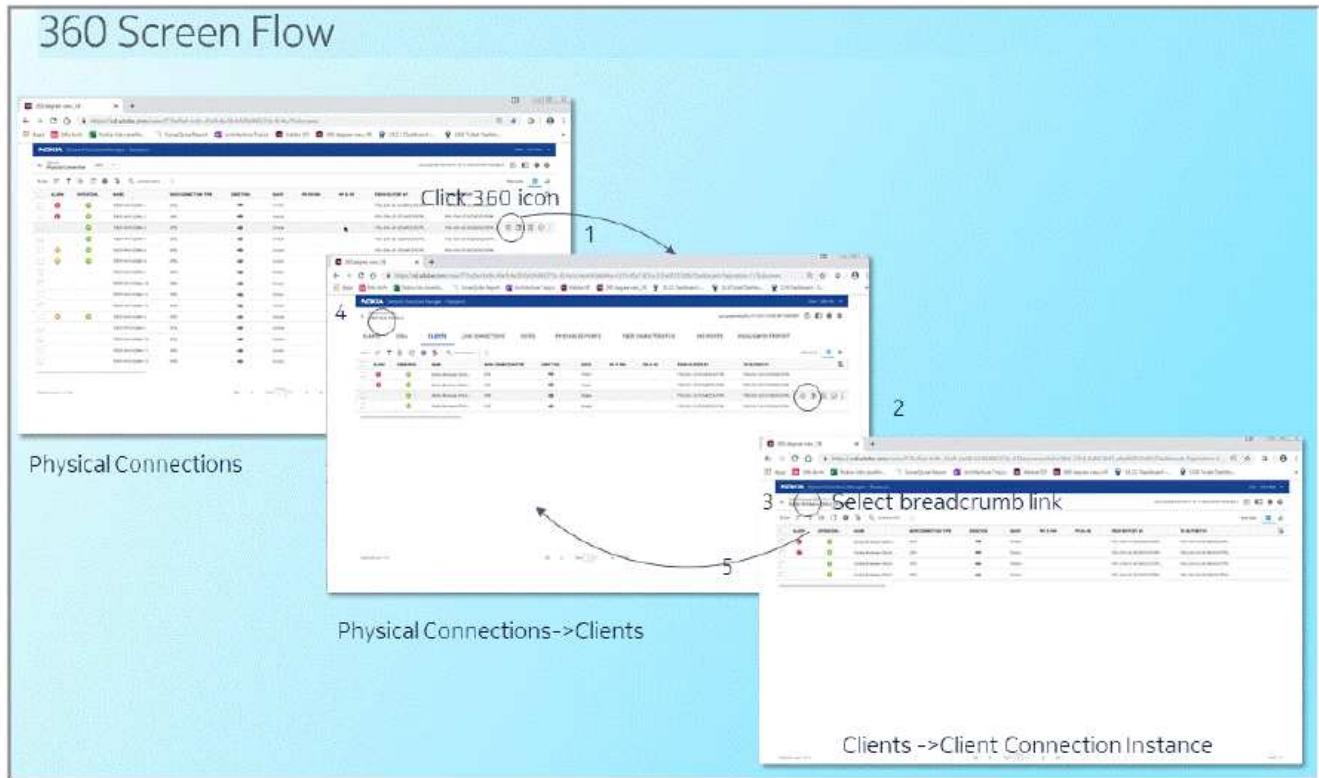
Figure 26-27 Data set filter chip on toolbar

The screenshot shows the 'Operate | Connections' section under 'Infrastructure Connections'. At the top, there are several filter buttons: 'OPERATIONAL STATE' (selected), 'ALARM STATUS', 'EFFECTIVE RATE', 'IMPLEMENTATION STATUS', and 'OLC STATE'. Below these are buttons for 'ALL', 'NA', 'UP', 'DOWN', and 'DEGRADED'. A 'MANAGE COLUMNS' button is also present. In the main area, there is a data table with columns: 'Connecti...', 'Rate', 'Name', 'Protection', and 'From Node #1'. The 'Rate' column header has a red box around it, indicating it is the active filter. The table lists various network connections, all marked as 'Commissioned' and 'ODU2'. The last row shows a connection named 'SC-1-6-SRG3 ODU2#1'. At the bottom, a status bar shows 'Last Update: 26/11/2021 13:40:41' and 'Total: 48 [630]'. A scroll bar is visible on the right side of the table.

26.5 Data Tables 360° View

360° flow

Figure 26-28 Data Tables - 360° view flow



The [Figure 26-28, “Data Tables - 360° view flow” \(p. 2207\)](#) summarizes possible flow for the 360° View.

1. The flow starts navigating from the displayed network object to 360° view of one of the objects. The Hover icon gives access to the 360° view.
2. From the 360° view tabbed topic the flow allows to navigate to the 360° view of one object of the tabbed topic. Where applicable, the user can drill down to the next level of 360° view, which is listed in the breadcrumb history, for example Services > Servers List.
3. The flow allows to breadcrumb back to the tabbed topics of the network object.
4. Breadcrumb back to starting network object data table.
5. Or, go directly back to starting network object data table from the breadcrumb history.

Tabbed topics defined

Tabbed topics are a set of user selectable tabs that, when selected, contain all of the information that is related to a particular network management object or, when selected, can navigate users to additional information related to a particular network management object.

Tabbed topics location

In most instances, tabbed topics are reached by clicking the **360° View** hover icon on the selected network management object row. In some other instances, tabbed topics are located directly to the left of the data table of the selected network management object. The following figures illustrates the locations of the tabbed topics on the NFM-T GUI.

Figure 26-29 Data Tables - Tabbed Topics

NE	NE Severity	Port/SNC	NE SA/NSA	Alarm Type	NE Probable Cause
199_MH_SITE_11-1	🟡	RA2P-1-2-LINEIN	Service Affecting	Primary	Underlying resource una
199_MH_SITE_1-1	🟡	ASWG-2-11-LINEOUT	Non Service Affecting	Primary	Power Adjustment Requi
199_MH_SITE_11-1	🔴	AM2125B-1-3		Primary	Card missing
199_MH_SITE_11-1	🟡	RA2P-1-2-LINEIN	Non Service Affecting	secondary	APR Limited
199_MH_SITE_11-1	🟡	AM2125B-1-3-LINEOUT	Non Service Affecting	secondary	APR Limited

26.6 Export a Data Table to a .csv File

When to use

Use this task to export a data table to a **.csv** file.

Related information

See the following topics in this document:

- [26.2 “Data table description” \(p. 2182\)](#)

Before you begin

The data table must be accompanied with an **Export to .csv file** icon.

Figure 26-30 Data Tables – Export to .csv File icon



Task

Complete the following steps to export any data table that has an **Export to .csv file** icon to a **.csv** file.

1

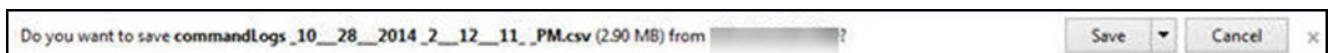
From any data table that is accompanied with an **Export to .csv file** icon, mouse over the icons on the top right and select the **Export to .csv** icon.

Result: The system displays the a pop-up window that asks you what you want to do with the <filename>.csv file:

Do you want to save <filename>.csv <size> from <IP address>?

Example: The following figure illustrates the first export pop-up window displayed for the User Activity Log.

Figure 26-31 Data Tables – User Activity Log – First Export Window



2

Select **Save**, **Save As**, or **Save and Open**.

- If you select **Save**, the file is saved to your **Downloads** directory.
- If you select **Save As**, you can rename the file and save it to a directory of your choice.

Result: The system downloads the file and displays a message similar to the following:

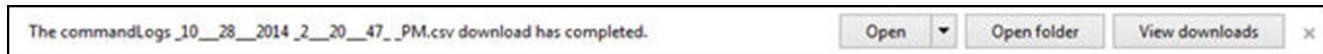
The <filename>.csv download has completed.

The system displays gives you options on opening the file.

All the data stored for the object, for example, services, infrastructures, are saved in the .csv file and downloaded, not only the data displayed in the list.

Example: The following figure illustrates the second export pop-up window displayed for the User Activity Log.

Figure 26-32 Data Tables – user activity log – second export window



3

If you want to view the .csv file now, do one of the following:

- If you selected **Save**, select **Open**.
- If you selected **Save As**, select **Open folder**, and double click on the .csv file that is highlighted.

If you want to view the .csv file at a later date, do one of the following:

- If you selected **Save**, navigate to the **Downloads** folder and double click on the .csv file that was downloaded.
- If you selected **Save As**, navigate to the folder where you saved the .csv file and double click on it to open.

Result: The .csv file is opened.

Example: The following figure illustrates the User Activity Log that was saved in .csv format and opened in *Microsoft Office Excel*.

Figure 26-33 Data Tables – User Activity Log – Microsoft Office Excel Format

The screenshot shows a Microsoft Excel spreadsheet titled "Trail_20200827_074831.UTC.csv - Excel". The ribbon menu is visible at the top. A context menu is open over the first row of data, specifically over the cell containing "Operational State". The menu includes options like "Paste (Ctrl+V)", "Add content on the Clipboard to your document", and "Conditional Formatting". The main table below has 21 rows of data, each with columns for Operation, Implementer, Effective Date, Name, Protection From Node, Port To Node, Status, and various service and alarm details.

1	Operation	Implementer	Effective Date	Name	Protection From Node	Port To Node	#To Port #1	From Node	To Node	#To Port #2	Alarm Stat	Server Ala	Service St:	OLC State	Implementer	15-Minute
2	Up	Commissi ODU4	lakshmi-o:i Unprotect	01-ROADM OTUODU403-ROADM OTUODU4-5-2-L1-CH1							Cleared	Cleared	In Service	In Service	Completer	Not Enabl
3	NA	Partially A ODU4	IL-LL-OPS/ SNCP	01-ROADM OTUODU403-ROADM OTUODU4-6-3-L1							Cleared	Cleared	N/A	In Service	Failed	Not Enabl
4	Up	Commissi OMS	03-ROADM Unprotect	03-ROADM ASWG-2-114-C-F-WFASWG-1-214-C-F-WFASWG-1-303-ROADM ASWG-2-1	Cleared	Cleared	In Service	In Service	Completer	Not Enabl						
5	Up	Commissi OMS	06-CDCF-I Unprotect	06-CDCF-I OTUODU412-CDC-F-OTUODU4-2-1	Cleared	Cleared	In Service	In Service	Completer	Not Enabl						
6	NA	Full Alloc ODU4	CASCADEE Unprotect	12-CDCF-I OTUODU412-CDC-F-OTUODU4-4-2-L1	Cleared	Cleared	N/A	In Service	Failed	Not Enabl						
7	Up	Commissi ODU4	TCM-2605 Unprotect	15-CDC-F- OTUODU412-CDCF-I OTUODU4-3-8-L1-CH2	Cleared	Cleared	N/A	In Service	Completer	Not Enabl						
8	Degraded	Commissi ODU4	IL-OPSA-1:OCHP Ser	15-CDC-F- OTUODU412-CDCF-I OTUODU4-10-3-L1	Cleared	Cleared	Major	In Service	In Service	Completer	Not Enabl					
9	Up	Commissi OMS	19-ROADI Unprotect	19-ROADI IROADM-124-ROADM ASWG-1-234-ROADM ASWG-1-3 19-ROADI IROADM-124-ROADM ASWG-1-1	Cleared	Cleared	In Service	In Service	Completer	Not Enabl						
10	Up	Commissi OMS	26-C-F-WF Unprotect	26-C-F-WF Unprotect 26-C-F-WF ASWG-2-132-ROADM ASWG-1-132-ROADM ASWG-1-126-C-F-WFASWG-2-1	Cleared	Cleared	In Service	In Service	Completer	Not Enabl						
11	Up	Commissi OMS	33-ROADI Unprotect	33-ROADI IROADM-132-ROADM ASWG-2-232-ROADM ASWG-2-333-ROADI IROADM-132-ROADM ASWG-2-1	Cleared	Cleared	In Service	In Service	Completer	Not Enabl						
12	Up	Commissi OMS	36-ILA-3//Unprotect	36-ILA-3//Unprotect 36-ILA-3 ASWG-1-337-ROADM ASWG-2-137-ROADM ASWG-2-136-ILA-3 ASWG-1-2 Cleared	Cleared	Cleared	Out Of Ser	In Service	Completer	Not Enabl						
13	Up	Commissi ODU2	Test-11QPA Unprotect	99-PSS32 11QPA4-4-12-CDCF-I 11QPA4-3-15-L1-1	Cleared	Cleared	Major	In Service	In Service	Completer	Not Enabl					
14	Up	Commissi ODU2	IL-INFRA-1 Unprotect	99-PSS32 11QPA4-4-12-CDCF-I 11QPA4-3-10-L1-1	Cleared	Cleared	Cleared	In Service	In Service	Completer	Not Enabl					
15	Up	Commissi OMS	02-CDC-F- Unprotect	02-CDC-F- ASWGL-2- 24-IRDM3 IROADML-24-IRDM3 IROADML-02-CDC-F- ASWGL-2- Cleared	Cleared	Cleared	In Service	In Service	Completer	Not Enabl						
16	Up	Commissi OMS	04-CDC-F- Unprotect	04-CDC-F- AWBEGR- 21-CDC-F- AWBING-21-CDC-F- AWBEGR- 04-CDC-F- AWBING- Cleared	Cleared	Cleared	In Service	In Service	Completer	Not Enabl						
17	Up	Commissi ODU4	New-Depl Unprotect	04-CDC-F- OTUODU421-CDC-F- OTUODU4-11-8-L1-CH2	Cleared	Cleared	Major	In Service	In Service	Completer	Not Enabl					
18	Up	Commissi ODU4	DSX500_C Unprotect	11-IRDM3 OTUODU413-IRDM3 OTUODU4-2-2-L1-CH1	Cleared	Cleared	Cleared	In Service	In Service	Completer	Not Enabl					
19	Up	Commissi OMS	20-IRDM3 Unprotect	20-IRDM3 IROADM-21-CDC-F- ASWGL-1- 21-CDC-F- ASWGL-1- 20-IRDM3 IROADML- Cleared	Cleared	Cleared	In Service	In Service	Completer	Not Enabl						
20	Up	Commissi OMS	27-IRADL Unprotect	27-IRADL IROADM-129-CDC-F- IROADM-129-CDC-F- IROADM-127-IRADL IROADM-1 Cleared	Cleared	Cleared	In Service	In Service	Completer	Not Enabl						
21	Up	Commissi OMS	02-MRN-J Unprotect	02-MRN-J Unprotect 02-MRN-J ASWG-7-803-MRN-J A4PSWG-103-MRN-J ASWG-7-802-MRN-J A4PSWG-1	Cleared	Cleared	In Service	In Service	Completer	Not Enabl						

END OF STEPS**Support of UTF-8 related export**

This task describes how to import correctly exported .csv files and display them in Excel.

- 1 Open Excel application.
- 2 Select **Data** from the main menu, then follow the path **Get Data > From File > From Text/.csv**.
- 3 Select the file to import and click on **Import**.
Result: A preview window is displayed with the imported data.
- 4 In the **File Origin** field select the value **65001: Unicode (UTF-8)**

5

Verify that you can see the Chinese, Scandinavian, or other characters that need this encoding, in the field where they appear on the Excel pop-up. Click the **Load** button to save the file with this encoding.

END OF STEPS

26.7 Manage data columns

Purpose

This section describes the **Select View** area of a page and how you can manage the columns in the data table using the **Manage Columns** option.

Select View area on the selected page

Each page has a **Select View** area at the top. It shows various categories of data, termed as views. Each view represents a filter criteria and has a subset of pre-defined filters. The pre-defined filters for each view appear as tabs below the **Select View** area. Each tab has a set of columns and a filter criteria associated with it. The data table lists the filtered data for the selected tab and displays only those columns associated with the tab. For example, [Figure 26-34, "Select a view and one of its filters" \(p. 2213\)](#), shows that the selected view is **ALARM STATUS** and the selected filter is **WARNING**. The data table shows all items where the Alarm Status is Warning and displays only those columns associated with the **WARNING** tab.

Figure 26-34 Select a view and one of its filters

The screenshot shows the 'Operate | Network Equipment' interface for 'NEs'. At the top, there's a 'Select View' dropdown with tabs: COMMUNICATION STATE, ALIGNMENT STATE, ALARM STATUS (selected), SUPERVISION STATE, and NTP SYNC STATUS. Below these are filter tabs: ALL, PENDING, CRITICAL, MAJOR, MINOR, WARNING (selected), INDETERMINATE, and CLEARED. A toolbar with icons follows. The main area contains a data table with columns: Name, Alarm Status, Communication State, Supervision State, NE Type, Release, and Add. The 'Alarm Status' column header is highlighted with a red box. The first row shows 'LOCP-661885-SITE2' with an alarm status of 'Warning' (indicated by a blue 'W' icon). A mouse cursor is hovering over this cell. The second row shows 'LOCP-661885-SITE3' with an alarm status of 'Warning'. The third row shows 'LOCP-661885-SITE4' with an alarm status of 'Warning'. The bottom of the screen shows a footer with 'Last Update: 3/4/2022 9:42:31 AM' and 'Total: 3'.

Similarly, when you select the CRITICAL filter, the data table shows only those columns associated with the CRITICAL filter and lists all items where the Alarm is 'Critical'.

You can configure a view by selecting a different set of columns for a tab. For example, you can remove the **NE Type** column from the **Alarms > Warning** sub-tab. You cannot modify the filter criteria or the names of the tabs themselves.



Note: Each view has a tab named 'ALL' which displays all the data with no filter applied. The columns displayed can be set up just like other tabs.

Set up Views

Each page or operation has a different set of views and filter tabs. You can select a maximum of five views for a page, from a pre-defined set of views for a page. For each view, there are pre-defined filters that appear as tabs. For each tab, there are set of fixed columns that appear in the data table. You can add/remove additional columns from the data table. You can save this setup for future sessions or apply the change for the current session only.

Manage Columns window

You can manage views from the **Manage Columns** window. To open this window, click icon on the right of the **Select View** area.

Figure 26-35, "Manage Columns window" (p. 2213) shows the **Manage Columns** window.

Figure 26-35 Manage Columns window

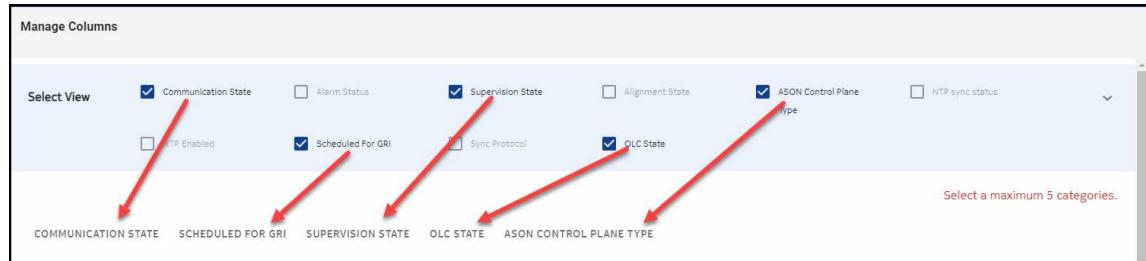
The screenshot shows the 'Manage Columns' window with the following sections:

- Select View:** A row of checkboxes for various state categories: Communication State, Alarm Status, Supervision State, Alignment State, ASON Control Plane Type, NTP Enabled, Scheduled For GRI, Sync Protocol, and OLC State. A note says "Select a maximum of 5 categories".
- Filter Tabs:** COMMUNICATION STATE, ALARM STATUS (highlighted), SUPERVISION STATE, ALIGNMENT STATE, ASON CONTROL PLANE TYPE. Below each tab are buttons for ALL, CLEARED, CRITICAL, MAJOR, MINOR, WARNING (highlighted), INDETERMINATE, and PENDING.
- Fixed Columns:** A row of checkboxes for fixed columns: Alarm Status, Communication State, Supervision State, Name, Release, NE Type, and Address.
- Default Columns:** A grid of checkboxes for default columns grouped by category:
 - ASON Control Plane Type, Alignment State, Card Direction, Comments, Creation Date, EML Domain ID
 - Last Control Operation, Last Control Operation Status, Latest Note, Location, Loopback IP Address, Master Shelf Type
 - NTP Enabled, NTP sync status, Network Adapter Reachability, OLC State, Product Name, SNMP Version
 - SSH2 Key File, SSH2 User, Scheduled For GRI, Secondary Address, Sync Protocol, System Type
 - TID, Time Zone
- Buttons:** CANCEL, RESET, APPLY, and APPLY & SAVE.

The Manage Columns window has two areas:

- **Select View**

The **Select View** area shows the available categories or views for the selected operation or page. Some of the views are selected by default. You can select any five views from the list. Once you select five views, the remaining options are disabled. If you want to replace a view, de-select the view and then select another view from the available list. Each selected view appears as a tab below the **Select View** area. In the figure below, five views are selected and there are five tabs corresponding to the selected views. Notice that since all the five views are selected, the other views are grayed out and cannot be selected.



- **Tabbed regions for each view**

Each view in turn has a set of pre-defined filters that appear as sub-tabs. [Figure 26-36, “Manage Columns - sub-tabs and DEFAULT COLUMNS region” \(p. 2214\)](#), the ALARM STATUS view has sub tabs like ALL, PENDING, CRITICAL and so on.

Figure 26-36 Manage Columns - sub-tabs and DEFAULT COLUMNS region

Manage Columns

Select View

COMMUNICATION STATE ALIGNMENT STATE ALARM STATUS SUPERVISION STATE NTP SYNC STATUS

ALL PENDING CRITICAL MAJOR MINOR WARNING INDETERMINATE CLEARED

Fixed Columns

DEFAULT COLUMNS

<input type="checkbox"/> ASON Control Plane Type	<input checked="" type="checkbox"/> Alignment State	<input type="checkbox"/> Card Direction	<input type="checkbox"/> Comments	<input type="checkbox"/> Creation Date	<input type="checkbox"/> EML Domain ID
<input type="checkbox"/> Last Control Operation	<input type="checkbox"/> Last Control Operation Status	<input type="checkbox"/> Latest Note	<input checked="" type="checkbox"/> Location	<input type="checkbox"/> Loopback IP Address	<input type="checkbox"/> Master Shelf Type
<input type="checkbox"/> NTP Enabled	<input type="checkbox"/> NTP sync status	<input type="checkbox"/> Network Adapter Reachability	<input type="checkbox"/> OLC State	<input type="checkbox"/> Product Name	<input type="checkbox"/> SNMP Version
<input type="checkbox"/> SSH2 Key File	<input type="checkbox"/> SSH2 User	<input type="checkbox"/> Scheduled For GRI	<input type="checkbox"/> Secondary Address	<input type="checkbox"/> Sync Protocol	<input type="checkbox"/> System Type
<input type="checkbox"/> TID	<input type="checkbox"/> Time Zone				

CANCEL RESET APPLY APPLY & SAVE

Each sub tab has two regions:

- **Fixed Columns**

The columns listed in the Fixed Columns region are fixed and you cannot add/delete columns in this region. These columns appear in data table below the **Select View** area on the main page.

- **DEFAULT COLUMNS**

The columns listed in the DEFAULT COLUMNS region can be selected or de-selected. Some columns are enabled by default. You can disable these columns and select all or a subset of columns. All the selected columns appear in data table below the **Select View** area on the main page.



Note: When a reset is performed on manage columns, then users need to refresh the page for the changes to be updated in the UI.

Selecting views and data table columns

The steps to manage the views and the data columns available on a page are:

1

Click **MANAGE COLUMNS**  on top right corner on the page.

Result: The system displays the **Manage Column** window.

2

Select a maximum of five views in the **Select View** area.

Result: The system displays the selected views as tabs under the **Select View** area.

3

Click one of the view tabs.

Result: The system displays pre-defined filters that appear as sub-tabs below the view tabs.

4

Click one of the sub-tabs.

5

In the DEFAULT COLUMNS region, select the columns that you want to appear on the data table.

6

To apply the changes:

Click **APPLY & SAVE** to save the changes and apply the modifications on data table in the main page.

click **APPLY** to return to the selected page with the changes applicable for the current session only, without saving the changes.

7

To cancel or reset the columns to the default:

Click **RESET** to reset all selections to default.

Click **CANCEL** to return to the main page without saving the changes.

END OF STEPS

26.8 Save data table preferences and reset data table preferences to default

When to use

Use these tasks to save data table preferences and to reset the data tables to its default display.

Related information

See the following topics in this document:

- [26.2 “Data table description” \(p. 2182\)](#)

Before you begin

The data table must be accompanied with a **Save Table Preferences** icon or a **Reset Table Preferences to Defaults** icon.

If you save your table customization settings, you can navigate to other areas of the NFM-T GUI, return to the original table that you customized, and display a refreshed table with the original customized settings. At any time, you can reset the data table to its default display.

Figure 26-37 Data Tables – Save Table Preferences Icon



Figure 26-38 Data Tables – Reset Table Preferences to Defaults Icon



Task: Save Table Preferences

Complete the following steps to save data table preferences.

1

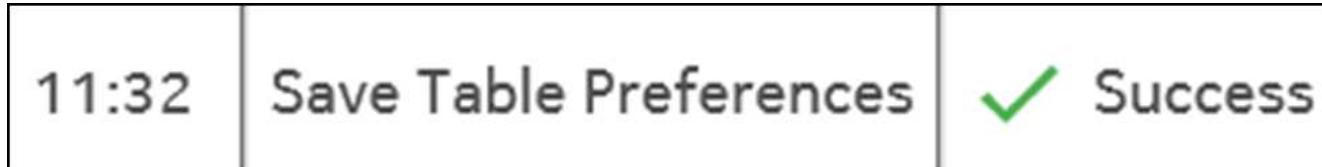
From any data table that is accompanied with a **Save Table Preferences** icon, click the three dots icon located in the upper right corner of the data table to customize the columns that are displayed in the data table. In addition, use any column filters to further customize each column.

2

Mouse over the icons on the top left and select the **Save Table Preferences** icon.

Result: The system displays a pop-up window that informs you that your preferences have been saved.

Figure 26-39 Data Tables – Save Table Preferences



END OF STEPS

Task: Reset Table Preferences to defaults

Complete the following step to reset a data table to its default display.

1

From any data table that has been customized and is accompanied with a **Reset Table Preferences to Defaults** icon, mouse over the icons on the top left and select the **Reset Table Preferences to Defaults** icon.

i Note: When columns or preferences are added, this action is requested to bring up the preferences in order for the changes to be visible.

Result: The system resets the data table preferences to the defaults and instantly refreshes the table with the defaults.

END OF STEPS

26.9 Save or reset data table preferences on connections (physical/ infrastructure) and services screen

When to use

Use these tasks to save data table preferences (Column order, filters and sorting) and to reset the data tables to its default display on following screens:

- Physical Connections
- Infrastructure Connections
- Services

Task: Save table preferences

Complete the following steps to save data table preferences (Column order, filters and sorting).

1

Change the filters or sorting of the data columns or the column order.

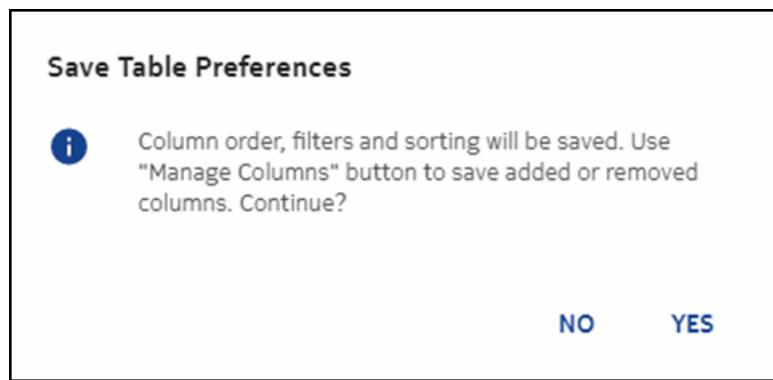
2

Mouse over the icons on the top left and select the **Save Table Preferences** icon.

Figure 26-40 Data Tables – Save Table Preferences Icon



Result: The system display a pop window with a confirmation message.



3

Click YES.

Result: The system saves the changes made in filters, sorting, and order of the table columns.

END OF STEPS

Task: Reset Table Preferences to defaults

Complete the following step to reset a data table to its default display.

1

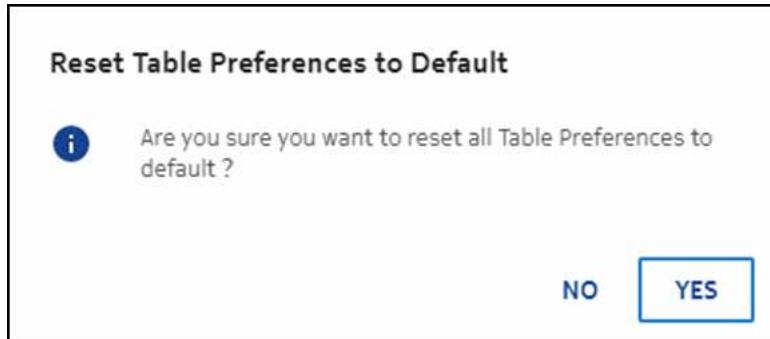
From any data table that has been customized and is accompanied with a **Reset Table Preferences to Defaults** icon, mouse over the icons on the top left and select the **Reset Table Preferences to Defaults** icon.

Figure 26-41 Data Tables – Reset Table Preferences to defaults icon



Note: When columns or preferences are added, this action is requested to bring up the preferences in order for the changes to be visible.

Result: The system display a popup window with a confirmation message.



2

Click YES.

Result: The system resets the data table preferences to default and refreshes the table.

END OF STEPS

26.10 View the System Command Log

Purpose

Use these tasks to view the NFM-T system command log.

The NFM-T GUI enables you to view NFM-T system command logs, which are in the **Log History** data table. This data table enables you to view the success or failure status of NFM-T system commands. The **Log History** data table provides you with icons that, when clicked, enable you to save table preferences, reset table preferences, and export the contents to a **.csv** file.

See the following topics in this document:

- [26.2 “Data table description” \(p. 2182\)](#)
- [26.6 “Export a Data Table to a .csv File” \(p. 2209\)](#)

Task

Complete the following steps to view the NFM-T system command log using the **Show Log History** icon.

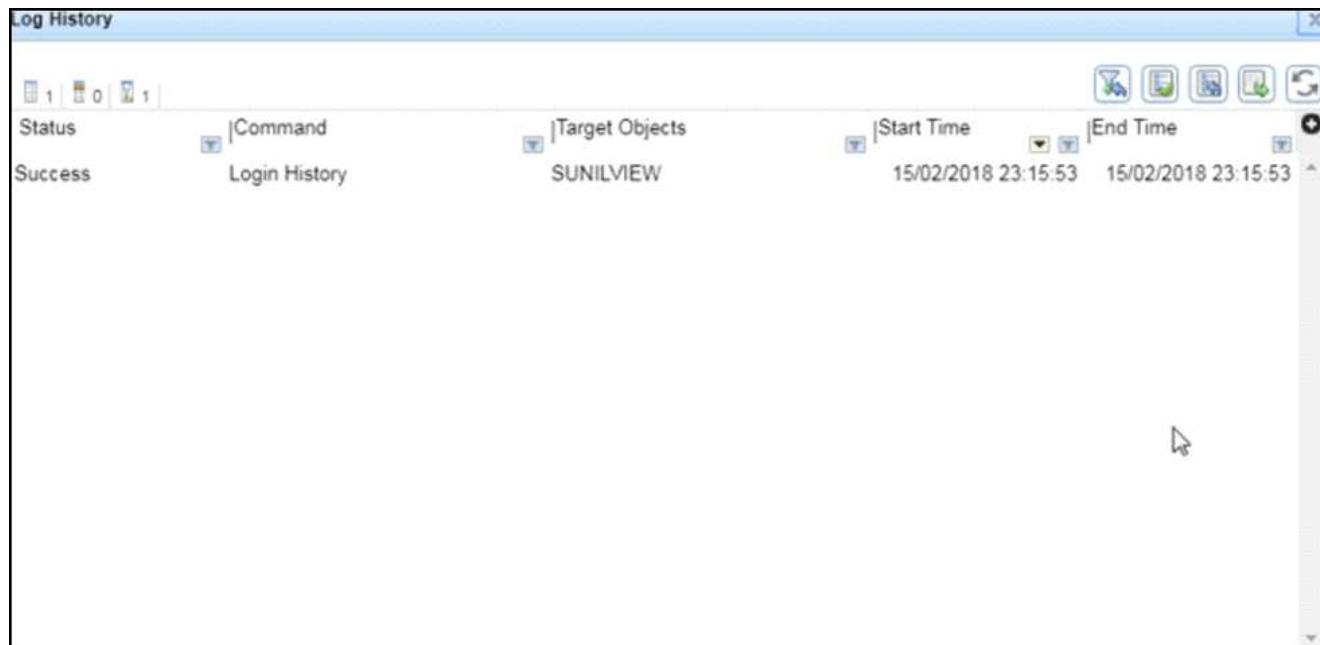
1

From any navigation path off of the **DESIGN**, **DEPLOY**, **OPERATE**, or **ADMINISTER** main menu, mouse over the icons on the upper bottom right of the NFM-T GUI window and select the **Show Log History** icon. The **Show Log History** icon is displayed also in the **File Transfer Service** window and can be accessed also from there, mouse over the icons on the lower bottom right.

The **Show Log History** icon is displayed also in the **DESIGN**, **DEPLOY**, **OPERATE**, or **ADMINISTER** of the **Ethernet Service Manager** application windows and can be accessed also from there, mouse over the icons on the lower bottom right.

Result: The system displays the screen in a new window, that is the Log History window. This new window has a reduced size so that the user can view both, the Log History and the data table window from where the Log History is launched. This data table logs the success or failure of NFM-T system commands.

Figure 26-42 Data Tables – show log history



The window shows the session history. The latest information is displayed at the top of the window. The user can change the table display order preference. See [26.2 “Data table description” \(p. 2182\)](#) for details on filtering and ordering of a data table. As long as the window is open, the log information window is refreshed and the data is displayed on the open log window.

2

To close the Log History window, use the close button on the right upper corner of the window.

Result: The system returns control to the data table displayed that you have specified in the previous or current navigation path.

3

Optional: To export the contents of the **Log History** data table to a .csv file, go to the [26.6 “Export a Data Table to a .csv File” \(p. 2209\)](#) task.

END OF STEPS

26.11 Refresh Data Tables

Data refresh

For most of the data tables, key data is dynamically updated when changes occur.

Manual data refresh

Data can always be manually refreshed when the user feels the action is needed.

The Refresh icon is displayed on almost all the NFM-T data tables. When users click on the **Refresh** icon, the system refreshes the displayed window. See “[Refresh icon](#)” (p. 2265).

Auto refresh function

The **Auto Refresh** function refreshes the NFM-T data tables.

The NFM-T system is designed to automatically update key information on any screen. In some instances, there may be additional data that the user likes to see updated. For this reason the Auto Refresh function is available on several NFM-T lists. The Auto Refresh interval is 60 seconds.

By default, Auto Refresh is disabled. In some cases, it is not available at all.

Setting the auto refresh option means that every 60 seconds, the data of the displayed data table are refreshed.

Once Auto Refresh is started on a data table, it is invoked each time you visit that page.

Start/stop auto refresh on a data table



Note: Enabling the Auto Refresh on the data table can have impact on the server performance.

Use the following steps to start or stop the Auto Refresh function on a data table, if this function is available.

1

On the displayed window, if available, click on the **Start/Stop Auto Refresh** button on the bottom left corner. If the Auto Refresh is not set the button is gray.

The button becomes blue, the auto refresh function is running.

2

On the displayed window, if available, click on the Start/Stop Auto Refresh button. If the Auto Refresh is running, the button is blue and clicking on it stops the auto refresh function.

The button becomes grey, the auto refresh function is stopped.

26.12 Open the 360° View for a selected data table item

Purpose

Use these tasks to open the 360° View for a selected item in the data table.

The NFM-T GUI enables you to view the 360° View window for the item listed in a data table. The 360° View window can be accessed by clicking on the 360° View icon that is displayed on the item row in the table, once the item is selected.

Where applicable, you can drill down to the next level of the 360° view, which is listed in the breadcrumb history, for example **Services > 360° View > SERVER**.

See the following topics in this document:

- [26.2 “Data table description” \(p. 2182\)](#)
- [26.6 “Export a Data Table to a .csv File” \(p. 2209\)](#)

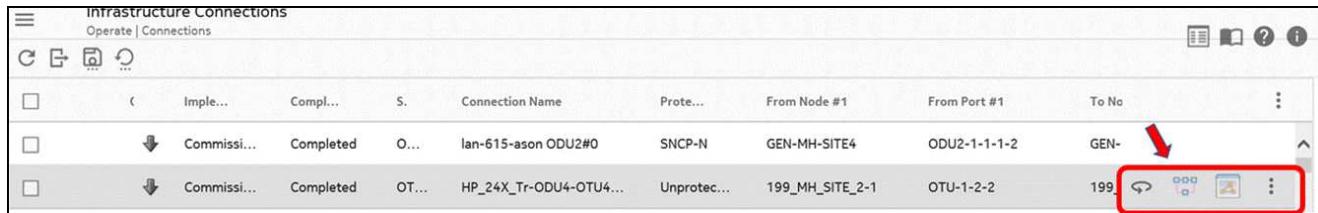
Task

Complete the following steps to view the 360° View window using the **360° View** icon.

1

From any navigation path off of the **OPERATE** main menu, select an item in the list, on the right part of the row additional icons are displayed.

Figure 26-43 Data Tables - Item Additional Icons



2

To view the 360° View window, click on the 360° View icon.

Figure 26-44 Data Tables - 360° View Icon



Result: The system displays the item corresponding 360° View window.

Figure 26-45 Data Tables - 360° View

ALARMS	SERVERS	CLIENTS	ROUTE	LINK CONNECTIONS	PM ENABLED POINTS	NOTES	END >
<input type="checkbox"/> NE	NE Severity	Port/SNC	NE SA/NSA	Alarm Type	NE Probable Cause		
<input type="checkbox"/> 199_MH_SITE_11-1		RA2P-1-2-LINEIN	Service Affecting	Primary	Underlying resource una		
<input type="checkbox"/> 199_MH_SITE_1-1		ASWG-2-11-LINEOUT	Non Service Affecting	Primary	Power Adjustment Requi		
<input type="checkbox"/> 199_MH_SITE_11-1		AM2125B-1-3		Primary	Card missing		
<input type="checkbox"/> 199_MH_SITE_11-1		RA2P-1-2-LINEIN	Non Service Affecting	secondary	APR Limited		
<input type="checkbox"/> 199_MH_SITE_11-1		AM2125B-1-3-LINEOUT	Non Service Affecting	secondary	APR Limited		

Last Update: 17:37:03 GMT+0200 (W. Europe Summer Time) Total: 5

3

On the 360° View you can see the selected item related tabs. Below the tab title you can see the item for which you are displaying the 360° View.

< and > signs are displayed on the left and right side on the title row, when there are more columns than the system can display.

In the 360° View window you display the data related to the selected item, but on the data table you have the same features as on the main data table from where you start the navigation.

END OF STEPS

26.13 Copy User Label from Data Table

Purpose

Use these tasks to copy user labels from the data table.

The NFM-T GUI enables user to copy user labels. The data is copied to the system clipboard.

The copy function on the cells depends if the row is selected or not selected.

To...	See..
Copy the data from a single cell in a data table	"Task: Copy user label in a cell" (p. 2228)
Copy the data from all the columns in a row	"Task: Copy User Labels in a single row" (p. 2229)
Copy the data from multiple rows	"Task: Copy User Labels in multiple rows" (p. 2230)

Task: Copy user label in a cell

Complete the following steps to copy user label in a cell from the data table.

1

For the pages that have a data table, hover-over the cell whose content you want to copy, right-click on the cell.



Note: No row in the data table must be selected.

Result:

A pop-up window appears with two options:

- **Copy**
- **Copy with Headers**

Figure 26-46 Data Tables - Copy User Label in a cell

The screenshot shows a data table titled "OTN PHYSICAL CONNECTIONS". The table has columns for "Operational State", "WDM Connection ...", "Name", and "Shape". A red box highlights a context menu that appears when right-clicking on the "Name" column of the third row. The menu contains two options: "Copy" (with keyboard shortcut "Ctrl+C") and "Copy with Headers".

Operational State	WDM Connection ...	Name	Shape
<input type="checkbox"/>	OPS	Link-ENE-214-2	Simple
<input type="checkbox"/>	OPS	Link-E	Simple
<input type="checkbox"/>	OPS	OPS1	Simple

2

- To copy the user label, select **Copy** or press **Ctrl+C**.
- To copy the user label with the column header, select **Copy with Headers**.

Result: The data is copied to the system clipboard based on the selection.

END OF STEPS

Task: Copy User Labels in a single row

Complete the following steps to copy user labels in a row from a data table.

1

For the pages that have a data table, select any row in the data table and right-click.

Result:

A pop-up window appears with two options:

- Copy Selected Row**
- Copy Selected Row with Headers**

Figure 26-47 Data Table - Copy User Labels in a single row

The screenshot shows a data table titled "OTN Physical Connections". A single row is selected, indicated by a blue highlight and a checked checkbox in the first column. A context menu is open over this row, with two options highlighted: "Copy Selected Row" and "Copy Selected Row with Headers". The "Copy Selected Row with Headers" option is currently selected, as indicated by a red box around it. The menu also includes a keyboard shortcut "Ctrl+C". The table has columns for "Operational State", "WDM Connection ...", "Name", "Shape", "Implementation ...", and "Working State".

Operational State	WDM Connection ...	Name	Shape	Implementation ...	Working State	⋮
<input checked="" type="checkbox"/>	WDM Connection 1	OPS Line-PNC 21/1/2	Simple	Implemented	Normal	
<input type="checkbox"/>	WDM Connection 2	OPS Line-PNC 21/1/2	Simple	Implemented	Normal	
<input type="checkbox"/>	WDM Connection 3	OPS1	Simple	Implemented	Normal	

2

- To copy only the user labels in the entire row, select **Copy Selected Row** or press **Ctrl+C**.
- To copy the user label in the entire row along with the row headers select **Copy Selected Row with Headers**.

Result: The data is copied to system clipboard based on the selection.

END OF STEPS

Task: Copy User Labels in multiple rows

Complete the following steps to copy user labels from more than one row from a data table.

1

For the pages that have a data table, select more than one row in the data table and right-click.

Result:

A pop-up window appears with two options:

- **Copy Selected Rows**
- **Copy Selected Rows with Headers**

Figure 26-48 Data Table - Copy User Labels in multiple rows

The screenshot shows a data table titled "OTN PHYSICAL CONNECTIONS". There are three columns: "WDM Connection ...", "Name", and "Implementation ...". Two rows are selected, indicated by blue checkboxes in the first column. A context menu is open over the second selected row, containing the following options: "Copy Selected Rows" (with a Ctrl+C hotkey) and "Copy Selected Rows with Headers".

WDM Connection ...	Name	Implementation ...
<input type="checkbox"/>	Link-FNE-214-2	Simple
<input checked="" type="checkbox"/>	Link-FNE-214-2	Simple
<input type="checkbox"/>	OPS1	Simple

2

- To copy only the user labels in the rows, select **Copy Selected Rows** or press **Ctrl+C**.
- To copy the user labels in the rows along with the row headers select **Copy Selected Rows with Headers**.

Result: The data is copied to system clipboard based on the selection.

END OF STEPS

26.14 Manage Note for a Selected Object

When to use

Use this task to add, modify, delete, and export all the available notes to a comma separated values (CSV) file for a selected object.

Users have the capability to add, modify, delete, and export all the available notes to a .CSV file for the following items.

- Nodes
- NEs
- Physical connections
- Infrastructure connections
- Protected connections
- Services
- Dark fibers
- Equipment Manager (EQM)

The added note for NEs, connections, and services is visible in a dedicated **360° View** for the selected object. Users can visualize the attributes relevant to the note such as the note description, user initial (first two letters from their user ID), and date and time stamp of the addition or last modification of the note in the corresponding **NOTES** tab of the selected object.

Related Information

See [25.31 “Notes Tab” \(p. 2123\)](#).

Task: Add a Note

Complete the following steps to add a note to **Nodes, NEs, Equipment Manager, Physical Connections, Infrastructure Connections, Protected Connections, Services, and Dark Fibers**.

1

From the NFM-T GUI, follow one of these navigation paths:

OPERATE > Nodes > 360° View > NOTES

OPERATE > NEs > 360° View > NOTES

OPERATE > Physical Connections > 360° View > NOTES

OPERATE > Infrastructure Connections > 360° View > NOTES

OPERATE > Protected Connections > 360° View > NOTES

OPERATE > Services > 360° View > NOTES

OPERATE > Dark Fibers

OPERATE > Equipment Manager



Note: For Equipment Manager, the Notes tab is displayed for Node, NE, shelf, card, port, and slot.

Result:

- Nodes, NEs, connections, and services: The corresponding **NOTES** tab is displayed.
- Dark fibers, and Equipment Manager: The corresponding Dark fibers and Equipment Manager page is displayed.
- To add a note to **Dark Fibers**, see [Step 2](#).
- To add a note to **Equipment Manager**, see [Step 3](#).
- To add a note to **Nodes, NEs, Physical Connections, Infrastructure Connections, Protected Connections, and Services**, see [Step 4](#).

2

To add a note to a dark fiber from the **Dark Fibers** window, use one of the following procedures.

- Complete the following steps to add a note using right click option.
 - Right click the selected dark fiber and then click **Add Note**. The **Notes** window is displayed.
 - Enter the note description in the **Notes** window.
 - Click **Apply** to save multiple notes. Click **OK** to save a single note. Click **Cancel** to terminate the operation.
- Complete the following steps to add a note from the **Notes** tab.
 - Select the dark fiber and then click the **Notes** tab.
 - Mouse over the icons on the top right of the **Notes** tab and select the **Add Note** icon.
 - Enter the note description in the **Notes** window.
 - Click **Apply** to save multiple note. Click **OK** to save a single note. Click **Cancel** to terminate the operation.

Result: The new note is added in the **Notes** tab and displayed in the **Latest Note** column of the data table.

3

Complete the following steps to add a note to **Equipment Manager**.

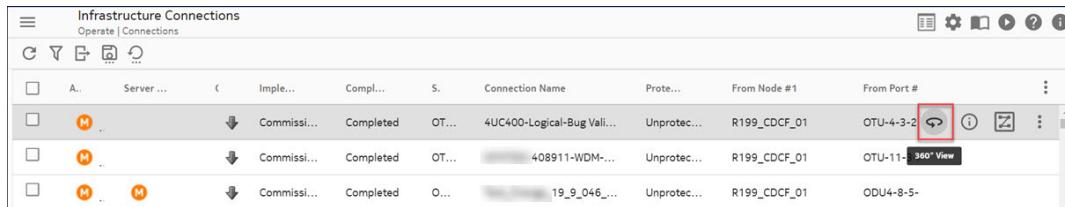
- Select the Node, NE, shelf, card, port, or slot in the Equipment Manager window.
- Click the **Notes** tab.
- Click **Add Notes Plus** icon. The **Notes** widow is displayed.
- Enter the note description.
- Click **Apply** to save multiple note. Click **OK** to save a single note. Click **Cancel** to terminate the operation.

Result: The new note is added in the **Notes** tab and displayed in the **Latest Note** column of the data table.

4

To add a note to the **Nodes, NEs, Physical Connections, Infrastructure Connections, Protected Connections, and Services** use one of the following procedures.

- Complete the following steps to add a note using **NOTES** tab.
 1. Select the Node, NE, or connection in the data table.
 2. Click the corresponding **360°View** icon for the selected object. The **360° View** react screen is displayed.

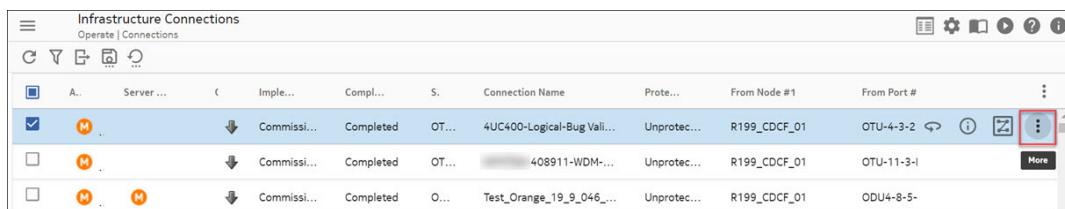


3. Click the **NOTES** tab.



4. Enter the note description in the **Add Notes** window.
5. Click **POST** to save and add the note. Click **CANCEL** to terminate the operation.

 - Complete the following steps to add a note using the **More** options icon.
 1. Select the Node, NE, or connection in the data table.
 2. Click the **More** options icon for the selected object.



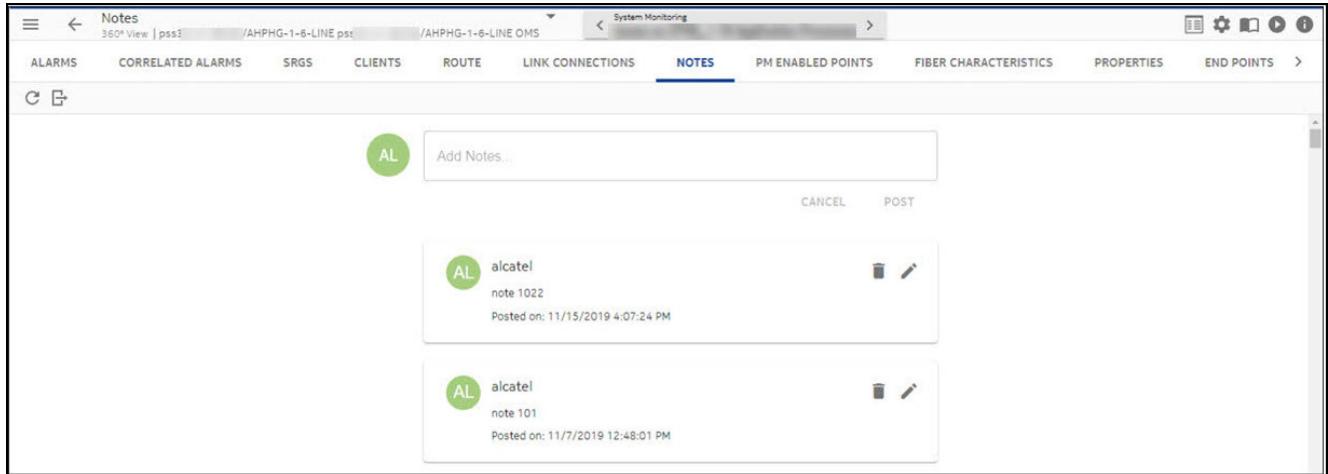
3. Click **Add Note**. The **NOTES** tab opens in the **360° View**.
4. Enter the note description in the **Add Notes** window.
5. Click **POST** to save and add the note. Click **CANCEL** to terminate the operation.

Result: The note is saved and displayed in the **NOTES** tab for the selected object. As notes are added they are listed as cards, with the most recent note at the top. The notes added by the respective user is tagged with the first two letters from their user ID. The notes from

different users for the same object (such as a Connection or NE) appears intermixed based on the date and time stamp.

Example: The following figure illustrates the **NOTES** tab for the **Infrastructure Connections**.

Figure 26-49 Data Tables – Infrastructure Connections – NOTES tab



END OF STEPS

Task: Modify Note

Complete the following steps to modify a note for **Nodes, NEs, Equipment Manager, Physical Connections, Infrastructure Connections, Protected Connections, Services, and Dark Fibers**.

1

Follow one of the navigation paths depending on the path you are in:

- For **Nodes, NEs, Physical Connections, Infrastructure Connections, Protected Connections, and Services**, from the NFM-T GUI, follow one of these navigation paths:
OPERATE > Nodes > 360° View > NOTES
OPERATE > NEs > 360° View > NOTES
OPERATE > Physical Connections > 360° View > NOTES
OPERATE > Infrastructure Connections > 360° View > NOTES
OPERATE > Protected Connections > 360° View > NOTES
OPERATE > Services > 360° View > NOTES
- For **Dark Fibers and Equipment Manager**, from the NFM-T GUI, follow one of these navigation paths to view the **Latest Note**:
OPERATE > Dark Fibers
OPERATE > Equipment Manager

Result:

- Nodes, NEs, connections, and services: The corresponding **NOTES** tab is displayed.
- Dark fibers, and Equipment Manager: The corresponding Nodes, Dark fibers, and Equipment Manager page is displayed.
- To modify a note for **Dark Fibers**, see [Step 2](#).
- To modify a note for **Equipment Manager**, see [Step 3](#).
- To modify note for **Nodes, NEs, Physical Connections, Infrastructure Connections, Protected Connections, and Services**, see [Step 4](#).

2

Complete the following steps to modify a note for **Dark Fibers**.

- Select the **Dark Fiber** from the data table.
- Click the **Notes** tab.
- Mouse over the icons on the top right corner of the **Notes** tab and then click the **Edit Note**  icon or right click the selected note and then click **Edit Note**.
- Modify the **Notes** field as required and then click **OK**.
- Click **Refresh**  icon on the top right corner of the **Notes** tab to view the modified note.

Result: The note is modified in the **Notes** tab and the updated note is displayed in the **Latest Note** column of the data table.

3

Complete the following steps to modify a note for **Equipment Manager**.

- Select the Node, NE, shelf, card, port, or slot.
- Click the **Notes** tab.
- Mouse over the icons on the top right corner of the **Notes** tab and then click the **Edit Note**  icon or right click the selected note and then click **Edit Note**.
- Modify the **Notes** field as required and then click **OK**.
- Click **Refresh**  icon on the top right corner of the **Notes** tab to view the modified note.

Result: The note is modified in the **Notes** tab and the updated note is displayed in the **Latest Note** column of the data table.

4

Complete the following steps to modify a note for **Nodes, NEs, Physical Connections, Infrastructure Connections, Protected Connections, and Services**.

- Click the **Edit**  icon.
- Edit the existing note.
- Click **Save**  icon. Click **Cancel**  icon to terminate the editing operation.



Note: Only the user who adds the note, has the permission to modify the note.

Result: The existing note is modified and the list is updated dynamically with the latest date and time stamp.

END OF STEPS

Task: Delete Note

Complete the following steps to delete the note for **Nodes, NEs, Equipment Manager, Physical Connections, Infrastructure Connections, Protected Connections, Services, and Dark Fibers**.

1

Follow one of the way depending on the path you are in:

- For **Nodes, NEs, Physical Connections, Infrastructure Connections, Protected Connections, and Services**, from the NFM-T GUI, follow one of these navigation paths:

OPERATE > Nodes > 360° View > NOTES

OPERATE > NEs > 360° View > NOTES

OPERATE > Physical Connections > 360° View > NOTES

OPERATE > Infrastructure Connections > 360° View > NOTES

OPERATE > Protected Connections > 360° View > NOTES

OPERATE > Services > 360° View > NOTES

- For **Dark Fibers and Equipment Manager**, from the NFM-T GUI, follow one of these navigation paths to view the **Latest Note**:

OPERATE > Dark Fibers

OPERATE > Equipment Manager

Result:

- Nodes, NEs, connections, and services: The corresponding **NOTES** tab is displayed.
- Dark fibers and Equipment Manager: The corresponding Dark fibers and Equipment Manager page is displayed.
- To delete a note for **Dark Fibers**, see [Step 2](#).
- To delete a note for **Equipment Manager**, see [Step 3](#).
- To delete note for **Nodes, NEs, Physical Connections, Infrastructure Connections, Protected Connections, and Services**, see [Step 4](#).

2

Complete the following steps to delete a note for **Dark Fibers**.

1. Select the **Dark Fiber** from the data table.
2. Mouse over the icons on the top right corner of the **Notes** tab and then click the **Delete Note**  icon or right click the selected note and then click **Delete Note**.
3. Click **Refresh**  icon on the top right corner of the **Notes** tab.

Result: The last note is deleted from the **Notes** tab. The next latest note is now displayed in the **Latest Note** column.

3

Complete the following steps to delete a note for **Equipment Manager**.

1. Select the Node, NE, shelf, card, port, or slot.
2. Mouse over the icons on the top right corner of the **Notes** tab and then click the **Delete Note**  icon or right click the selected note and then click **Delete Note**.
3. Click **Refresh**  icon on the top right corner of the **Notes** tab to update the **Latest Note** column.

Result: The last note is deleted from the **Notes** tab. The next latest note is now displayed in the **Latest Note** column.

4

To delete a note for **Nodes, NEs, Physical Connections, Infrastructure Connections, Protected Connections, and Services**, click the **Delete**  icon.



Note: The user who has added the note has the permission to delete the note.

Result: The deleted note is removed from the list and the list is dynamically updated.

END OF STEPS

26.15 Notes Tab

What is a note?

A Note allows users to add and share information about the operations performed on Nodes, NEs, Equipment Manager, Physical Connections, Infrastructure Connections, Protected Connections, Services, and Dark Fibers.

Notes tab display

The navigation path for this tab is:

OPERATE > Nodes > 360⁰View > NOTES

OPERATE > NEs > 360⁰ View > NOTES

OPERATE > Physical Connections > 360⁰ View > NOTES

OPERATE > Infrastructure Connections > 360⁰ View > NOTES

OPERATE > Protected Connections > 360⁰ View > NOTES

OPERATE > Services > 360⁰ View > NOTES

OPERATE > Dark Fibers > Notes

OPERATE > Equipment Manager

For more information, see [24.9 “Manage Note for a Selected Object” \(p. 2002\)](#).

Manage notes

You can add, modify, delete, and export a note to a .CSV file for a selected object. For more information on managing the notes, see [24.9 “Manage Note for a Selected Object” \(p. 2002\)](#).

The common set of NFM-T GUI icons

This set of NFM-T GUI icons, located to the right of the object icons, are commonly displayed for the majority of the data tables:

- **Save Table Preferences**

[26.8 “Save data table preferences and reset data table preferences to default” \(p. 2218\)](#)

- **Reset Table Preferences to Default**

[26.8 “Save data table preferences and reset data table preferences to default” \(p. 2218\)](#)

- **Export to CSV File**

[26.6 “Export a Data Table to a .csv File” \(p. 2209\)](#)

- **Refresh**

Click **Refresh** icon to update and refresh the viewing area.

- **Help**

Click **Help** icon to display information related to the current viewing area.

React UI icons

For more information on the React UI icons and operations, see

- “[Data Tables - React](#)” (p. 2182)
- “[Screens icons](#)” (p. 2241)

Screens icons

26.16 Screens icons

Icons

The icons that are displayed on the NFM-T GUI represent user functions. When users click on any icon, the system navigates them to the function that the icon performs for the selected object. Some icons have a box appended to the right of the icon. These boxes, when clicked on, offer additional user functions.

The react screens layout offers four groups of icons: a system general set of icons, a display set of icons, a table operations set of icons, and an object related set of icons, that are displayed on the right side of the object data row.

In other instances, screens icons are displayed outside of a data table.

This section lists the icons that are displayed along with a data table and those icons that are displayed outside of a data table.

360° View icon

The **360° View** icon is displayed with the data table for all objects. Allows to display the 360° View window for the selected object in the table.

Figure 26-50 Data Tables – 360° View icon



Access Control icon

The **Access Control** icon is displayed with the data table for Nodes. Change the status of the supervision of the node to **Denied** or **Granted**.

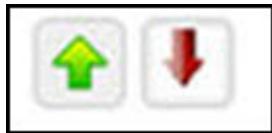
Figure 26-51 Data Tables – Access Control icon



Activate and Deactivate icons

The **Activate** and **Deactivate** icons are displayed with the data table for File Transfer Services.

Figure 26-52 Data Tables – Activate and Deactivate icon



Add Links to ASON icon

The **Add Links to ASON** icon is displayed with the data table for ASON NPAs.

Figure 26-53 Data Tables – Add Links to ASON icon



Administrative State icon

The **Administrative State** icon is displayed with the data table for ASON NPAs and ASON links. When the down arrow is clicked, the **Administrative State** icon offers users options applicable to the links belonging to the NPAs, such as: **Set to unlocked**, **Set to shutting down**, **Set to soft shutting down**, **Set to locked** and **synchronice**.

Figure 26-54 Data Tables – Administrative State icon



Add/Create icon

The **Add/Create** icon is displayed with the data table for several objects, for example nodes, physical connections.

Figure 26-55 Data Tables – Add/Create icon



Add/Remove SLTE icon

The **Add/Remove SLTE** icon is displayed with the data table for physical connections for 1830 PSS SLTE NEs.

Important!

The same double triangle icon is also used to represent 1830 PSS SLTE NEs on the Network Map and the Routing Display; however, the color of the double triangle is dependent on the current alarm state of the NE. For example: Red would signify that a critical alarm has been raised; green would signify that an alarm has not been raised.

Figure 26-56 Data Tables – Add/Remove SLTE icon



Alarmed icon

The **Alarmed** icon is a set of status indicators that are used to indicate whether the infrastructure connection or service is alarmed and the severity of the alarm.

The system displays the status indicator when the icon is hovered over. The **Alarmed** icon includes the following status indicators:

- **Cleared**: the alarm that was raised on the infrastructure connection or service has been cleared.
- **Major**: the alarm that was raised on the infrastructure connection or service is a major alarm.
- **Minor**: the alarm that was raised on the infrastructure connection or service is a minor alarm.

Figure 26-57 Data Tables – Alarmed icon



Alarms icon

The **Alarms** icon is displayed with the data tables for infrastructure connections and services. When users click on the right side of the icon, the system displays the following options depending

on the state of the connection selected: **Enable Alarm Reporting** and **Disable Alarm Reporting**. For data tables that are accessed from tabs, the **Alarms** icon can also be displayed for **Route** and **Link Connections**.

Figure 26-58 Data Tables – Alarms icon



Alarm State icon

The **Alarm State** icon is a circle with a letter that is displayed on the Routing Display for connections. It is typed and colored as Critical (Red), Major (Orange), Minor (Yellow), Warning (Blue), Indeterminate (White), or Cleared (Green).

Example:

Figure 26-59 Routing Display – Connection icons – Alarm State – Minor (Example)



Alarm Status icon

The **Alarm Status** icon is a set of status indicators that are used to indicate whether the physical connection is alarmed and the severity of the alarm.

The system displays the status indicator when the icon is moused over. The **Alarm Status** icon includes the following status indicators:

- **Cleared**: the alarm that was raised on the physical connection has been cleared.
- **Major**: the alarm that was raised on the physical connection is a major alarm.

Figure 26-60 Data Tables – Alarm Status icon



Alarm Synthesis icon

The **Alarm Synthesis** icon is a set of status indicators that are used to indicate whether the node/NE is alarmed and the severity of the alarm.

The system displays the status indicator when the icon is moused over. The **Alarm Synthesis** includes the following status indicators:

- **Cleared**: the alarm that was raised on the node/NE has been cleared.
- **Critical**: the alarm that was raised on the node/NE is a critical alarm.
- **Minor**: the alarm that was raised on the node/NE is a minor alarm.

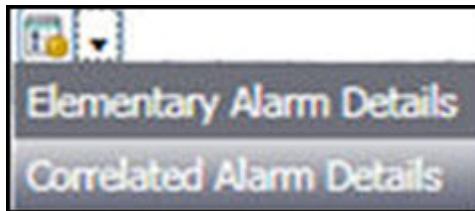
Figure 26-61 Data Tables – Alarm Synthesis icon



Alarm Troubleshooting icon

The **Alarm Troubleshooting** icon is displayed in the **ALARMS** tab of the data tables for infrastructure connections, services, physical connections, nodes, ASON SNCs, and the Equipment Manager. When users click on the down arrow that is located on the right side of the icon, the system displays the following options: **Elementary Alarm Details** (for infrastructure connections, services, physical connections, nodes, ASON SNCs, and the Equipment Manager) and **Correlated Alarm Details** (for infrastructure connections, services, physical connections, and ASON SNCs).

Figure 26-62 Data Tables – Alarm Troubleshooting icon – Both Options



Alignment State icons

The **Alignment State** icons are a set of status indicators that are displayed with the data table for nodes and NEs that indicate the status of a full synchronization or an individual synchronization process.

The icons are status indicators; hover over the icon to know the status. The **Alignment State** icon includes the following status indicators:

Icons	Description
	Unknown: The NE is added, however is not supervised and the alignment state is not known.
	Ready to Align: The NE supervision is successful and is ready to start the full synchronization process.
	Aligning Up: The full or individual synchronization process is in-progress.
	Aligned: The supervision process and the automatic full synchronization process is successful.
	Misaligned: <ul style="list-style-type: none">Full synchronization is not completely successful.Node isolation occurs.Supervision is stopped manually and hence the Supervision State is set Not Supervised.
	Partial: In a compound node, when one of either 1830 PHN NE or 1830 OCS NE is aligned and the other is not.

Archive icon

The **Archive** icon is displayed with the Archive Sessions data table.

Figure 26-63 Data Tables – Archive icon



Auto Discovery icon

The **Auto Discovery** icon is displayed with the NE data table.

Figure 26-64 Data Tables – Auto Discovery icon



Auto Refresh icon

The **Auto Refresh** icon is displayed with the Infrastructure data table. Allow users to start and stop the auto refresh option.

Figure 26-65 Data Tables – Auto Refresh icon



Note: Enabling the Auto Refresh on the data table can have impact on the server performance.

Change Role to Protection icon

The **Change Role to Protection** icon is displayed with the data tables for Routing Constraints.

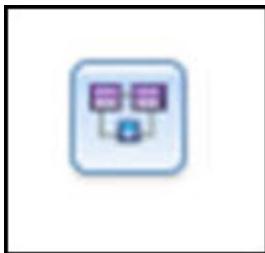
Figure 26-66 Data Tables – Change Role to Protection



Change Role to Service icon

The **Change Role to Service** icon is displayed with the data tables for Routing Constraints.

Figure 26-67 Data Tables – Change Role to Service



Client Trail Structure icon

The **Client Trail Structure** icon is displayed with the data tables for infrastructure connections, services, and all network connections. For data tables that are accessed from tabs, the **Client Trail Structure** icon is displayed for **ALARMS**, **SERVERS**, and **CLIENTS**.

Figure 26-68 Data Tables – Client Trail Structure icon



Commit icon

The **Commit** icon is displayed with the data table for File Transfer Services.

Figure 26-69 Data Tables – Commit icons



Communication State icons

The **Communication State** icons are displayed with the data table for nodes and NEs that indicate the current communication state of the NE based on all the supported communication interfaces.

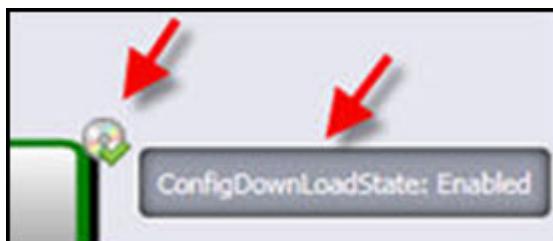
The icons are status indicators; hover over the icon to know the status. The **Communication State** includes the following status indicators:

Icon	Description
	Unknown: The NE is newly added and communication to the NE is not attempted.
	Up: The NE is reachable on all the applicable communication interfaces.
	Down: The NE is not reachable on any of the supported interfaces.
	Partial: The NE is reachable only on one or more of the supported interfaces.

ConfigDownLoadState icon

The **ConfigDownLoadState** is a disk with a check mark. The **ConfigDownLoadState** is displayed on the Routing Display. It can be Enabled or Disabled.

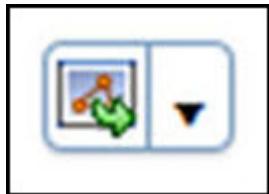
Figure 26-70 Routing Display – Configuration Download State



Configure icon

The **Configure** icon is displayed with the node and NE data tables. When the down arrow is clicked, the **Configure** icon offers users other node and NE configuration options, such as **Mib Backup**, that are also displayed with an icon.

Figure 26-71 Data Tables – Configure icon



Configure SSH and SNMP icon

The **Configure SSH and SNMP** icon is displayed as a **Configure** option for nodes and NEs.

Figure 26-72 Data Tables – Configure SSH and SNMP icon



Connection icons

The **Connection** icon displays the connection name and connection rate on the Routing Display.

The connection icons differ for physical connections and those for infrastructure connections and services. For OTS and OS physical connections the icon is the same; only the name changes. For infrastructure connections and services, the icon is the same, only the name changes. The **Connection** icon changes color depending on the connection state.

Examples:

Figure 26-73 Routing Display - Physical Connection icon

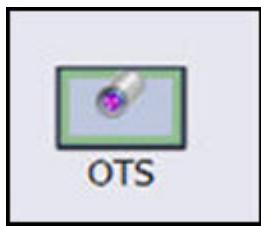


Figure 26-74 Routing Display - Logical Connection (Infrastructure) icon



Connection Direction icon

The **Connection Direction** icon is a boxed, horizontal arrow that is bidirectional (double arrow), unidirectional (single arrow), or three/four ended (single arrow pointing into an *E*). It is displayed on the Routing Display for physical connections, infrastructure connections, and services.

Figure 26-75 Routing Display – Connection icons – Connection Direction – Bidirectional, Unidirectional, Three Ended



Connection Type icons

Icons that represent a **Cross Connection**, an **Internal Link Server**, and an **External Connection** (OMS connection) are displayed in the **Connection Type** column on the **ROUTE** tab for infrastructure connections, services, and looped back connections so users can distinguish the various connection types.

The following figure illustrates the location of the Connection Type icons on the **ROUTE** tab.

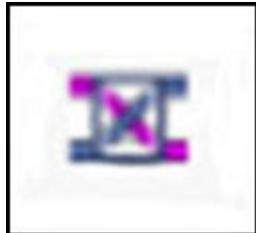
Figure 26-76 Data Tables – Connection Type icons – ROUTE Tab

A screenshot of the Nokia Network Management (NFM) interface. At the top, there's a header bar with '360° View | SW-144443-filter=1-infra1 OTU2#1:1' and a 'Route' button. Below the header is a navigation bar with tabs: ALARMS, SERVERS, CLIENTS, ROUTE (which is underlined in blue), LINK CONNECTIONS, and PM ENABLED POINTS. A red arrow points to the 'ROUTE' tab. Below the navigation bar is a toolbar with icons for search, refresh, and other functions. The main area is a data table with the following columns: Connection Type, From Node #1, From Port #1, To Node #1, To Port #1, and Server Name. There are four rows of data:

Connection Type	From Node #1	From Port #1	To Node #1	To Port #1	Server Name
[Icon: Cross Connection]	KT-41.90.65	11DPM12-4-2-L1	KT-41.90.65	SFD-26-1-9440.000	KT-41.90.65/11
[Icon: Internal Link Server]	KT-41.90.65	SFD-26-1-9440.000	KT-41.90.65	AHPHG-4-3-LINE-94...	NA
[Icon: External Connection]	KT-41.90.65	AHPHG-4-3-LINE-94...	KT-41.90.66	AHPHG-2-3-LINE-94...	KT-41.90.65/AH

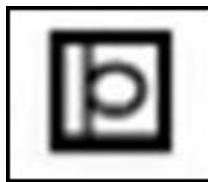
The **Cross Connection** icon represents those cross connections whose **Server Name** and **Server Rate** is **NA**.

Figure 26-77 Data Tables – Connection Type icon – ROUTE Tab – Cross Connection



The **Internal Link Server** icon, which is black and white, represents those connections whose **From Node** and **To Node** are the same.

Figure 26-78 Data Tables – Connection Type icon – ROUTE Tab – Internal Link Server



The **External Connection** icon, is a P with colored lines around it, represents those connections whose **From Node** and **To Node** are *different*.

Figure 26-79 Data Tables – Connection Type icon – ROUTE Tab – External Connection



Correlate TCA icon

The **Correlate TCA** icon is displayed for physical connections, infrastructure connections, and services that have PM ENABLED POINTS enabled.

Figure 26-80 Data Tables – Correlate TCA icon



Create icon

The **Create** icon is displayed with the data table for Shared Risk Groups, Physical Connections and ASON (NPAs).

Figure 26-81 Data Tables – Create icon



Create job icon

The **Create job** icon is displayed with the data table for File Transfer Services.

Figure 26-82 Data Tables – Create job icon



Delete job icon

The **Delete job** icon is displayed with the data table for File Transfer Services.

Figure 26-83 Data Tables – Delete job icon



Delete icon

The **Delete Node** icon and the **Delete NE** icon is displayed with the node and NE data tables, respectively. The same icon is used for **Delete Node** and **Delete NE**. In addition, the **Delete** icon is also displayed for user created (not Best Practice) infrastructure and service templates and in the File Transfer Service utility.

Note: The **Delete** and the **Remove** icons are similar in appearance and function.

Figure 26-84 Data Tables – Delete icon



Deimplement icon

The **Deimplement** icon is displayed with the data table for ASON NPAs.

Figure 26-85 Data Tables – Deimplement icon



Deploy icon

The **Deploy** icon is displayed with the data tables for infrastructure connections and service templates when these templates are accessed from the **DEPLOY >** navigation path.

Figure 26-86 Data Tables – Deploy icon



Deployment Control icon

The **Deployment Control** icon is displayed with the data tables for infrastructure connections, services, and all network connections. When users click on the right side of the icon, the system

displays the following options depending on the state of the connection selected: **Allocate**, **Implement**, **Deimplement**, **Commission (In Service)**, **Complete Step**, **Complete Order**, **Cancel**, **Abort Order Processing**, **Move Forward One Command Set**, **Move Backward One Command Set**, **DB Remove**, **DB Remove Connection and Clients**, **Force Implement**, **Force Deimplement**, **Force Commission (in Service)**, **Force Complete Step**, **Force Cancel**, and **Force Complete Order**. For data tables that are accessed from tabs, the **Deployment Control** icon can also be displayed for **SERVERS** and **CLIENTS**.

Figure 26-87 Data Tables – Deployment Control icon



Details icon

The **Details** icon is displayed with the data tables for infrastructure connections and service templates when these templates are accessed from the **DEPLOY >** navigation path. When clicked, the **Details** icon displays the details that are associated with the selected infrastructure connections or service template.

Figure 26-88 Data Tables – Details icon



Discover External Physical Links (OTN) icon

The **Display in Equipment View** icon is displayed with the data tables for nodes and NEs.

Figure 26-89 Data Tables – Discover External Physical Links (OTN) icon



Display in Equipment View icon

The **Display in Equipment View** icon is displayed with the data tables for alarms.

Figure 26-90 Data Tables – Display in Equipment View icon



Display Route on Map icon

The **Display Route on Map** icon is displayed with the data tables for infrastructure connections and services. For data tables that are accessed from tabs, the **Display Route on Map** icon can also be displayed for **ALARMS**, **SERVERS**, and **CLIENTS**.

Figure 26-91 Data Tables – Display Route on Map icon



Export to CSV File icon

The **Export to CSV File** icon is displayed along with most data tables.

Refer to the [26.6 “Export a Data Table to a .csv File” \(p. 2209\)](#) task for detailed steps.

Figure 26-92 Data Tables – Export to CSV File icon



Filter icon

Many data table columns are accompanied with a **Filter** icon that is located to the right of the column heading. For details on the use of the **Filter** icon, refer to [“Filter columns in a data table” \(p. 2189\)](#).

Figure 26-93 Data Tables – Filter icon



FTS Job List icon

The **FTS Job List** icon is displayed with the node data table.

Figure 26-94 Data Tables – FTS Job List icon



Get Time icon

The **Get Time** icon is displayed with the NE data table.

Figure 26-95 Data Tables – Get Time icon



Global Remote Inventory icon

The **Global Remote Inventory** icon is displayed as a **Configure** option for nodes.

Figure 26-96 Data Tables – Global Remote Inventory icon



Help (?) icon

The **Help** icon is displayed as a question mark (?).

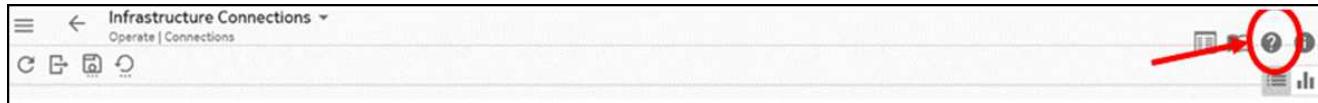
Figure 26-97 NFM-T GUI – Help (?) icon



The **Help** icon is located in various locations on the NFM-T GUI.

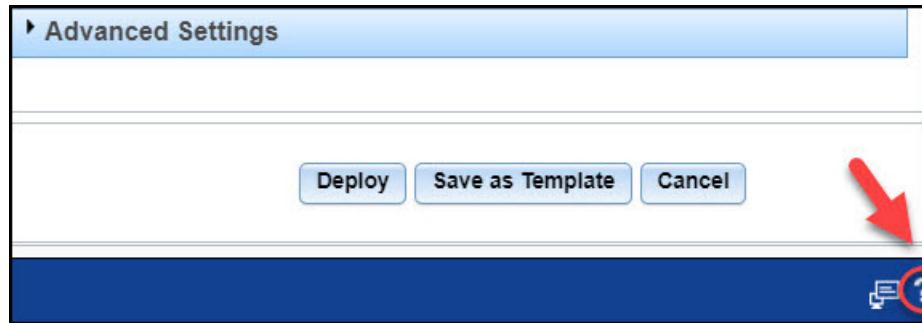
The main **Help** icon is located on the top right corner of the title bar for the Nokia NFM-T Optical Management System, on the DESIGN, DEPLOY, OPERATE, and ADMINISTER line. This **Help** icon enables you to access the library of customer documents for the Nokia NFM-T Optical Management System.

Figure 26-98 NFM-T GUI – Help (?) icon – Location on Title Bar



Help is also provided for the more complicated NFM-T GUI pages. For infrastructure connection and service provisioning, the **Help** icon is located on the bottom right corner of the Create Connection pop-up window. This **Help** icon enables you to access information that explains the window, the provisioning fields, and any important provisioning considerations.

Figure 26-99 NFM-T GUI – Help (?) icon – Location on the Create Connection Window



Implement icon

The **Implement** icon is displayed with the data table for ASON NPAs.

Figure 26-100 Data Tables – Implement icon



Jobs icon

The **Jobs** icon is displayed with the data table for infrastructure connections, services, network inconsistencies, NPAs, TE links, and other objects.

Figure 26-101 Data Tables – Jobs icon



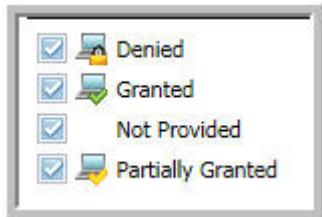
Local Access Control icons

The **Local Access Control** icons are a set of status indicators that are displayed with the data table for nodes and NEs that indicate whether the node/NE is managed locally by the Craft Interface Terminal (CIT).

The system displays the status indicator when the icon is moused over. The **Local Access Control** includes the following icons/status indicators:

- **Granted:** the node/NE can be managed by the local CIT.
- **Denied:** the NE can not be managed by the local CIT.
- **Partially Granted:** the local manager has requested an update and the NE is in the process of being managed by the local CIT.
- **Not Provided:** A blank space in the column indicates that the **Local Access Control** has not been provided

Figure 26-102 Data Tables – Local Access Control icons - Status Indicators



Locally Filtered Objects icon

The **Locally Filtered Objects** icon is displayed with all data tables. It is located in the upper left corner of the data table. It is the last icon of the trio of object icons, located to the right of the “[Selected Objects icon](#)” (p. 2270). The **Locally Filtered Objects** icon displays a count of the number of objects that the user has filtered for viewing.

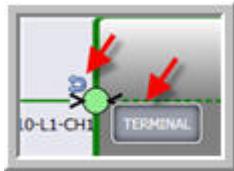
Figure 26-103 Data Tables – Locally Filtered Objects icon



Loopback icons

Curved inward and outward arrows represent loopback connections that are associated with infrastructures and services on the Routing Display. TERMINAL loopbacks on internal ports are indicated by curved inward arrows; meaning arrows that point to the left. FACILITY loopbacks on internal ports are indicated by curved outward arrows; meaning, arrows that point to the right.

Figure 26-104 Routing Display – Terminal Loopback – Curved Inward Arrows Pointing to the Left



Manage Protection Group icon

The **Manage Protection Group** icon is displayed with the data tables for infrastructure connections and services. When users click on the right side of the icon, the system displays the following options depending on the state of the protected connection selected: **Protection Lockout, Force Main, Force Spare, Manual Main, or Manual Spare**.

Figure 26-105 Data Tables – Manage Protection Group icon



MIB Backup icon

The **MIB Backup icon** icon is displayed as a **Configure** option for nodes and NEs.

Figure 26-106 Data Tables – MIB Backup icon



Modify Connection icon

The **Modify Connection** icon is displayed with the data tables for infrastructure connections, services and physical connections. When users click on the right side of the icon, the system displays the following options: **Reroute**, **Soft Reinstate**, **Add Reinstate**, **Add Protection**, and **Remove Protection**.

Figure 26-107 Data Tables – Modify Connection icon



Modify Job icon

The **Modify Job** icon is displayed with the data table for File Transfer Services.

Figure 26-108 Data Tables – Modify Job icon



Modify Node icon

The **Modify Node** icon is displayed with the data table for nodes.

Figure 26-109 Data Tables – Modify Node icon



Modify, Modify Labels and Modify Parameters icon

The **Modify** icon is displayed along with the data tables for infrastructure and service templates from the **DESIGN** navigation path.

The **Modify labels** icon is displayed along with the data tables for Physical Connections.

The **Modify Parameters** icon is displayed with the data tables for infrastructure connections, services, and all network connections. For data tables that are accessed from tabs, the **Modify Parameters** icon can also be displayed for **SERVERS** and **CLIENTS**.

Figure 26-110 Data Tables – Modify and Modify Parameters icon



NEs Synchronization icon

The **NEs Synchronization** icon is displayed with the data table for nodes and NEs. It is used to synchronize a node with its NEs.

Figure 26-111 Data Tables – NEs Synchronization icon

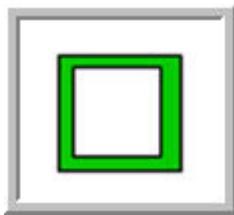


Node/NE icon

Node/NE icons are rectangles that are displayed on the Routing Display for physical and logical connections. They are colored as follows:

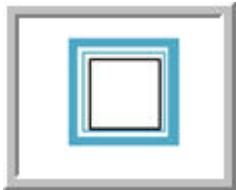
- Green outlined node/NE icons are managed NEs in the Managed Plane that are in communication with NFM-T. These NEs typically do not have any faults.

Figure 26-112 Routing Display – Node icons – Managed NEs in the Manage Plane in Communication with NFM-T



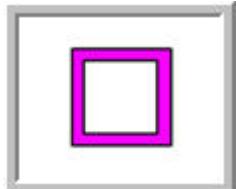
- Blue outlined node/NE icons are managed NEs in the Control Plane that are in communication with NFM-T.

Figure 26-113 Routing Display – Node icons – Managed NEs in the Control Plane in Communication with NFM-T



- Purple outlined node/NE icons are managed NEs that are not in communication with NFM-T. These NEs typically have a communication status of *down* or *failed*.

Figure 26-114 Routing Display – Node icons – Managed NEs not in Communication with NFM-T



- Black outlined node/NE icons are virtual NEs, which are also referred to as *unmanaged NEs* or *black boxes*.

Figure 26-115 Routing Display – Node icons – Virtual NEs (aka Unmanaged NEs/Black Boxes)



Optical Power icon

The **Optical Power** icon is displayed with the data tables for physical connections and infrastructure connections (OTUk connections only). For data tables that are accessed from tabs, the **Optical Power** icon can also be displayed for **SERVERS** and **CLIENTS**.

Figure 26-116 Data Tables – Optical Power icon



PM icon

The **PM** icon is a box with the number/letter combination of 15 M or 24 H that is displayed on the Routing Display for a connection. It indicates if 15 minute (M) or 24 hour (H) performance monitoring data is being collected on the connection. The connection must be Commissioned or in the Implemented/Completed state.

Figure 26-117 Routing Display – Connection icons – **PM** 15 Minute, 24 Hour PM Enabled



Protection Type icon

The **Protection Type** icon is a boxed circle that contains a set of straight or curved lines. It is displayed on the Routing Display for infrastructures and services. It indicates if the protection type is unprotected (straight line), end-to-end protected (two parallel curved lines), or segment protected (one curved line over one straight line).

Figure 26-118 Routing Display – Connection icons – Protection Type – Unprotected, End-to-End Protected, Segment Protected



Publish icon

The **Publish** icon is displayed along with the data tables for infrastructure and service templates from the **DESIGN >** or the **DEPLOY >** navigation path.

Figure 26-119 Data Tables – Publish icon



Purge icon

The **Purge** icon is displayed with the Archive Sessions data table.

Figure 26-120 Data Tables – Purge icon



Refresh icon

The **Refresh** icon is displayed with every data table. When users click on the **Refresh** icon, the system refreshes the displayed window.

Figure 26-121 Data Tables – Refresh icon



Refresh Deployed SW icon

The **Refresh Deployed SW** icon is displayed with the File Transfer Services data table.

Figure 26-122 Data Tables – Refresh Deployed SW icon



Remote Inventory icon

The **Remote Inventory** icon is displayed with the NE data table.

Figure 26-123 Data Tables – Remote Inventory icon



Remove and Remove Connection icon

The **Remove** icon is displayed along with the data tables for infrastructure and service templates from the **DESIGN** navigation path.

The **Remove** icon is displayed along with the data tables for physical connections, SRGs, color profiles, and alarm profiles.

The **Remove Connection** icon is displayed with the data tables for infrastructure connections, services, and all network connections. For data tables that are accessed from tabs, the **Remove Connection** icon can also be displayed for **SERVERS** and **CLIENTS**.

Note: The **Delete** and the **Remove** icons are similar in appearance and function.

Figure 26-124 Data Tables – Remove and Remove Connection icon



Remove Connection with Clients icon

The **Remove Connection with Clients** icon is displayed with the data tables for infrastructure connections, services, and all network connections. For data tables that are accessed from tabs, the **Remove Connection with Clients** icon can also be displayed for **SERVERS** and **CLIENTS**.

Figure 26-125 Data Tables – Remove Connection with Clients icon



Remove Constraint icon

The **Remove Constraint** icon is displayed with the data tables for Routing Constraints.

Figure 26-126 Data Tables – Remove Constraint



Remove Cross Connection icon

The **Remove Cross Connection** icon is displayed with the data table for cross connections.

Figure 26-127 Data Tables – Remove Cross Connection icon



Remove Links from ASON icon

The **Remove Links from ASON** icon is displayed with the data table for ASON NPAs.

Figure 26-128 Data Tables – Remove Links from ASON icon



Release Loopback icon

The **Release Loopback** icon is displayed with the data tables for loopback lists. When users click the **Release Loopback** icon, the system releases loopback testing for the selected connection.

Figure 26-129 Data Tables – Release Loopback icon



Reset Table Preferences to Default icon

The **Reset Table Preferences to Default** icon is displayed for most data tables on the NFM-T GUI. When users click this icon, any table manipulations or customizations that they have set for the particular table are reset to the default view of the table.

Figure 26-130 Data Tables – Reset Table Preferences to Default icon



Refer to the [26.8 “Save data table preferences and reset data table preferences to default” \(p. 2218\)](#) task for detailed steps.

Reset to saved preference icon

The **Reset to saved preference** icon is displayed in all the data tables on the NFM-T GUI. When users click this icon, any column manipulations or customizations that they have set with the column filters are reset to the saved preferences.

Figure 26-131 Data Tables – Reset to saved preference



Reschedule Job icon

The **Reschedule Job** icon is displayed with the data tables for Jobs. When users click the **Reschedule Job** icon, the system enables users to reschedule a job.

Figure 26-132 Data Tables – Reschedule Job icon



Retrieve icon

The **Retrieve** icon is displayed with the Archive Sessions data table.

Figure 26-133 Data Tables – Retrieve icon



Routing Display icon

The **Routing Display** icon is displayed with the data table for infrastructure connections and services.

Figure 26-134 Data Tables – Routing Display icon



Run History icon

The **Run History** icon is displayed with the data tables for Jobs. When users click the **Run History** icon, the system enables users to run a history report for a job.

Figure 26-135 Data Tables – Run History icon



Save As icon

The **Save As** icon is displayed along with the data tables for infrastructure and service templates from the **DESIGN** navigation path.

Figure 26-136 Data Tables – Save As icon



Save Table Preferences icon

The **Save Table Preferences** icon is displayed for most data tables on the NFM-T GUI. When users click this icon, any table manipulations or customizations that they have set for the particular table are saved.

Figure 26-137 Data Tables – Save Table Preferences icon



Refer to the [26.8 “Save data table preferences and reset data table preferences to default” \(p. 2218\)](#) task for detailed steps.

Selected Objects icon

The **Selected Objects** icon is displayed and it is located in the upper left corner of the data table. It is the middle icon of the trio of object icons, located between the “[Total Objects icon](#)” (p. 2276) and the “[Locally Filtered Objects icon](#)” (p. 2259). The **Selected Objects** icon displays a count of the number of objects that the user has selected for viewing.

Figure 26-138 Data Tables – Selected Objects icon



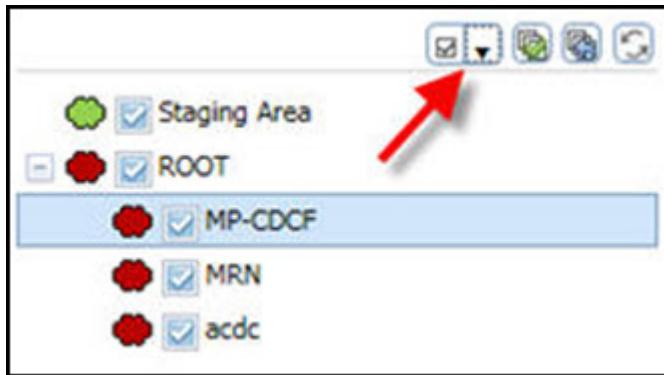
Selection Modality icon

The **Selection Modality** icon is displayed with the Tree of subnetworks for nodes.

Figure 26-139 Data Tables – Selection Modality icon



Figure 26-140 Data Tables – Selection Modality icon – Location



Set Time icon

The **Set Time** icon is displayed with the data table for NEs.

Figure 26-141 Data Tables – Set Time icon



Show Equipment Manager icon

The **Show Equipment Manager** icon is displayed with the data table for nodes.

Figure 26-142 Data Tables – Show Equipment Manager icon



Show Files icon

The **Show Files** icon is displayed on the MIB Backup File tab of File Transfer Services utility.

Figure 26-143 Data Tables – Show Files icon



Show Log History icon

The **Show Log History** icon is displayed on the bottom right of the NFM-T GUI. The **Show Log History** is not associated with any particular data table; however, when selected, the **Show Log History** displays a data table that logs NFM-T commands. Refer to the [26.10 “View the System Command Log” \(p. 2223\)](#) task to view the data table and for detailed steps.

Figure 26-144 NFM-T GUI – Show Log History icon



Shrink and Expand icons

The **Shrink** and **Expand** icons are displayed with all data tables that have tabbed topics in one of two places on a data table.

One set of these two icons are located in the right corner of the data table for the tabbed topic.

When clicked, the **Shrink** icon shrinks the data table for the tabbed topic (the bottom data table) and expands the data table for the original object (the top data table). To return to the default view, users can click the **Expand** icon.

When clicked, the **Expand** icon expands the data table for the tabbed topic (the bottom data table) and shrinks (removes from the user's view) the data table for the original object (the top data table). To return to the default view, users can click the **Shrink** icon. Note that if users click the back button, the **Dashboard** is displayed.

Figure 26-145 Data Tables – Shrink and Expand icons – Located above the Tabbed Topics



Another shrink/expand icon is located to the left of the data table. This icon, which is not named when moused over, is displayed only on those data tables that have left tabs. When users click on the icon, the left tabs are removed; when users click on the icon again, the left tabs are redisplayed.

Figure 26-146 Data Tables – Shrink and Expand icons – Located to the Left of the Data Table



SRG Correlate icon

The **SRG Correlate** icon is displayed with the data table for physical connections and Shared Risk Groups.

Figure 26-147 Data Tables – SRG Correlate icon



Step State icons

The **Step State** icons include a stop-light icon or a circle icon with a red X. They indicate if the connection is Completed (green stop light) or Failed (red X).

Figure 26-148 Routing Display – Connection icons – **Step State** – Completed, Failed



Supervision State icons

The **Supervision State** icons are displayed with the data table for nodes and NEs. The icons indicate the current supervision state of the node/NE. When the supervision is successful It fetches the physical inventory of the NE such as basic NE parameters, Equipment and Port details.

The icons are status indicators; hover over the icon to know the status. The **Supervision State** includes the following status indicators:

Icons	Description
	Not Supervised: The node/NE is not yet supervised after addition or the supervision on the node/NE is successfully stopped.
	Supervising: The supervision action is started on the node/NE and the process is in progress.
	Supervised: The supervision attempt is successful and the node/NE is currently supervised.
	Supervision Failed: The supervision attempt to the node/NE fails.
	Unsupervising: The stop supervision action is triggered and the node/NE is in the process of being marked as unsupervised.
	Partial: In a compound node, when one of either 1830 PHN NE or 1830 OCS NE is supervised and the other is not.

Synchronize icon

The **Synchronize** icon is displayed with the node, ASON NPAs, and NE data tables. When the down arrow is clicked, the **Synchronize** icon offers users other node and NE synchronization options.

Figure 26-149 Data Tables – Synchronize icon



TCM Status icon

The **TCM Status** icon is a yellow box with the letters **TC** that is displayed on the Routing Display for infrastructures and services. It represents the status of Tandem Connection Monitoring, which can be Enabled (displayed) or Disabled.

Figure 26-150 Routing Display – Connection icons – TCM Enabled



Three Dots More ... icon

The **Three Dots More...** icon is displayed in all data tables. It is located on the right corner of each line of the data table. It is the first icon of the trio of object icons, located to the left of the “[Selected Objects icon](#)” (p. 2270). The **Three Dots More...** icon displays the actions that are possible for the selected object in the data table, by clicking on a specific action the corresponding window is displayed.

Figure 26-151 Data Tables – Three Dots More... icon



Total Objects icon

The **Total Objects** icon is displayed with all data tables. It is located in the upper left corner of the data table. It is the first icon of the trio of object icons, located to the left of the “[Selected Objects icon](#)” (p. 2270). The **Total Objects** icon displays the number of rows of objects that are listed in the data table; meaning, the number of rows of objects that are listed from the beginning of the data table to the end of the data table.

Figure 26-152 Data Tables – Total Objects icon



Total Objects - Snippet Icon

If the number of the total rows of objects exceeds the threshold limit of the data table display, the **Total Objects** icon is overlaid with a **Snippet** icon (a pair of scissors) and a set of numerical values is displayed to the right of the **Snippet** icon. The value on the left indicates how many rows of objects are currently being displayed, which is a *snippet* of the data; the bracketed value on the right indicates the total number of actual rows of objects.

For instances in where the **Snippet** icon is displayed, users are encouraged to filter the data table to view required rows of objects.

Note: The display of the **Total Objects** icon overlaid with the **Snippet** icon is reserved only for data tables that can have voluminous rows of objects, such as the **Services** data table.

Figure 26-153 Data Tables – Selected Objects – Snippet – icon



Uncorrelate TCA icon

The **Uncorrelate TCA** icon is displayed for physical connections, infrastructure connections, and services that have PM Enabled Points enabled and that are correlated to a Threshold Crossing Alert (TCA).

Figure 26-154 Data Tables – Uncorrelate TCA icon



Unpublish icon

The **Unpublish** icon is displayed along with the data tables for infrastructure and service templates from the **DESIGN >** or the **DEPLOY >** navigation path.

Figure 26-155 Data Tables – Unpublish icon



26.17 Data tables and tabs icons

Overview

In the react screens, for every object row, a set of maximum three hover icons is displayed. The icons displayed depends on the data table objects. The table summarizes for every screen the hover icons displayed and consequent possible action.

Table 26-3 React Screens - Hover icons

Screen	360° tab	Hover 1	Hover 2	Hover 3
Services	-	360° view	Routing Display	
	ALARMS	Properties		
	SERVERS	360° view	Properties	Routing Display
	ROUTE	-	-	-
	PM ENABLE POINTS	-	-	-
	NOTES	-	-	-
	LLDP PARAMETERS	-	-	-
	END POINTS	Properties	-	-
Infrastructure	-	360° view	Properties	Routing Display
	ALARMS	Properties	-	-
	SERVERS	360° view	Properties	Routing Display
	CLIENTS	360° view	Properties	Routing Display
	ROUTE	-	-	-
	LINK CONNECTIONS	Properties	-	-
	PM ENABLED POINTS	-	-	-
	NOTES	-	-	-
	END POINTS	Properties	-	-
Physical Connections	-	360° view	Routing Display	-

Table 26-3 React Screens - Hover icons (continued)

Screen	360° tab	Hover 1	Hover 2	Hover 3
	ALARMS	Properties	-	-
	CORRELATED ALARMS	Properties	-	-
	SRGS	360° view	-	-
	CLIENTS	360° view	Properties	Routing Display
	LINK CONNECTIONS	-	-	-
	NOTES	-	-	-
	PM ENABLED POINTS	-	-	-
	FIBER CHARACTERISTICS	Properties	-	-
	END POINTS	Properties	-	-
	MISALIGNMENT REPORT	-	-	-
Network Inconsistencies - SNC Mismatches	-	360° view	Routing Display	Delete Connection
Network Inconsistencies - Parameter Mismatches	-	360° view	Routing Display	Delete Connection
Network Inconsistencies - Download Disable Mismatches	-	-	-	-
Network Inconsistencies - ASAP Mismatches	-	-	-	-
Network Inconsistencies - Uncorrelated Cross Connections	-	360° view	Properties	-
Network Elements	-	360° view	Properties	Discover External Physical Links

Table 26-3 React Screens - Hover icons (continued)

Screen	360° tab	Hover 1	Hover 2	Hover 3
Main Screen	ALARMS	-	-	-
	CLUSTER ASSOCIATIONS	-	-	-
	CONTROL PLANE	Auto Restoration	Activate GMRE Version	Switched Connection Sync
	IMPACTED CONNECTIONS	360° view	Properties	Routing Display
	USED PORTS	360° view	Properties	Routing Display
	FREE PORTS	Properties		
	SERVICE CONNECTIONS	360° view	Properties	Routing Display
	INFRASTRUCTURE CONNECTIONS	360° view	Properties	Routing Display
	CROSS CONNECTIONS	360° view	Remove	-
	PROPERTIES	NOT WORKING	-	-
Protected Connections	NOTES	-	-	-
	-	360° view	Properties	Routing Display
Protected Connections	ALARMS	Properties		
	SERVERS	360° view	Properties	Routing Display
	CLIENTS	360° view	Properties	Routing Display
	ROUTE	-	-	-
	LINK CONNECTIONS	-	-	-
	PM ENABLED POINTS	-	-	-
	PROTECTION	-	-	-
	PGS	Update all ports protection switch status from NE	Synchronize Ports switch status from NE	-
	NOTES	-	-	-
Looped Back Connections	END POINTS	Properties	-	-
	-	360° view	Release Loopback	Route Display
Detached Services	-	360° view	Properties	Routing Display

Part VII: OTN Guide Appendices

Overview

Purpose

This part collects the appendixes referred to the *NFM-T OTN Guide*

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A Specific OTN Administration

A.1 Overview

Purpose

This appendix contains administration information that is specific to the NFM-T OTN application. It contains information on installation parameters, port assignments, and scheduled maintenance for the application. It also includes information on the Wave Key Upgrade command line tool.

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Section 1: NFM-T OTN Configuration

A.2 Overview

Purpose

This section contains an explanation of the NFM-T OTN configuration, which involves the setting of installation parameters and their values, along with the associated tasks that are needed to run **lt_param_reconfig** tool.

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A.3 Installation parameter concepts

Definition

An installation parameter is a variable value that controls the behavior of a NFM-T OTN feature and that is set during the installation of the application. For example, an installation parameter called **Connection Alias** controls whether the **Connection Alias** field is displayed on the Connection provisioning panel in the NFM-T GUI.

An installation parameter is also known as a *system parameter*.

lt_param_reconfig and its menu options

Many of the installation parameters that control the behavior of the NFM-T OTN can be edited using the **lt_param_reconfig** command-line tool.

The **lt_param_reconfig** command-line tool is used to display all installation parameters and to modify certain installation parameters. The menu items that **lt_param_reconfig** displays are mapped to particular installation parameters, which the following table details.

Menu Item	Hot Link for Installation Parameter Details
1. A.4 "Element administration variables" (p. 2291)	1. "Network Primary Elementary View (EA.NTW_MASTER_ELE_VIEW)" (p. 2291)

Menu Item	Hot Link for Installation Parameter Details
2. A.5 "Connection installation parameters and variables" (p. 2292)	<ol style="list-style-type: none">1. "Connection Name Format (NWC.CONNECTION_NAME_FORMAT)" (p. 2292)2. "Auto Discovery Connection Name Format (AUTO_CONN_NAME_FORMAT)" (p. 2292)3. "Connection Name Separator (NWC.CONNECTION_NAME_SEPARATOR)" (p. 2292)4. "Port based Connection Name Separator (NWC.CONNECTION_NAME_SEPARATOR2)" (p. 2293)5. "Disable Alarms During Provisioning (NWC.DISABLE_ALARM_DURING_PROV)" (p. 2293)6. "CTP Alarm Monitoring (NWC.CTP_MONITORING)" (p. 2293)7. "SNC Fail Policy (BACKOUT_PARTIAL_SNC_POLICY)" (p. 2293)8. "Show End Port Columns on Connection List (CONN_LIST_COLS)" (p. 2294)9. "Allow Delete, Convert, and Rollback on Correlated Cross Connects (ALLOW_CORREL_XC_DELETE)" (p. 2294)10. "CTP Address Format for Non-managed NEs (NNE_CTP_ADDRESS_FORMAT)" (p. 2294)11. "Enable ASAP Fields on Provisioning Panel (ASAP_PROVISIONING)" (p. 2294)12. "Enable Display of Service State on Graphical Layout (SERVICE_STATE_SUPPORT)" (p. 2294)13. "Enable Black Box Cross Connections Retention When Network Connection Passing Thru Black Box is dbdeleted (RETAIN_BBOX_XCS_WHEN_NC_DBDELETED)" (p. 2295)14. "Enable Display of LTU Ports (ALLOW_LTU_CTPS)" (p. 2295)15. "Enable ASAP During Connection Provisioning (NWC.ASAP_CONN_DIS)" (p. 2295)

Menu Item	Hot Link for Installation Parameter Details
	<ul style="list-style-type: none">16. "Enable ASAP During Connection Discovery (NWC.ASAP_CONN_DIS)" (p. 2295)17. "Enable client layer auto discovery (NWC.CLIENT_LAYER_AUTO_DISCOVERY)" (p. 2295)18. "Enable ODU/DSR cross-connect Based for PSS (UI.ODU_XC_BASED)" (p. 2296)19. "Enable PSS OCS Support (NWC.PSS_OCS_SUPPORT)" (p. 2296)20. "Network Operation Mode (NWC.NETWORK_OPERATION_MODE)" (p. 2296)21. "Enable 15 min PM on connection discovered in Network Mode (NWC.AUTO_ENABLE_15MIN_PM)" (p. 2296)22. "Enable 24 hour PM on connection discovered in Network Mode (NWC.AUTO_ENABLE_24HOUR_PM)" (p. 2297)23. "Suffix used in the Service connection name (NWC.SERVICE_LABEL_SUFFIX)" (p. 2297)24. "Enable discover GMPLS cross connection (NWC.DISCOVER_GMPLS_XC)" (p. 2297)25. "Enable routing constraints validation (NWC.ROUTING_CONSTRAINTS_VALIDATION)" (p. 2298)26. "15 min PM TP Monitoring type for discovery (NWC.15MIN_PM_MONITORING_TYPE)" (p. 2298)27. "24 hour PM TP Monitoring type for discovery (NWC.24HOUR_PM_MONITORING_TYPE)" (p. 2298)28. "Enable or disable Automatic Latency Computation for discovered connections (NWC.LATENCY_FOR_DISCOVERED_CONNECTIONS)" (p. 2298)29. "Relax validation to allow trail constraint during modify of ASON Routed trails in manual mode (NWC.ALLOWTRAILSINMDFYCP)" (p. 2298)

Menu Item	Hot Link for Installation Parameter Details
3. A.6 “Order Handling Installation Parameters and Variables” (p. 2300)	<ol style="list-style-type: none">“History Order Storage Time (OH.KEEP_HISTORY_ORDER)” (p. 2300)“Reuse Order Number (REUSE_ORDER_NUMBER)” (p. 2300)“Enable Deletion of Rearrange with Reinstate History Orders (OH.ENABLE_RR_HIS_ORDER_PURGE)” (p. 2300)“Rearrange with Reinstate History Order Storage Time (Hours) (OH.KEEP_HISTORY_ORDER_RR)” (p. 2300)
5. A.7 “NBI Variables” (p. 2302)	<ol style="list-style-type: none">“NPT (Network Planning Tool) IP address (NBI.NPT_IPADDRESS)” (p. 2302)“NPT (Network Planning Tool) Port (NBI.NPT_PORT)” (p. 2302)
6. A.8 “FM Variables” (p. 2303)	<ol style="list-style-type: none">“Enable/Disable Correlated Alarms” (p. 2303)“Enable/Disable ESM alarm impact count” (p. 2303)
7. A.9 “ESM Variables” (p. 2304)	<ol style="list-style-type: none">“Enable check on UNI and NNI ethernet Ports (ESM_CAC_ENABLED)” (p. 2304)
8. Display Current Values	Displays all current values for fixed, reconfigurable, and dynamic installation parameters.

Modification of installation parameters

Each installation parameter has an optional value or values that can be specified in place of the value that was specified when the **wdm** was installed. The behavior of the installation parameters can be modified with the [A.11 “Modify an Installation Parameter” \(p. 2307\)](#).

Typically, modifying the installation parameters consists of one of these types of changes:

- Enabling or disabling an installation parameter by specifying values such as ON or OFF, 0 or 1, or TRUE or FALSE to indicate either functional state.
- Tuning an installation parameter by specifying a specific value within a range of values such as 0 to 3600 seconds; or 1 day to 30 days; or 10,000 to 200,000 records.
- Controlling the format that an installation parameter is to use by specifying a value within a choice of values such as TELCORDIA, M1400, or FREE_FORMAT.

Restarting of and interaction with system components

A particular installation parameter might require the restart of the **wdm** application for its parameter values to take affect once they are changed.

The **lt_param_reconfig** tool informs the user of restart requirements when the user exits the tool using its quit options. Users should not force the tool to exit using an operating system interrupt

such as **control-c** because such an interrupt causes the final actions of the tool to be skipped and the restart requirements will not be provided.

A.4 Element administration variables

Network Primary Elementary View (EA.NTW_MASTER_ELE_VIEW)

Name: EA.NTW_MASTER_ELE_VIEW

Valid Values: OFF, ON Default: OFF Used in Element Administration module (EA)

Description: Enables network primary elementary view for **listen only** cross-connect based system. When it is set to ON, it deactivates the following sync types from right click menu and icon from Node List > Synchronize: Paths, ASAPs, and Transmission Parameters; full sync will exclude these items as well.

Modification: Run **It_param_reconfig**; see [A.11 “Modify an Installation Parameter” \(p. 2307\)](#).

Select **Element Administration Variables** (option 1), number 1.

It_param_reconfig under Element Administration parameters Menu:

1. Network Primary Elementary View [OFF]

Restart: No, system does not have to be restarted for the parameter values to take affect.

A.5 Connection installation parameters and variables

Connection Name Format (NWC.CONNECTION_NAME_FORMAT)

Function: Specifies the format to be displayed as the default when the user is creating a connection. The user can select the format that is being displayed or the user can select another format.

Valid values: TELCORDIA (the default), M1400, FREE_FORMAT.

Important! For installations with the TMF814 Northbound Interface, the Connection Name Format installation parameter must be set to FREE_FORMAT, which is the default. See the *Open Interfaces Guide* for more information about the TMF814 NBI. Other related installation parameters are “[Auto Discovery Connection Name Format \(AUTO_CONN_NAME_FORMAT\)](#)” (p. 2292) and “[Connection Name Separator \(NWC.CONNECTION_NAME_SEPARATOR\)](#)” (p. 2292).

Modifications: Run **It_param_reconfig**; see [A.11 “Modify an Installation Parameter” \(p. 2307\)](#). Select **Connection Variables** (option 2), number 1.

Restart: Yes, restart the system for the parameter values to take effect.

Auto Discovery Connection Name Format (AUTO_CONN_NAME_FORMAT)

Discovered Connections inherit the name that is associated with each of the cross-connects. If the connection does not have cross-connects associated, then the server name is composed with the Layer Rate Label and a sequence number is appended. The appended layer rate and sequence number have the format of `[rate] : [N]` where N starts with one.

If a cross-connect user label is not populated, then the following rules apply:

Function: Specifies the name format that the NFM-T OTN is to use if the “[Connection Name Format \(NWC.CONNECTION_NAME_FORMAT\)](#)” (p. 2292) installation parameter is set to FREE_FORMAT and the system creates a connection name during an event such as Connection Auto Discovery.

Valid values: TELCORDIA (the default), M1400, PORT_BASED.

Modification: Run **It_param_reconfig**; see [A.11 “Modify an Installation Parameter” \(p. 2307\)](#). Select **Connection Variables** (option 2), number 2.

Restart: No, system does not have to be restarted for the parameter values to take affect.

Connection Name Separator (NWC.CONNECTION_NAME_SEPARATOR)

Function: Specifies the separator that is to be used for connection name components. Changes are not retrospectively applied to the database, existing connection names are not affected.

Valid values: | / - _ . : These symbols represent a pipe, forward slash (the default), hyphen, underscore, period, colon, or a blank space.

Modification: Run **It_param_reconfig**; see [A.11 “Modify an Installation Parameter” \(p. 2307\)](#). Select **Connection Variables** (option 2), number 3.

Restart: Yes, restart the system for the parameter values to take effect.

Port based Connection Name Separator (NWC.CONNECTION_NAME_SEPARATOR2)

Function: Specifies the separator that is to be used for port-based connection names in order to separate one NE from the other and the last NE with the layer rate. Changes are not retrospectively applied to the database, existing connection names are not affected.

Valid values: | / - _ . : These symbols represent a pipe, forward slash, hyphen, underscore, period, colon, and a blank space (the default).

Modification: Run **It_param_reconfig**; see [A.11 “Modify an Installation Parameter” \(p. 2307\)](#).
Select **Connection Variables** (option 2), number 4.

Restart: Yes, restart the GUI for the parameter values to take effect.

Disable Alarms During Provisioning (NWC.DISABLE_ALARM_DURING_PROV)

Function: Specifies whether the monitoring of alarms should be disabled during provisioning.

Valid values: ON (the default to disable alarm monitoring) or OFF.

Modification: Run **It_param_reconfig**; see [A.11 “Modify an Installation Parameter” \(p. 2307\)](#).
Select **Connection Variables** (option 2), number 5.

Restart: No, system does not have to be restarted for the parameter values to take affect.

CTP Alarm Monitoring (NWC.CTP_MONITORING)

Function: Controls whether all termination points (TPs) on a connection, which are Connection Termination Points (CTPs), are monitored or only the edge points are monitored. Monitoring only the edge points reduces the alarm process load on the system.

Valid values: EDGE_ONLY (the default), ALL.

Important! For installations with the TMF814 Northbound Interface, the CTP Alarm Monitoring installation parameter must be set to ALL. See the *Open Interfaces Guide* for additional details on installation parameters and the TMF814 Northbound Interface.

Modification: Run **It_param_reconfig**; see [A.11 “Modify an Installation Parameter” \(p. 2307\)](#).
Select **Connection Variables** (option 2), number 6.

Restart: No, system does not have to be restarted for the parameter values to take affect.

SNC Fail Policy (BACKOUT_PARTIAL_SNC_POLICY)

Function: Specifies whether the NFM-T OTN should attempt to back out the partial subnetwork controller (SNC) when an SNC creation fails.

Valid values: NO_BACKOUT_ON_FAILURE (the default), BACKOUT_ON_FAILURE

Modification: Run **It_param_reconfig**; see [A.11 “Modify an Installation Parameter” \(p. 2307\)](#).
Select **Connection Variables** (option 2), number 7.

Restart: No, system does not have to be restarted for the parameter values to take affect.

Show End Port Columns on Connection List (CONN_LIST_COLS)

Function: Specifies whether four additional columns should be displayed on the connection list for connection end ports. Displaying the four additional columns adds a delay to the display response.

Valid values: YES, NO (the default).

Modification: Run **It_param_reconfig**; see [A.11 “Modify an Installation Parameter” \(p. 2307\)](#).

Select **Connection Variables** (option 2), number 8.

Restart: Yes, restart the system for the parameter values to take effect.

Allow Delete, Convert, and Rollback on Correlated Cross Connects (ALLOW_CORREL_XC_DELETE)

Function: Specifies whether a correlated cross connect can be deleted, converted, or rolled back.

Valid values: YES; NO (the default, which disables the field). When set to YES, a correlated cross connect can be deleted, converted, or rolled back.

Modification: Run **It_param_reconfig**; see [A.11 “Modify an Installation Parameter” \(p. 2307\)](#).

Select **Connection Variables** (option 2), number 9.

Restart: Yes, restart the system for the parameter values to take effect.

CTP Address Format for Non-managed NEs (NNE_CTP_ADDRESS_FORMAT)

Function: Specifies the format in which the non-managed NE CTP nativename is generated.

Valid values: G707 (the default), SEQUENTIAL.

Modification: Run **It_param_reconfig**; see [A.11 “Modify an Installation Parameter” \(p. 2307\)](#).

Select **Connection Variables** (option 2), number 10.

Restart: Yes, restart the system for the parameter values to take effect.

Enable ASAP Fields on Provisioning Panel (ASAP_PROVISIONING)

Function: Specifies whether the alarm severity assignment profile (ASAP) fields should be enabled on the Connections provisioning panel.

Valid values: ENABLED, DISABLED (the default).

Modification: Run **It_param_reconfig**; see [A.11 “Modify an Installation Parameter” \(p. 2307\)](#).

Select **Connection Variables** (option 2), number 11.

Restart: Yes, restart the system for the parameter values to take effect.

Enable Display of Service State on Graphical Layout (SERVICE_STATE_SUPPORT)

Function: Enables the display of the service state on the graphical layout.

Valid values: YES, NO (the default which disables the display of the service state).

Modification: Run **It_param_reconfig**; see [A.11 “Modify an Installation Parameter” \(p. 2307\)](#).

Select **Connection Variables** (option 2), number 12.

Restart: Yes, restart the system for the parameter values to take effect.

Enable Black Box Cross Connections Retention When Network Connection Passing Thru Black Box is dbdeleted (RETAIN_BBOX_XCS_WHEN_NC_DBDELETED)

Function: Specifies whether a black box cross-connection retention is enabled (YES) when network connection passing through black box is dbdeleted.

Valid values: YES, NO (the default).

Modification: Run **It_param_reconfig**; see [A.11 “Modify an Installation Parameter” \(p. 2307\)](#).
Select **Connection Variables** (option 2), number 13.

Restart: Yes, restart the system for the parameter values to take effect.

Enable Display of LTU Ports (ALLOW_LTU_CTPS)

Function: Enables the display of LTU ports when set to YES.

Valid values: YES, NO (the default).

Modification: Run **It_param_reconfig**; see [A.11 “Modify an Installation Parameter” \(p. 2307\)](#).
Select **Connection Variables** (option 2), number 14.

Restart: Yes, restart the system for the parameter values to take effect.

Enable ASAP During Connection Provisioning (NWC.ASAP_CONN_DIS)

Function: Enables the ASAP setting on paths or trails during connection provisioning.

Valid values: ON (the default), OFF.

Modification: Run **It_param_reconfig**; see [A.11 “Modify an Installation Parameter” \(p. 2307\)](#).
Select **Connection Variables** (option 2), number 15.

Restart: Yes, restart the system for the parameter values to take effect.

Enable ASAP During Connection Discovery (NWC.ASAP_CONN_DIS)

Function: Enables the ASAP setting on paths or trails during connection discovery.

Valid values: ON, OFF (the default).

Modification: Run **It_param_reconfig**; see [A.11 “Modify an Installation Parameter” \(p. 2307\)](#).
Select **Connection Variables** (option 2), number 16

Restart: Yes, restart the system for the parameter values to take effect.

Enable client layer auto discovery (NWC.CLIENT_LAYER_AUTO_DISCOVERY)

Function: Enables the HO-ODUK and automatic discovery of the clients.

Valid values: ON (the default), OFF.

Modification: Run **It_param_reconfig**; see [A.11 “Modify an Installation Parameter” \(p. 2307\)](#).
Select **Connection Variables** (option 2), number 17.

Restart: Yes, restart the system for the parameter values to take effect.

Enable ODU/DSR cross-connect Based for PSS (UI.ODU_XC_BASED)

Function: Enables the cross-connect based routing for OTU/OCH layer rates and ODUk trail provisioning for the 1830 PSS NEs.

Valid values: ON or OFF (the default).

Modification: Run **It_param_reconfig**; see [A.11 “Modify an Installation Parameter” \(p. 2307\)](#).
Select **Connection Variables** (option 2), number 18.

Restart: Yes, restart the GUI for the parameter values to take effect.

Enable PSS OCS Support (NWC.PSS_OCS_SUPPORT)

Function: Enables the 1830 PSS OCS NE support for the NFM-T OTN application.

Valid values: ENABLED or DISABLED (the default).

Modification: Run **It_param_reconfig**; see [A.11 “Modify an Installation Parameter” \(p. 2307\)](#).
Select **Connection Variables** (option 2), number 19.

Restart: Yes, restart WDM and the GUI for the parameter values to take effect.

Network Operation Mode (NWC.NETWORK_OPERATION_MODE)

Parameter Function: Network Operation Mode.

- Mode OMS: Network Management is the Primary for Network Layer but Element Layer mirrors the NE.
- Mode Network: Network Element is the Primary where changes in the network element are reflected in the network layer.

Valid values: { OMS, Network }, Default: OMS

Modification: Run **It_param_reconfig**; see [A.11 “Modify an Installation Parameter” \(p. 2307\)](#).
Select **Connection Variables** (option 2), number 20.

Enable 15 min PM on connection discovered in Network Mode (NWC.AUTO_ENABLE_15MIN_PM)

Function: Auto enables 15 minutes PM on discovered connection if connection discovery is in Network Mode.

PARAM_NAME : NWC.AUTO_ENABLE_15MIN_PM

Valid values: TRUE or FALSE, Default : TRUE

Modification: Run **It_param_reconfig**; see [A.11 “Modify an Installation Parameter” \(p. 2307\)](#).
Select **Connection Variables** (option 2), number 21.

Enable 24 hour PM on connection discovered in Network Mode (NWC.AUTO_ENABLE_24HOUR_PM)

Function :Auto enables 24 hour PM on discovered connection if connection discovery is in Network Mode.

PARAM_NAME : NWC.AUTO_ENABLE_24HOUR_PM

Valid values: TRUE or FALSE, Default : TRUE

Modification: Run [It_param_reconfig](#); see [A.11 “Modify an Installation Parameter” \(p. 2307\)](#).
Select **Connection Variables** (option 2), number 22.

Suffix used in the Service connection name (NWC.SERVICE_LABEL_SUFFIX)

Function : Specifies the suffix to be used in the Service connection name.

PARAM_NAME : NWC.SERVICE_LABEL_SUFFIX

Valid values: { DSR, RATE}, Default: DSR

Modification: Run [It_param_reconfig](#); see [A.11 “Modify an Installation Parameter” \(p. 2307\)](#).
Select **Connection Variables** (option 2), number 23.

Enable discover GMPLS cross connection (NWC.DISCOVER_GMPLS_XC)

PARAM_NAME : NWC.DISCOVER_GMPLS_XC

Valid values: { TRUE,FALSE}, Default : FALSE

Modification: Run [It_param_reconfig](#); see [A.11 “Modify an Installation Parameter” \(p. 2307\)](#).
Select **Connection Variables** (option 2), number 24.

Function:

Alien Lamda connection:

- Connections may be created by the Management in the need of supporting either Optical pass-through in metro-core or core controlled by the L0 CP.
- It can be used to support the Management Plane initiated "Alien Wavelength" support
- In all cases, L0 CP should not "touch" those connections and simply coexist with L0 CP initiated connections.
- NE will deny in case the MP xc is used by CP (for a current route).

When Alien Lamda support is required, parameter *DISCOVER_GMPLS_XC* should be set to **true** so that NFM-T can inventory the XC created by GMPLS after reroute and not use them for routing Management Plane connections. This has dependency on GMRE AND NE to send notifications which is not currently supported. So a Sync should be performed to keep this in sync.

When Alien Lamda support is **NOT** required, *DISCOVER_GMPLS_XC* should be set to **false**. This is the default value. NFM-T will NOT inventory the XC created by GMPLS as the routing thorough GMPLS network is managed by GMRE. There is no additional overhead to perform synchronization

Connections may be created by the Management in the need of supporting either Optical pass-through in metro-core or core controlled by the L0 CP.

Enable routing constraints validation (NWC.ROUTING_CONSTRAINTS_VALIDATION)

Function: Enables routing constraints validation during connection provisioning in NFM-T GUI

PARAM_NAME : NWC.ROUTING_CONSTRAINTS_VALIDATION

Valid values: { TRUE,FALSE}, Default: TRUE

Modification: Run **It_param_reconfig**; see [A.11 “Modify an Installation Parameter” \(p. 2307\)](#).
Select **Connection Variables** (option 2), number 25.

15 min PM TP Monitoring type for discovery (NWC.15MIN_PM_MONITORING_TYPE)

Function: Specify TP Monitoring Selection for 15 Minute PM data for Discovery

PARAM_NAME : NWC.15MIN_PM_MONITORING_TYPE

Valid values: { ALL, ENDPOINT }, Default: ENDPOINT

Modification: Run **It_param_reconfig**; see [A.11 “Modify an Installation Parameter” \(p. 2307\)](#).
Select **Connection Variables** (option 2), number 26.

24 hour PM TP Monitoring type for discovery (NWC.24HOUR_PM_MONITORING_TYPE)

Function: Specify TP Monitoring Selection for 24 hour PM data for Discovery

PARAM_NAME : NWC.24HOUR_PM_MONITORING_TYPE

Valid values: { ALL, ENDPOINT }, Default: ENDPOINT

Modification: Run **It_param_reconfig**; see [A.11 “Modify an Installation Parameter” \(p. 2307\)](#).
Select **Connection Variables** (option 2), number 27.

Enable or disable Automatic Latency Computation for discovered connections (NWC.LATENCY_FOR_DISCOVERED_CONNECTIONS)

Function: Enables/Disables the Automatic Latency Computation for discovered connections.

Valid values: ENABLED or DISABLED

Default: DISABLED

Modification: Run **It_param_reconfig**; see [A.11 “Modify an Installation Parameter” \(p. 2307\)](#).
Select **Connection Variables** (option 2), number 28.

Restart: Yes, restart of TOMCAT is required for change to take effect. See [“Restart Tomcat” \(p. 2307\)](#).

Relax validation to allow trail constraint during modify of ASON Routed trails in manual mode (NWC.ALLOWTRAILSINMDFYCP)

Function: Relax validation to allow trail constraint during modify of ASON Routed trails in manual mode.

Valid values: YES, NO

Default: NO

Modification: Run **It_param_reconfig**; see [A.11 “Modify an Installation Parameter” \(p. 2307\)](#).
Select **Connection Variables** (option 2), number 29.

Restart: Yes, restart of TOMCAT is required for change to take effect. See [“Restart Tomcat” \(p. 2307\)](#).

A.6 Order Handling Installation Parameters and Variables

Installation Parameters

The following order handling parameters are set during the installation of the system.

History Order Storage Time (OH.KEEP_HISTORY_ORDER)

Function: Specifies the time, in hours, where the history order is to be retained.

Valid values: 0 hours (the default) to 168 hours, which is 1 week.

Important! For HA installations, the History Order Storage Time installation parameter must be set to 24 hours. See the *Open Interfaces Guide* for additional details on installation parameters and the TMF814 Northbound Interface.

Modification: Run **It_param_reconfig**; see [A.11 “Modify an Installation Parameter” \(p. 2307\)](#).

Select **Order Handling Variables** (option 3), number 1.

Restart: Yes, restart the system for the parameter values to take effect.

Reuse Order Number (REUSE_ORDER_NUMBER)

Function: Specifies whether an order number can be reused for active objects.

Valid values: OFF (the default, which means the order number cannot be reused for active objects); MODIFY (the modification of an object can reuse the same order number).

Modification: Run **It_param_reconfig**; see [A.11 “Modify an Installation Parameter” \(p. 2307\)](#).

Select **Order Handling Variables** (option 3), number 2.

Restart: Yes, restart the system for the parameter values to take effect.

Enable Deletion of Rearrange with Reinstate History Orders (OH.ENABLE_RR_HIS_ORDER_PURGE)

Function: Enables the system to purge the Rearrange with Reinstate (RR) history orders automatically.

Valid values: YES, NO (the default, which does not enable the automatic deletion of the Rearrange with Reinstate (RR) history orders. If YES, refer to the [“Rearrange with Reinstate History Order Storage Time \(Hours\) \(OH.KEEP_HISTORY_ORDER_RR\)” \(p. 2300\)](#) installation parameter for additional parameter settings that must be made.

Modification: Run **It_param_reconfig**; see [A.11 “Modify an Installation Parameter” \(p. 2307\)](#).

Select **Order Handling Variables** (option 3), number 3.

Restart: Yes, restart the system for the parameter values to take effect.

Rearrange with Reinstate History Order Storage Time (Hours) (OH.KEEP_HISTORY_ORDER_RR)

Function: Defines the length of time in hours for which rearrange with reinstate history orders are retained if the [“Enable Deletion of Rearrange with Reinstate History Orders \(OH.ENABLE_RR_HIS_ORDER_PURGE\)” \(p. 2300\)](#) installation parameter set to YES.

Valid values: 0 hours (the default) to 168 hours, equivalent to 1 week.

Modification: Run **It_param_reconfig**, see [A.11 “Modify an Installation Parameter” \(p. 2307\)](#).
Select **Order Handling Variables** (option 3), number 4.

Restart: Yes, restart the system for the parameter values to take effect.

Customer Name Field (OH.ENABLE_CUSTOMER_NAME)

Function: Enable or disable customer name field in provisioning screen.

Valid values: YES (the default), NO. The value LOCALDESIGN displays behavior that is equivalent to that of WS-NMS.

Modification: Run **It_param_reconfig**; see [A.11 “Modify an Installation Parameter” \(p. 2307\)](#).
Select **Order Handling Variables** (option 3), number 5.

Restart: Yes, restart the system for the parameter values to take effect.

A.7 NBI Variables

NPT (Network Planning Tool) IP address (NBI.NPT_IPADDRESS)

Function: NPT IP Address

Valid values: default value: –, IP format: 0-255.0-255.0-255.0-255 or --(double dash) for no address.

Modification: Run **It_param_reconfig** ; see the [A.11 “Modify an Installation Parameter” \(p. 2307\)](#) task. Select **NBI Variables** (option 5), number 1.

Restart: Yes, restart the system for the parameter values to take effect.

NPT (Network Planning Tool) Port (NBI.NPT_PORT)

Function: NPT (Network Planning Tool) port number

Valid values: default value: 8123.

Modification: Run **It_param_reconfig** ; see the [A.11 “Modify an Installation Parameter” \(p. 2307\)](#) task. Select **NBI Variables** (option 5), number 2.

Restart: Yes, restart the system for the parameter values to take effect.

A.8 FM Variables

Enable/Disable Correlated Alarms

Function: Enable/Disable correlated alarms. When Enabled, the Parameter is set to **TRUE** which means all the correlated alarms will be shown in the UI screens. When Disabled, the parameter is set to **FALSE** which means no correlated alarms will be shown in UI screens.

Name: FM.CORRELATED_ALARM

Valid Values: { **TRUE**, **FALSE** }

The Default is : **TRUE**

Modification: Run **It_param_reconfig**; see the [A.11 “Modify an Installation Parameter” \(p. 2307\)](#) task. Select **FM Variables** (option 6), number 2.

i Note: If 1830 TPS NEs are used in the NFM-T configuration, this variable must be set to **FALSE**. Ensure to set it as **FALSE** before performing the network configurations.

Restart: Yes, restart of TOMCAT is required for change to take effect. See [“Restart Tomcat” \(p. 2307\)](#).

Enable/Disable ESM alarm impact count

Function: Enable/Disable ESM alarm impact count. When Enabled, the parameter is set to YES which means L2 entities will be counted in the impact count of an alarm. When disabled, the parameter is set to NO and only OTN entities will be counted as part of alarm impact count.

Name: FM.ESM_IMPACT_COUNT

Valid Values: { **YES**, **NO** }

The Default is : **NO**

Modification: Run **It_param_reconfig**; see the [A.11 “Modify an Installation Parameter” \(p. 2307\)](#) task. Select **FM Variables** (option 6), number 3.

3) Enable ESM/L2 Entities in Alarm Impact Count [NO]

Restart: Yes, Restart of Fault Manager is required for change to take effect.

Retain records in ConnAlarmInfoAudit for days

Function: Retain alarms records for n days

Name: FM.CONN_ALARM_INFO_AUDIT

The Default is : 30

Modification: Run **It_param_reconfig**; see the [A.11 “Modify an Installation Parameter” \(p. 2307\)](#) task. Select **FM Variables** (option 6), number 4.

4) Retain records in ConnAlarmInfoAudit for days [30]

Restart: Yes, Restart of Fault Manager is required for change to take effect.

A.9 ESM Variables

Enable check on UNI and NNI ethernet Ports (ESM_CAC_ENABLED)

Function: Connection Admission Control check on UNI and NNI ethernet Ports.

UNI CAC – Check on UNI port bandwidth to guarantee the SAP CIR.

NNI CAC – Check on Link bandwidth to guarantee the service CIR.

Name: ESM_CAC_ENABLED

Valid values: **NO**, **YES**. The default is **NO**.

Modification: Run **It_param_reconfig**; see the [A.11 “Modify an Installation Parameter” \(p. 2307\)](#) task. Select **ESM Variables** (option 7), number 1.

Restart: No, system does not have to be restarted for the parameter values to take affect.

A.10 View the Parameter Settings of an Installation Parameter

When to use

Use this task to view the parameter settings of an installation parameter.

Related information

See the following topics in this document:

- “[lt_param_reconfig and its menu options](#)” (p. 2286)

Before you begin

This task can be completed in one of two methods.

Ensure that the NFM-T OTN is running.

Task: Method 1

Complete the following steps to view the parameter settings of an installation parameter.

- 1 _____
From the machine where the application is running, log in as **wdm**.
- 2 _____
At the prompt, enter the following command line:
/usr/Systems/OTNE_<Instance-Release>/WDM_PLATFORM/bin/lt_param_reconfig -L
Result: The current setting of all parameter values is displayed.

END OF STEPS _____

Task: Method 2

Complete the following steps to view the parameter settings of an installation parameter.

- 1 _____
From the machine where the application is running, log in as **wdm**.
- 2 _____
At the prompt, enter the following command line:
/usr/Systems/OTNE_<Instance-Release>/WDM_PLATFORM/bin/lt_param_reconfig
Result: A menu of all tunable parameters is displayed.

3

Enter option 8 to display current values: 8

Result: The current settings for all parameter values are displayed.

END OF STEPS

A.11 Modify an Installation Parameter

Purpose

Use this task to modify an installation parameter, to use it, ensure that the **otne** or **wdm** application is running.

See the following topics in this document:

- “[lt_param_reconfig and its menu options](#)” (p. 2286)

Task

Complete the following steps to view or modify an installation parameter.

1

From the machine where the NFM-T is running, log in as **otn** user to **otncore** container and execute the command:

```
docker exec -it otncore /bin/bash
```

2

At the prompt, enter the following command line:

```
/usr/Systems/OTNE_<Instance-Release>/WDM_PLATFORM/bin/lt_param_reconfig
```

Result: A menu of all tunable parameters is displayed.

3

Follow the menu prompts to change the particular installation parameter or parameters.

Result: The parameter is changed. Depending on the type of installation parameter that was changed, many times the redefined parameter does not take effect until the **otne** or **wdm** application is restarted.

END OF STEPS

Restart Tomcat

In some cases, after modifying a parameter, a restart of the Tomcat application is needed. To fulfil this action execute the following commands:

```
/usr/Systems/Global_Instance/APACHE/script/tomcat_stop.sh
```

```
/usr/Systems/Global_Instance/APACHE/script/tomcat_start.sh
```

Section 2: NFM-T OTN Port Assignments

A.12 Overview

Purpose

This section contains the port assignments for NFM-T OTN management ports.

Contents

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A.13 NFM-T OTN Port Assignments

Information related to NFM-T OTN port assignments

For Firewall and port assignment related information, See NFM-T Installation and Migration Guide.

Section 3: NFM-T OTN Scheduled Maintenance

A.14 Overview

Purpose

This section contains suggestions for daily housekeeping and periodic maintenance, along with a table that lists the scheduled activities of the NFM-T OTN application.

Contents

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A.16 Periodic Maintenance	2312
A.17 Scheduled Activities	2313

A.15 Daily Housekeeping

Run hot system backups

On a daily basis, run a hot system backup.

Important! To avoid running housekeeping tasks simultaneously or at times that are not beneficial to the overall health and functioning of the system, always refer to the recommended time and frequency for scheduled activities that is suggested in the “[Table of scheduled activity](#)” (p. 2313).

In addition, the data from any hot system backup that has been done on the Server Platform should be written to tape daily.

Important! If a hot system backup is run daily, the data from the previous day is overwritten. Therefore, if the data is not written to tape or to another device and/or system, the previous day's data is lost.

Check system logs

On a daily basis, check the systems logs on the Red Hat Enterprise Linux servers, which are located at **/var/opt/messages**, to determine if any errors have occurred.

Check disk space

On a daily basis, check disk space by using the Red Hat Enterprise Linux **df** command.

A.16 Periodic Maintenance

Run cold system backups

Depending on the need, run a cold system backup every week or every two weeks.

Important! To avoid running housekeeping tasks simultaneously or at times that are not beneficial to the overall health and functioning of the system, always refer to the recommended time and frequency for scheduled activities that is suggested in the “[Table of scheduled activity](#)” (p. 2313).

Patches and security updates

Depending on the need, keep patch levels current for all Microsoft® software products that are running in conjunction with the NFM-T OTN.

Set up new users

When the need arises, set up new users and create their accounts.

Refer to *Administration Guide* for details on how to set up accounts, profiles, and security.

Audit user accounts

Once a month, audit user accounts to locate and remove dead user accounts. Refer to *Administration Guide* for details on how to remove user accounts.

Determine the latest releases

Once a month, contact your Nokia local customer service support team to determine the *latest releases* of your NEs and the latest releases of the NFM-T OTN application that support your NEs. The latest release of the NFM-T OTN might include features, tools, and support services that address your ever-changing network management needs.

Contact your local Nokia customer service support team to determine the NEs that are supported in this release.

Check licenses

If your network is growing rapidly, *check licenses* once a month to determine whether additional licenses are needed.

A.17 Scheduled Activities

Table of scheduled activity

The following table identifies the recommended time and frequency of scheduled activity that occur within the NFM-T and its operating platform.

Time and Frequency	Schedule Activity or Installation Parameter Trigger	Activity/Comments
xx:15 xx:45 every 30 minutes	cleanup	User: root Resource Monitor script that is used to remove old files.
xx:55 hourly	oh_del_history_order	User: wdm Starts the deletion of history orders.
22:30 daily	fm_alarm_retention	User: wdm Purges records from the current Alarms List that are older than the set retention period.
22:56 daily	fm_pse_retention	User: wdm Purges records from the Protection Switch Event (PSE) log that are older than the set retention period.
23:08 daily	fm_pseseize_monitor	User: wdm Checks the size of the Protection Switch Event log, generates warning alarms, and purges as necessary.
00:10 daily	ea_delete_history_nes	User: wdm Internal housekeeping: removes deleted NEs that had been retained to allow internal synchronization.
00:20 daily	oh_del_fiber_recovery	User: wdm Purges the restore complete orders associated with the fiber cut recovery feature.
01:00 daily	nwc_delete_orphan_xc	User: wdm Deletes orphaned cross-connects.

Time and Frequency	Schedule Activity or Installation Parameter Trigger	Activity/Comments
On single CPU servers: Every 30 Minutes daily	fm_alarmsize_monitor	User: wdm Checks the size of the current Alarms List; generates warning alarms, and purges records if required.
22:40 daily	fm_log_retention	Purges records from FM log that are older than the set retention period.
Every 10 minutes	fm_alarmevent_purge	Purges old records from network event summary table.
Every 30 minutes	fm_logsize_monitor	Checks the size of alarm log, generates alarms and purges if necessary.
01:02 daily	nwc_cleanup_conn_tp_activity	This activity is done by default.

Section 4: NFM-T OTN Wave Key Upgrade Command Line Tool

A.18 Overview

Purpose

This section provides the conceptual information and the procedure that is needed to run the Wave Key Upgrade (`wavekeyUpgrade`) command-line tool.

Contents

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A.19 Wave Key Upgrade Command Line Tool Concepts	2316
A.20 Run the Wave Key Upgrade Command-Line Tool	2318

A.19 Wave Key Upgrade Command Line Tool Concepts

Wave Key Upgrade Command Line Tool definition

Wave Key Upgrade (**wavekeyUpgrade**) is a command line tool that enables users to update the Provisionable Wave Key values for OCH/OTUk connections when 1830 PSS R2.0 NEs are upgraded to R2.5 or beyond.

Wave Key Upgrade Command Line Tool use

OCH/OTUk connections that contain only 1830 PSS R2.0 NEs have their Provisionable Wave Key value set to **NA**; however, when a PSS R2.0 NE is upgraded to R2.5 or beyond, the Provisionable Wave Key parameter should be updated to reflect that users can now choose if a connection is **Keyed** or **Unkeyed**.

Because Wavelength Tracker functionality is not applicable for **Unkeyed** OTUk/OCH connections, users need the ability to choose a Provisionable Wave Key value so they can disable navigation to the Wavelength Tracker screen from the Routing Display and Trails list screen for **Unkeyed** services.

Wave Key Upgrade Command Line Tool functional overview

After PSS R2.0 NEs are upgraded to R2.5 or beyond, any connections that have a Provisionable Wave Key value of **NA** are not automatically updated to the value of **Keyed** or **Unkeyed**. To update these options, users must run the **wavekeyUpgrade** command line tool to update the Provisionable Wave Key value from **NA** to **Keyed** or **Unkeyed** for any OCH/OTUk connections that use the NE.

The **wavekeyUpgrade** command line tool allows users to input a string of NEs on the command line that have been upgraded to R2.5 or beyond; meaning, users can run the tool once regardless of how many NEs are upgraded and not once per NE.

The **wavekeyUpgrade** tool finds all of the connections that use the NEs and updates the Provisionable Wave Key parameter to **Keyed** or **Unkeyed**. If the Provisionable Wave Key value is changed from **NA** to **Keyed**, the tool updates the Wave Key Type parameter to **Automatic**.

Wave Key Upgrade Command Line Tool precondition

The **wavekeyUpgrade** tool must be run after the NEs are upgraded and the cross-connection database synchronization is completed.

Wave Key Upgrade Command Line Tool parameters

The **wavekeyUpgrade** tool is executed as a command-line tool. The NE names are specified as the parameters. The tool can be run once per NE or multiple NEs at the same time.

Format:

wavekeyUpgrade <nename1> <nename2> <nename3> ...

Example: To run the tool on two NEs:

wavekeyUpgrade avocet-01 avocet-03

After running the command-line tool, the `wavekeyUpgrade.log` file is created within the folder: `usr/Systems/WDM_<Instance>-<Release>/maintenance/log/wavekeyUpgrade.log`

Example:

```
usr/Systems/WDM_1-Release 22.6_FP1/maintenance/log/wavekeyUpgrade.log
```

If parameters are not specified, the tool outputs the following message and exits:

```
Usage: /usr/Systems/WDM_<Instance>-<Release>/WDM_APPL/bin/wavekeyUpgrade <NE name/s>
```

Example:

```
Usage: /usr/Systems/WDM_1-Release 22.6_FP1/WDM_APPL/bin/wavekeyUpgrade <NE name/s>
```

Wave Key Upgrade Command Line Tool log file

A `wavekeyUpgrade.log` file is generated after running the `wavekeyUpgrade` command-line tool. This log file resides in the following directory:

```
usr/Systems/WDM_<Instance>-<Release>/maintenance/log/
```

For example:

```
usr/Systems/WDM_1-Release 22.6_FP1/maintenance/log/
```

The `wavekeyUpgrade.log` contains the details of the execution depending on the NE parameters specified. For more information, refer to [Step 2](#) in the [A.20 “Run the Wave Key Upgrade Command-Line Tool” \(p. 2318\)](#) task.

A.20 Run the Wave Key Upgrade Command-Line Tool

When to use

Use this task to run the Wave Key Upgrade (`wavekeyUpgrade`) command-line tool.

Related information

See the following topics in this document:

- [A.19 “Wave Key Upgrade Command Line Tool Concepts” \(p. 2316\)](#)

Before you begin

The 1830 PSS R2.0 NEs must be upgraded to R2.5 or beyond.

Cross-connection database synchronization must be completed.

Task

Complete the following steps to run the Wave Key Upgrade command-line tool.

1

If you are executing this tool with the NFM-T OTN up, log in as `wdm` from the machine where the application is running.

If you are executing this tool with the NFM-T OTN down, log in to the NFM-T OTN server and execute the tool.

2

Enter the following command line to invoke the Wave Key Upgrade command line tool:

`wavekeyUpgrade <nename1> <nename2> <nename3> ...`



Note: The first NE name is mandatory; the other NE names are optional. The Wave Key Upgrade command line tool can be run once per NE or on multiple NEs at the same time.

Example:

`wavekeyUpgrade avocet-04 avocet-05`

Result: Upon successful execution of this command the following messages are displayed.

You may view `usr/Systems/WDM_1-Release 22.6_FP1/maintenance/log/wavekeyUpgrade.log` to check progress.

Procedure `PopulateWaveKeyconfig` has begun.

Procedure `PopulateWaveKeyconfig` was successfully completed.

PL/SQL procedure successfully completed.

If a combination of valid and invalid NE parameters are specified for example:

`wavekeyUpgrade avocet-10 avocet-04`

The following messages are displayed:

```
You may view usr/Systems/WDM_1-Release 22.6_
FP1/maintenance/log/wavekeyUpgrade.log
to check progress
2
avocet-10
NE avocet-10 is not valid for waveKey param upgrade.
avocet-04
Procedure PopulateWaveKeyconfig has begun
Procedure PopulateWaveKeyconfig was successfully completed
PL/SQL procedure successfully completed.
```

If an invalid NE parameter is specified, for example **wavekeyUpgrade avocet-10**: the execution fails.

The following error messages are displayed.

```
You may view usr/Systems/WDM_1-Release 22.6_
FP1/maintenance/log/wavekeyUpgrade.log
to check progress
NE avocet-10 is not valid for waveKey param upgrade.
No valid NEs given for waveKey param upgrade.
```

If NE parameters are not specified, meaning you just input **wavekeyUpgrade** without the names of any NEs, the execution terminates.

The following message is displayed.

Usage: ./wavekeyUpgrade <NE name#1> <NE name#2>.....<NE name#n>

END OF STEPS

Section 5: Database Management

A.21 Overview

Purpose

This section provides the NFM-T administrator with the conceptual information and the associated tasks that pertain to the database management, and the backup and restore of the NFM-T SDH application.

Contents

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A.22 Check Oracle's Use of the Database Disk Space	2321
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A.28 Manage Database Indexes	2332

A.22 Check Oracle's Use of the Database Disk Space

Purpose

Use this task to check Oracle's use of the database disk space.

Task

Complete the following steps to check Oracle's use of the database disk space.

1

Log in to the NFM-T server as **alcatel**.

2

Enter the following command:

```
$ . /users/alcatel $ sqlplus / as sysdba @/usr/Systems/SDH_<nms_instance>/ORACLE/bin/ReadTbsSize.sql
```

END OF STEPS

A.23 Extend Table Space

When to use

Use this task to extend table space.

Related information

This task does not have any related information.

Before you begin

Because Oracle uses pre-allocated and not extendible table spaces, someNFM-T SDH functions can fail; and trace files messages, like the following, can be displayed:

Message: ORA-01653: unable to extend table SNML. TP by 512 in tablespace DATA

Where: TP is the name/number of table where the error occurs.

In addition, messages that have other, table names/numbers can occur.

To resolve this problem, you must extend the table space using the following task. It is not necessary for you to shut down the NFM-T SDH application and databases.

Recommendation: Create a new data file that has the same size of the previous one.

Recommendation: Execute a backup and a restore on the NFM-T SDH database.

An Initial Connection: For all GUIs that are Started for the First Time

It takes some time to download the Java software to the PC during the initial connection of a PC to a NFM-T machine. Wait until the operation is completed. A window is displayed, asking for the directories that are to be used for the temporary Java files and cache. If you change the default locations, be sure to specify different directories for the temporary Java files and cache.

Task

Complete the following steps to extend table space.

1

Log in to the NFM-T server as the root user.

Result: You are now the superuser on the NFM-T server.

2

Enter the following command lines:

```
$ . /usr/Systems/SDH_<nms_instance>/snmlrc
$ sqlplus system/manager@$ORACLE_SID
```

Result: The SQL application is activated.

3

Enter the following SQL commands:

```
SQL> select * from dba_data_files;
SQL> alter tablespace data add datafile
  '/usr/Systems/SDH_<nms_instance>/databases/dbsnml/data/data02.dbf'
size 30 M;
SQL> quit;
```

Result: A new data file for the table space data is created in the following directory:
/usr/Systems/SDH_<nms_instance>/ databases/dbsnml/data/data02.dbf

END OF STEPS

A.24 Backup and Restore

Data

The backup/restore functions enable the administrator to save/restore the following data types:

<workstation, functional domain>

Where:

Each functional domain can include several subsets of data, such as the following:

- Network (**Ntw**)
- Alarm files (**AS**)
- Performance Monitoring collection files (**PM**)
- OS data: Operating System configuration data (that is, **/etc/hosts**)
- Third party software (ORS DB)
- System configuration data
- Application configuration data (us_nodes, im_host_conf)
- Operator data, which includes the home directory of all created and predefined NFM-T SDH users

 **Important!** The previous data types could be saved together or separately by selecting the relevant data on user interface.

The backup of one functional domain does not remove the existing backup of another, different functional domain.

The backup/restore of the first three subsystems are based on Oracle import/export features, so only table data is saved and not the table structure; therefore, recreate the Oracle database before restoring them.

During the backup, the NFM-T SDH application is switched to read only run level, so the integrity of the saved data is guaranteed.

The network backup function is available both as a periodical action and upon user request through the user interface.

The files where the backup originates are stored on disk (other than the one in which the Oracle database resides).

Restriction: The backup of PM data must be performed with a backup of network data.

Times in which to schedule backups

To provide the highest data integrity and to avoid any loss of data, we recommend that backups should be scheduled according to the following:

- Back up the network daily.
- Back up the alarm files and PM data every week.
- Back up the operator data monthly or when modifications are made.

A.25 Realign the Database Using the redolog File

When to use

Use this task to realign the database using the **redolog** file.

After a NFM-T SDH network data restore, you can realign the database up to the failure point using the NFM-T SDH **redolog** file. This **redolog** file contains all of the configuration operations that are traced and network topology modifications.

Related information

This task does not have any related information.

Before you begin

Important! This task should be used only for a global network data restore (NFM-T SDH plus all the NFM-T EML).

For a partial restore, the execution results of the **redolog** file are unpredictable.

Task

Complete the following steps to realign the database using the **redolog** file.

1

Enter the following command lines to copy the **redolog** file to the user home directory (**/users/snml**) in order to create a new file with the **.rmCmd** extension. Then, empty the current redo log file.

```
$ cp $NLredolog<user_home_dir>/<filename>.rmCmd  
$ >$NLredolog
```

2

Perform the Upload NAPs operation.

Note: The uploaded NAPs are not traced in the **redolog** file. However, path operations, which are executed by the **rmBatchUtil** procedure, refer to the uploaded NAPs by their User Label, which is why the Upload NAPs can be executed manually after the restore.

Result: The NAPs are manually uploaded.

3

Set the global configuration of the ETs involved in payload configuration operations to **False**. Payload configuration is re-built by creating and configuring/reconfiguring HO-trails. HO-trails in a ring can only be created if the global configuration is set to **False**.

Result: Global configuration of the ETs is **False**.

4

Start the batch procedure by opening the CDE file manager from the CDE panel and by

selecting the saved file from the pop-up the Execute-batch command displayed on the pop-up. The output of the batch procedure is redirected to a file <filename>.rmCmd.log.

i **Important!** During execution, the performed operations display their results on the terminal. The results of the batch execution can depend on external conditions (such as time-outs or concurrences); therefore, some operations in a large batch file can fail when repeated, which can be recovered because the output file of **rmBatchUtil** reports both the commands and the results. Failed commands can be saved in another file and executed later. Pay particular attention to failures upon allocation, adding or removing protection, and that previous constraint definitions must be rerun with the failed commands.

Result: The batch procedure is executed and the database is realigned.

5

Set the global configuration of the ETs involved in payload configuration operations to **True**.

i **Important!** The correct values for the configuration of the ETs are automatically recalculated.

Result: Global configuration of the ETs is **True**.

END OF STEPS

A.26 Defragment the Primary Key Identifiers

When to use

Use this procedure to defragment the primary key identifiers of the NFM-T SDH application database tables to optimize disk space that the database uses.

Note: Only sensitive tables (such as TP and TRANPK among others) are updated.

Related information

This task does not have any related information.

Before you begin

After executing the procedure, the primary key column value of every table will be in the range 1..n, where n equals the number of rows of the table. All foreign keys are updated accordingly.

Important! This task should be used only for a global network data restore (NFM-T SDH plus all of the NFM-T EML).

For a partial restore, the execution results of the **redolog** file are unpredictable.

Task

Complete the following steps to defragment the primary key identifiers of the NFM-T SDH application database tables to optimize disk space that the database uses.

1

Enter the following command lines to copy the **redolog** file to the user home directory (**/users/
snml**) in order to create a new file with the **.rmCmd** extension. Then, empty the current redo log file.

```
$ cp $NLredolog<user_home_dir>/<filename>.rmCmd  
$ >$NLredolog
```

2

Perform a system full backup.

Result: The system is saved in a dedicated area or on disk.

3

Stop the NFM-T SDH application if necessary, but not the database, which has to be up and running.

From the NFM-T GUI Application, follow this path:

Administer > Process Monitoring and Control ...

4

From the Process Monitoring Control Application GUI, select the SDH system icon, and follow this path:

Actions > Stop > Selected Item

Result: The NFM-T SDH application is stopped.

5

From a system terminal, log in as **alcate1** user.

Enter the following command to change the current directory to the conversion directory:

\$ cd \$DB_ROOT/admin/conv

Result: The current directory is changed.

6

Add a new **datafile** to the table space **INDEX_T**.

When adding a new **datafile**, exchange **tablespace index_t** for **tablespace data**. Use **index<nn>.dbf** (where: <nn>= an integer number, which is different from existing files) instead of **data02.dbf**, and specify an appropriate size.



Important! You must add a new **datafile** to the table space because a large index (**NEWOLD_TEMP_INDEX**) is created on a temporary table (**NEWOLD_TEMP**) to boost performance. The size of this **datafile** has to be proportional to the NFM-T SDH database dimension. A size of 10MB is typically large enough; increase this size if you find any error regarding the **NEWOLD_TEMP_INDEX**.

Result: A new **datafile** is created.

7

Enter the following command to create the rollback segment **large_rbs**.

\$ \$ORACLE_HOME/bin/sqlplus system/manager @create_large_rbs.sql



Important! This command is necessary because operations on database take a lot of rollback segment space, far more than a typical database operation.

Result: A rollback segment **large_rbs** is created.

8

Enter the following command to perform the **idDegrag** procedure.

\$ /usr/Systems/SDH_<nms_instance>/databases/utility/idDefrag

Adhere to the following guidelines when running **idDegrag**:

1. The procedure displays some warnings and information. Check all, especially the environment variable **\$NXNL_DATABASE**.
2. The procedure asks for confirmation with the message:

Do you want to continue ?

3. If the **\$NXNL_DATABASE** environment variable is correctly set, you must enter **y**; otherwise, enter **n**.
4. If the **\$NXNL_DATABASE** environment variable is not correctly set, reset the environment variable and restart the utility by entering the following command:
\$ /usr/Systems/SDH_<nms_instance>/databases/utility/idDefrag
No operation on database is performed until you enter **y**.
5. If any errors occur, the procedure stops. Check the logfile **idDefrag.log**, which is created in the current directory, to diagnose the error. If any error occurs during execution of **idDefrag** (after the **y** confirmation), the database is left in a not consistent state. After fixing the problem, you must perform a NFM-T SDH database full restore and then repeat this whole sequence of operations. The same situation arises if **idDefrag** is interrupted (after the **y** confirmation), whatever the reason is, included user **<ctrl-c>** request.
Each time the procedure is executed, the previous log file is automatically saved as **idDefrag.log.old**.

Result: The defragmentation operation is completed.

9

Enter the following command to drop the `large_rbs` rollback segment.

\$ \$ORACLE_HOME/sqlplus system/manager @drop_large_rbs.sql

i **Important!** This operation is normally not necessary since the dimension of the **datafile** is always only a fraction of the database itself.

Result: The rollback segment `large_rbs` is dropped.

10

Enter the following command to remove the **datafile** previously added to **INDEX_T** table space.

\$ \$ORACLE_HOME/sqlplus system/manager @drop_large_rbs.sql

Result: The **datafile** is removed.

END OF STEPS

A.27 Verify the idDefrag Log File

When to use

Use this task to verify the **idDefrag** log file to determine if the procedure has accomplished its task.

Related information

This task does not have any related information.

Before you begin

Since the procedure is written in PL/SQL, the log file is mainly the copy of **sqlplus** display output.

Only a subset of all primary keys, which are the keys that might overflow above 2,000,000,000, are de-fragmented by this procedure. Currently, these keys are the following:

- TP.tpld
- TRANPK.tranconnld
- PMTROP.pmTranOpId
- PMREOP.pmReportOpId

Other primary keys will be added if necessary.

Task

Complete the following steps to verify the **idDefrag** log file to determine if the procedure has accomplished its task.

1

Disable of all **FOREIGN KEY** constraints.

Result: The **FOREIGN KEY** constraints are disabled.

2

For every primary key of every table (example: tpld of TP table), create a new-old ID mapping table (**NEWOLD_TEMP**). This mapping is printed on the log.

Transform (update) the primary key and all referencing foreign keys.

From the pop-up menu of the saved file (**NEWOLD_TEMP**), select the **Execute-batch** command.

Result: The primary key of every table updated.

3

Enable of all **FOREIGN KEY** constraints.

Result: The **FOREIGN KEY** constraints are enabled.

4

Reset all SEQUENCEs to the 1 + maximum value of primary key column.

Example: If the column tpid has a maximum (tpid) = 200, the TP_SEQUENCE will be set to 201.

5

From the pop-up menu of the saved file, select the **Execute-batch** command.

Result: The primary key column maximum value is incremented.

END OF STEPS

A.28 Manage Database Indexes

When to use

Use this task to manage database indexes.

Related information

This task does not have any related information.

Before you begin

Some performance problems can arise when many network objects are updated most of alarms are received and cleared. In this scenario, the structures of indexes inside the NFM-T SDH database are fragmented; unfortunately ORACLE cannot manage this scenario automatically. To solve this problem, shutdown the system and execute the following SQL script as **alcatel** user, with the database active.

 **Important!** It is suggested to execute this script periodically after the backup.

Task

Complete the following steps to manage database indexes.

1 _____
Log in to the NFM-T server as **alcatel**.

2 _____
Enter the following command:
`$ /usr/Systems/SDH_<nms_instance>/databases/utility/manageIndexes`

END OF STEPS _____

B Provisioning Related Information

NE, Nodes

B.1 Set the interworking mode for D5X500Q card

When to use

Use this task to configure the interworking mode of a **D5X500Q** card. This procedure shows how to set the interworking mode of the **D5X500Q** card with the following cards: **2UC400/4UC400**

Before you begin

The interworking mode can be: asymmetric for example when the interconnection is between D5X500Q and 2UC400/4UC400; or symmetric in which D5X500Q is used for 3R regen of PSS-24x uplink. These scenarios can be protected and unprotected.

Important! The card needs to be put in *out of service* configuration before to change the interworking mode.

Task: Set the interworking mode for D5X500Q card

Perform the following procedure to set the interworking mode:

1

From the NFM-T GUI, follow this navigation path: **OPERATE > Equipment Manager**.

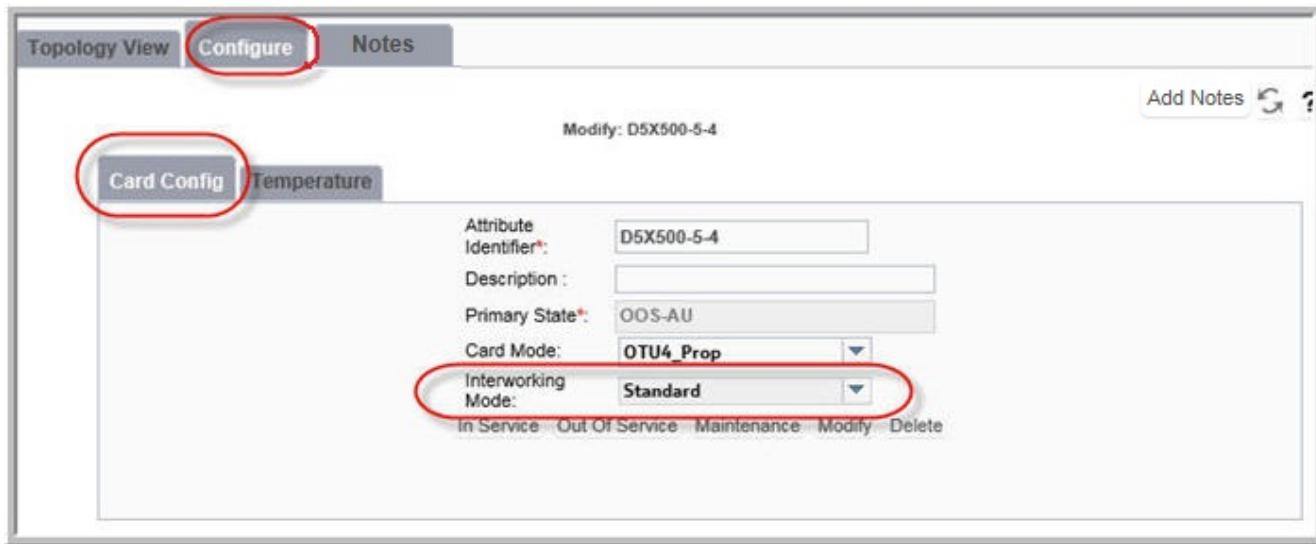
Result: The system displays the **Equipment Manager** window in its default state.

2

From the window, navigate to the card to set the parameter.

Result: For the selected NE, the system displays the modification window with two sub-tabs: **Card Config** and **Temperature**.

Figure B-1 Interworking Mode field



3

In the **Interworking Mode** field, select the correct parameter from the drop-down menu. The Interworking Mode can be configured in two modes:

- **Legacy** mode: to interwork D5X500Q card with D5X500/D5X500Q cards
- **Standard** mode: to interwork D5X500Q with 2UC400/4UC400 cards

Configuration notes:

1. If D5X500Q and D5X500 (AA/AB) are selected as termination ports, the Interworking mode must be set as **Legacy**.
2. If D5X500Q card is selected as both termination ports, and there is a 3R regen in between made from an older version of the card (D5X500 AA/AB), the field must be set to **Legacy** mode. This setting must be done once the routing is calculated and 3R included.
3. If a D5X500Q and 2UC400/4UC400 selected as termination ports, set the field to **Standard**.

This is also valid in the case where a 3R is present in the route and made by D5X500Q. A 3R of such configurations is not possible with the older D5X500 AA/AB versions.

4

The interworking mode set for a given card is visible by following the paths:

NE > Tab Free Ports

Nodes > Tab Free Ports

Figure B-2 Example of Interworking Mode column

Display Label	WDM Port Type	WDM Client Signal Type	Interworking Mode
D5X500-12-2-C2	OPS	Not Provisioned	Standard
D5X500-12-2-C1	OPS	Not Provisioned	Standard
D5X500-12-2-L2	OPS	Not Provisioned	Standard

END OF STEPS

B.2 Configure shelves, slots/cards, and ports from the Equipment Manager

When to use

Use this procedure to perform the following:

- configure shelves on NEs.
- modify shelf properties.
- remove shelves from NEs.
- configure cards/packs on empty card slots.
- modify card properties.
- delete a card from a card slot.
- configure ports on a card.
- modify port properties on a card.

Related information

See the Equipment Manger Overview in the *NE Management Guide*.

Before you begin

Depending on whether the piece of equipment is a shelf, card, or port, its configuration through the **Equipment Manager** can include, but is not limited to create, modify, and delete.

The **Create**, **Modify**, and **Delete** functions are enabled only if the NE is in the **Supervised**, **Enabled**, or **Aligned** state.

To provision a new node, we recommend that users follow these steps in this sequence:

- Configure a shelf.
- Configure a slot.
- Configure the ports.

The configuration steps, along with figures that illustrate each step, are provided in this task.

A successful completion of a port, card, or shelf configuration, modification, or deletion occurs in two to four seconds. However, if there is congestion in DCN, the operations take more time.

Note:

- After a successful operation, the **Equipment Manager** is refreshed automatically to display the changes. Before you see a successful notification at the bottom right corner of the window, if you select another port, card, or shelf in the navigation tree, you must perform a manual refresh to view the changes.
- From 1830 PSS NE R12.0 onwards and PSI-2T/PSI-M NE R4.0 onwards, the **Configure** tab populates attribute from the NE WebUI. The information displayed on the **Configure** tab varies on the type to NE, shelf, card, or port that is being configured.

For more information, click on the **Help** button or see *1830 PSS User Provisioning Guide* and *1830 PSS Product Information and Planning Guide*.

OPERATE > Equipment Manager > Node > NE > Configure

PSS4_12.0_node2

Network Element Name: PSS4-
User Label: PSS4_12.0_node2
Software Release: 1830PSS4-20.6-40
UI Mode: Normal
TL1 Autonomous Messages Enabled:
Unkeyed Dangling Add/Drop Enabled: No
Temperature Units: Celsius
EC Programmed Capacity: Unknown
Thermal Restart: System default
OpenAgent Enabled:
Display Shelf Description in Alarm/Condition:

Network Element Type: Nokia 1830 PSS4 v12.0 SDH ADM (Simulator)
Description:
ETR Validation Enabled:
Fips Squelch Mode: Non-Fips
Cluster and OCS Flexgrid Enabled:
AINS Timer: 0 hrs 10 mins
Altitude: 0.0 km
SONET/SDH Mode: SDH
Air Filter Check Time: 2 hours (0-23)

Help Refresh Modify

OPERATE > Equipment Manager > Node > NE > Shelf > Configure

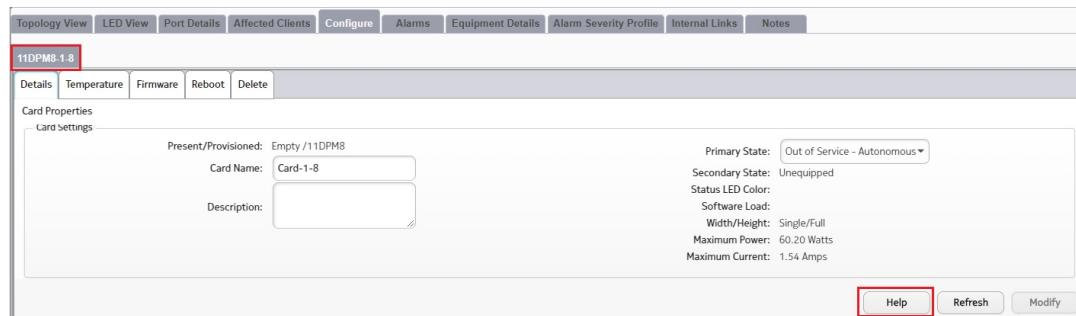
SHELF-1

Present/Provisioned: PSS-4/PSS-4
Shelf Name: Master Shelf
Description:
Status LED Color: Solid Red
Expected PF: 8.5 Amps
PF A Expected: N/A Amps
PF B Expected: N/A Amps

Inventory Data
Company ID: NOK CL: NGC5ACEFAA Mnemonic: E4SHF
Software Part Number: Unit Part Number: 8DG59339AAAA01
Serial Number: MV12345678 Factory ID: MH Date: 4/1/07
Extra Data: M1:1

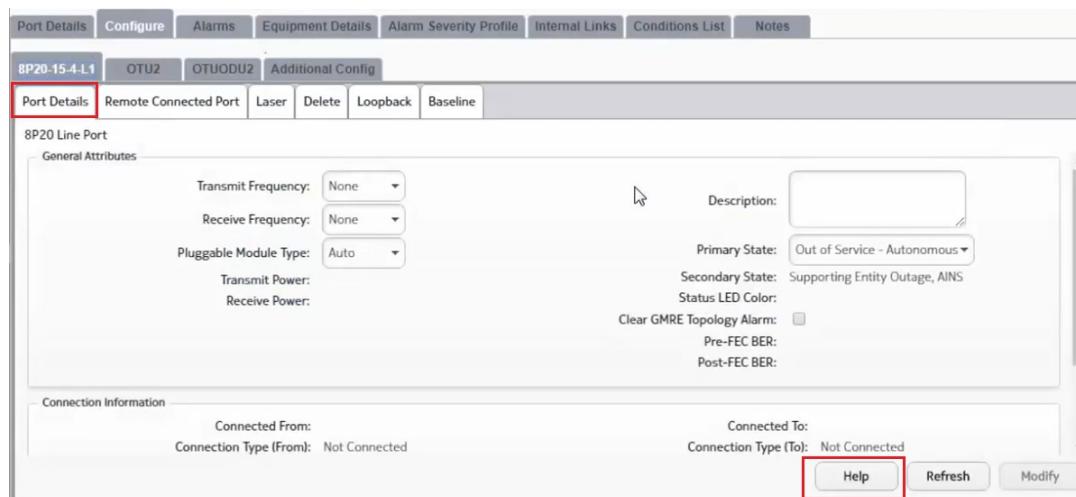
Air Filter Maintenance
Monitoring Enabled: Inspection Interval: 26 weeks (1-104)
Inspection Start Date: 01/01/1970 Maintenance Date: N/A

Help Refresh Modify

OPERATE > Equipment Manager > Node > NE > Shelf > Card > Configure**OPERATE > Equipment Manager > Node > NE > Shelf > Card > Port > Configure**

During provisioning, a new tab **Additional Config** is displayed for ports which require modification for selective Connection Termination Point (CTP) attributes from EQM.

For example: On a 1830 PSS-32 NE, port can be configured with **Single Rate** OTU2. The attributes in Physical Termination Point (PTP) level tab are modifiable from EQM, and greyed out CTP level tabs are read only from EQM and can be modified from NE WebUI.



Limitations

- Create Packet switch and Packet switch summary tabs are not available at NE level.
To access these functions, login to NE WebUI or refer to ESM pages.
- Provisioning of the following card and port are not supported in NFM-T.
 - 130SNQ10 card
 - MON-OCM
 - Client rates on 20UC200 ports
 - Card swaps on LD packs

Note: Provisioning of these cards/ports can be performed from NE WebUI.

Task: Configure and delete shelves

Perform the following procedure to create or delete shelves. Before deleting a shelf, ensure that no cards are provisioned in the shelf.

1

From the NFM-T GUI, follow this navigation path: **OPERATE > Equipment Manager**.

Result: The system displays the **Equipment Manager** window in its default state.

2

From the **EQM** window, navigate to the required NE or use the Search box that is above the tree. Expand the tree to access the NEs.

Result: The system displays information for the selected NE.

3

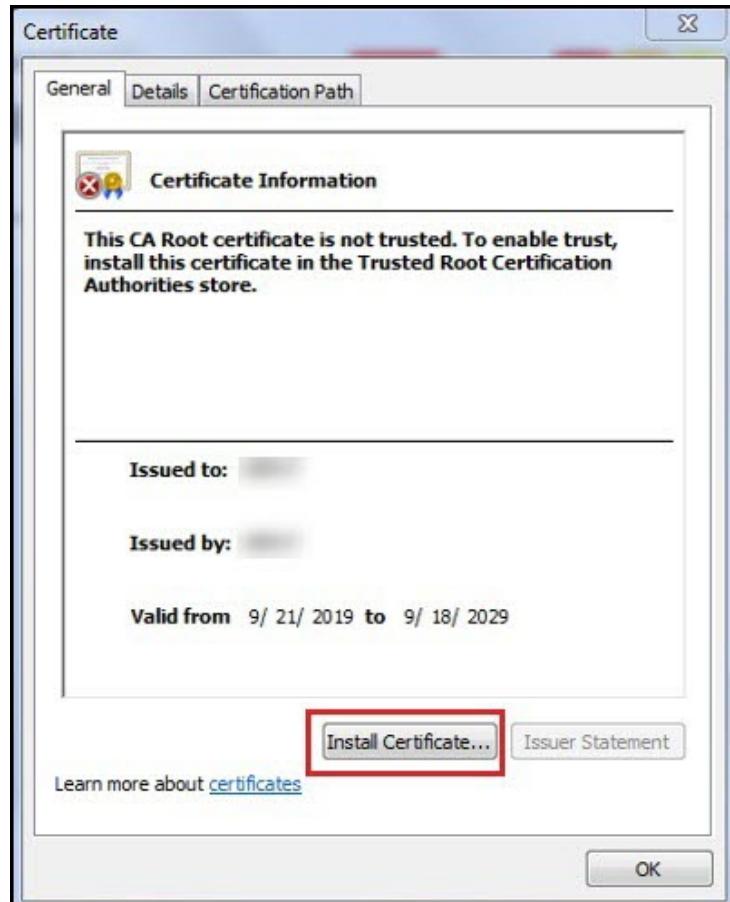
Click the **Configure** tab.

For **Internet Explorer (IE)** browser, when accessing the **OPERATE > Equipment Manager > Node > NE > Configure** tab for the first time, a *Security Alert* pop-up is displayed. Perform the following steps to install the required certificate for the browser. This is applicable for NEs supporting NE WebUI: 1830 PSS-32 (R12.0), 1830 PSS-4 (R12.0), 1830 PSI-2T (R4.0), and 1830 PSI-M (R4.0).

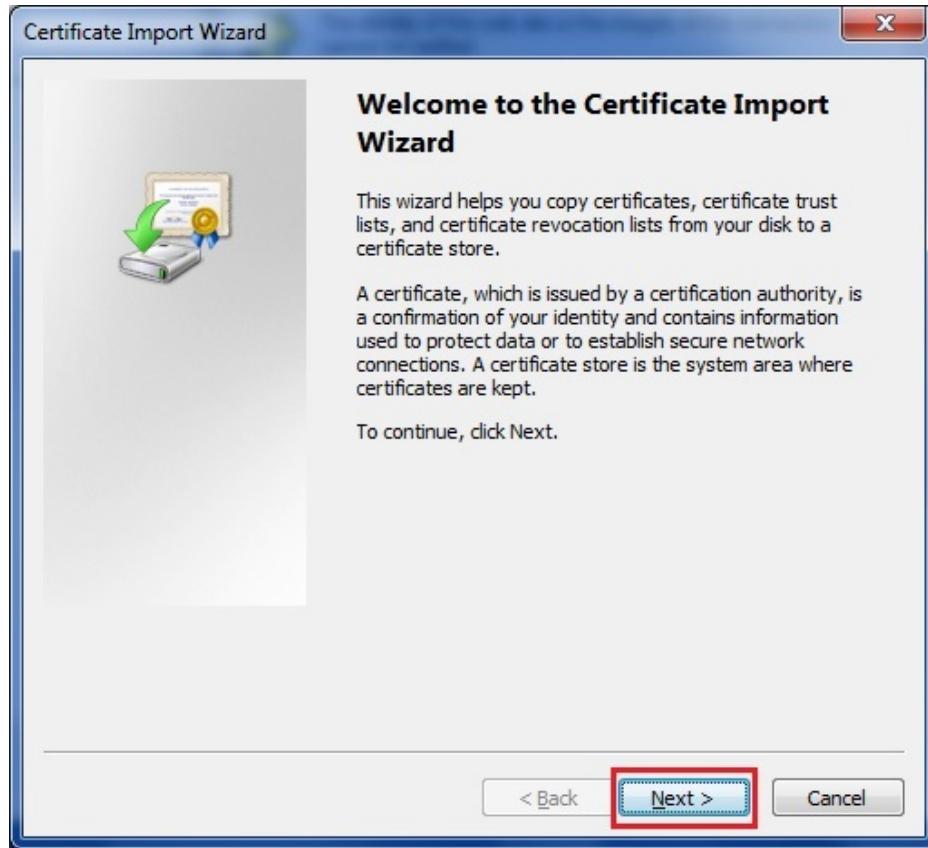
1. Click **View Certificate** button on the **Security Alert** pop-up window.



-
2. Click on **Install Certificate...** button on the **Certificate** window.

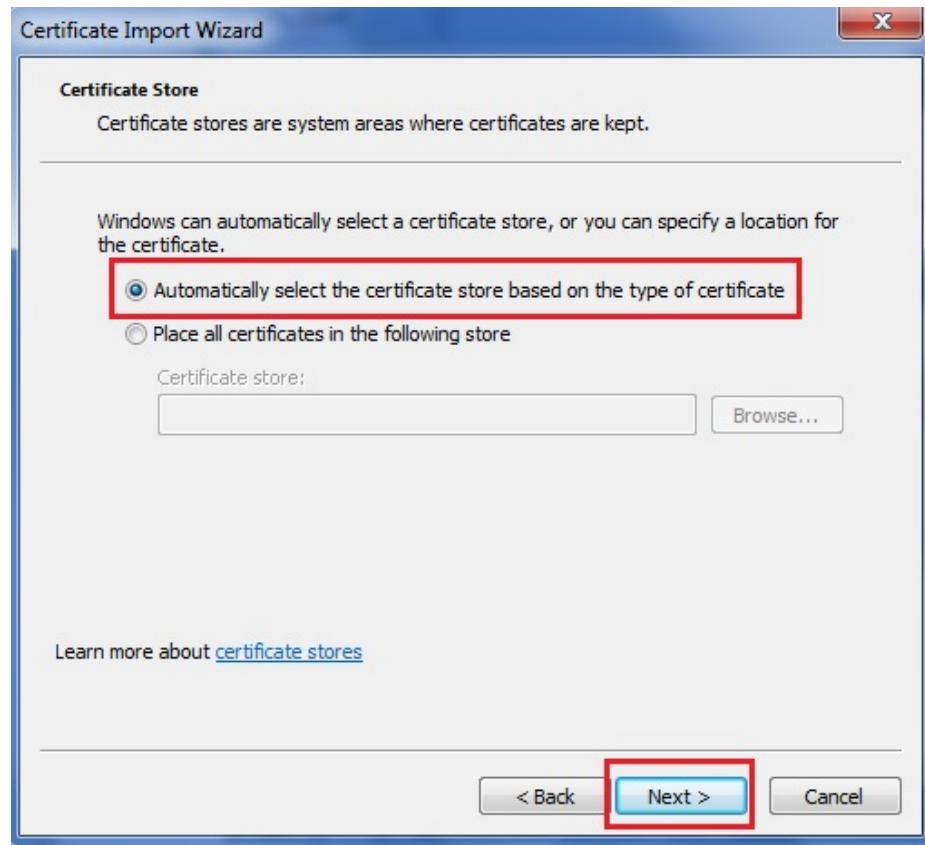


-
3. Click **Next** button on the **Certificate Import Wizard** window.

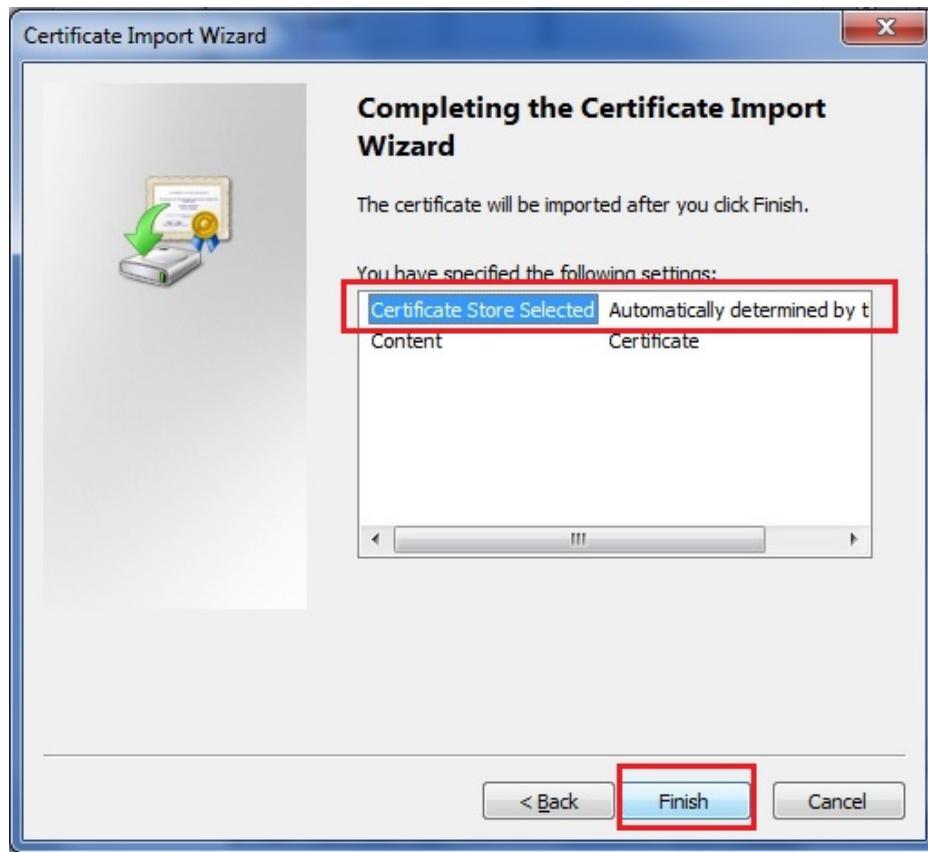


4. Select *Automatically select the certificate store based on the type of certificate* radio button

and click **Next**.



5. Click **Finish**.

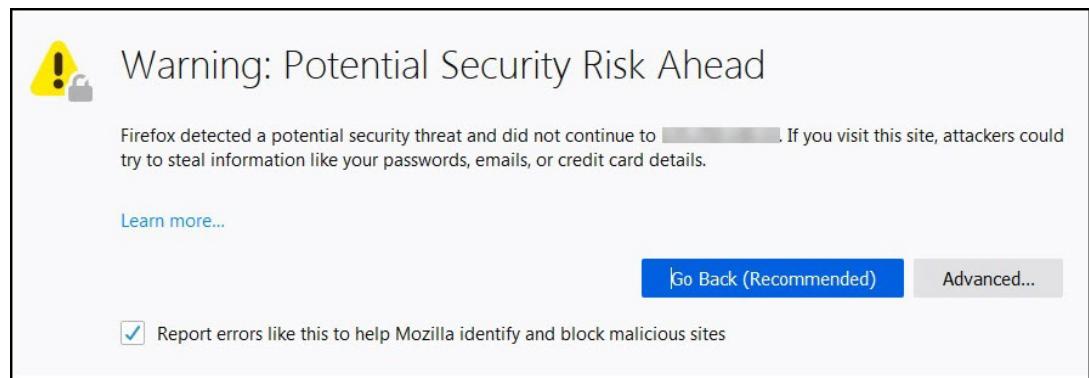


The *import was successful* message is displayed and you can start using the **Configure** tab.



For **Mozilla Firefox** or **Google Chrome** browsers, when accessing the **OPERATE > Equipment Manager > Node > NE > Configure** tab for the first time, a **Warning** window opens up. Perform the following steps to install the required certificate for the browser. This is applicable for NEs supporting NE WebUI: 1830 PSS-32 (R12.0), 1830 PSS-4 (R12.0), 1830 PSI-2T (R4.0), and 1830 PSI-M (R4.0).

1. Click on **Advanced...** button on the **Warning** window.



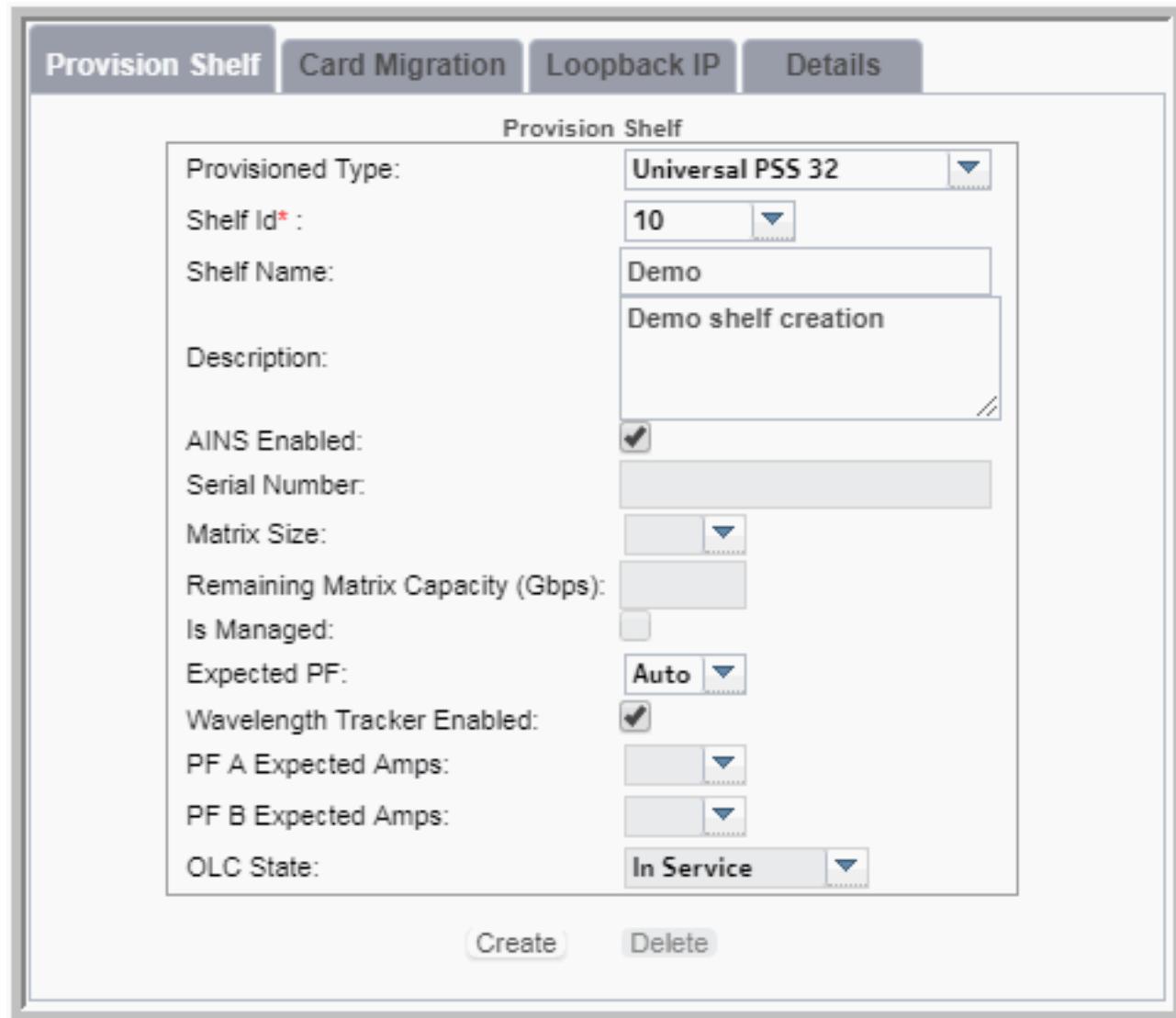
2. Click **Accept** in the next window.

The message *Certificate is accepted. Please re-launch EQM again and retry.* is displayed.

3. Refresh the EQM to start using the **Configure** tab.

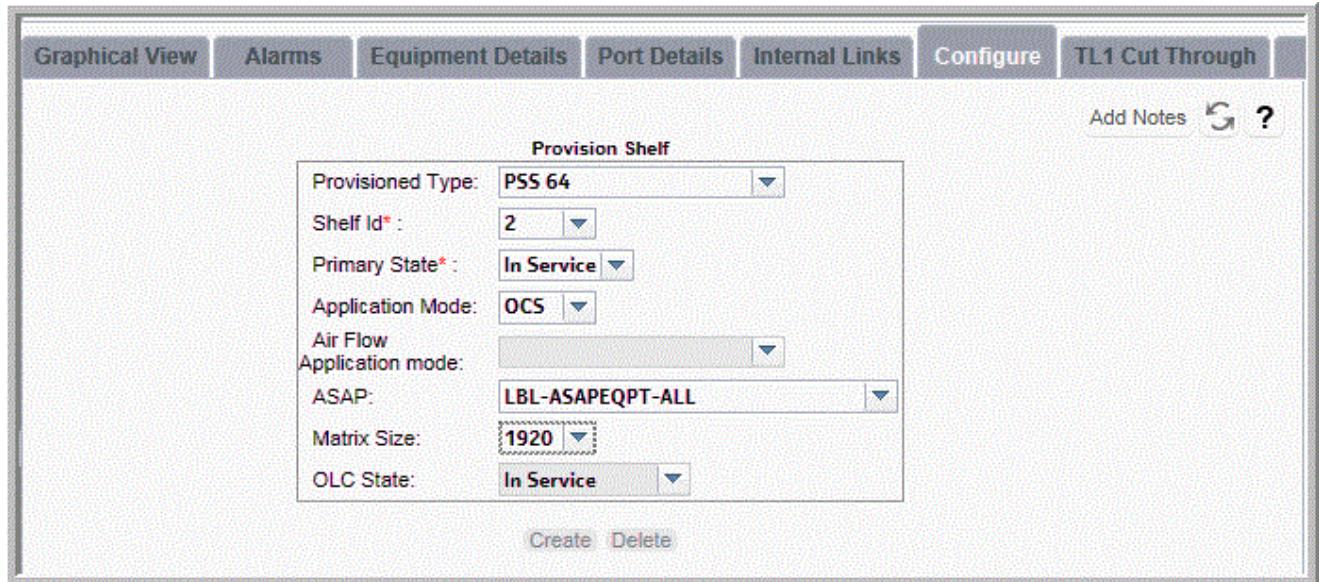
Result: For 1830 PSS PHN NE, the system displays the **Provision Shelf** sub-tab for the NE that you have selected.

Figure B-3 Equipment Manager – Provision Shelf Window of PHN NE



For 1830 PSS OCS NE, the **Provision Shelf** panel is displayed under the **Configure** tab.

Figure B-4 Equipment Manager – Provision Shelf Window of OCS NE



Note: 1830 PSD and 1830 PSI-2T do not support configuration of new shelves.

4

Configure the required parameters and click **Create**.

Table B-1 Shelf Configuration Parameter Description

NE Type	Parameter	Description
PHN NE and OCS NE	Provisioned Type	The shelf type to be provisioned. The options varies depending on the selected NE.
PHN NE and OCS NE	Shelf ID	The value for the Shelf ID is auto-populated after the Provisioned Type parameter is configured. You can select an appropriate ID from the drop-down list.
PHN NE	Shelf Name	The name for the provisioned shelf.
PHN NE	Description	The description for the provisioned shelf.

Table B-1 Shelf Configuration Parameter Description (continued)

NE Type	Parameter	Description
PHN NE	AINS Enabled	Select the AINS (Automatic In-Service) check box to allow transition to In Service state and suppress the shelf communication and card alarms until the shelf is operational and detectable by the NE.
PHN NE	Serial Number	Displays the <0-16> chars serial number associated with the provisioned shelf configured from the NFM-T GUI. This parameter is not applicable to PSS-8, PSS-16, PSS-16II, PSS-24x, PSS-32 Universal shelves, VWM-CW, and VWM-DW shelves.
PHN NE	Is Managed	Indicates whether the shelf is expected to be managed using the serial electrical inventory wire. When enabled, inventory readability indicates presence or absence. When disabled, the shelf is treated as always present, even though there is no communication. This parameter is not applicable to PSS-8, PSS-16, PSS-16II, PSS-24x, and PSS-32 Universal shelves.
PHN NE	Expected PF	The expected current rating of the shelf power supply module. It is applicable for PSS-4, PSS-16, PSS-16II, PSS-32 Universal shelves only. The values range in the following: <ul style="list-style-type: none">• PSS-4: {3.7, 8.5, 20.6,Mixed}• PSS-16: {Auto, 20, 35}• PSS-16II {Auto, 63}• PSS-32: {Auto, 20, 30, 50,60, 70}
PHN NE	Wavelength Tracker Enabled	Indicates whether the cards on the shelf are capable of providing wavelength tracker encoder or decoder functionality. When enabled, a power filer card cannot be equipped on this shelf. When disabled, only unkeyed optical channels can be provisioned on the cards in this shelf. It is applicable to PSS-32 universal shelf only.

Table B-1 Shelf Configuration Parameter Description (continued)

NE Type	Parameter	Description
PHN NE	PF A Expected Amps	<p>It is applicable to PSS-4 and PSS-8 universal shelves only.</p> <p>The values can be the following:</p> <ul style="list-style-type: none"> PSS-4: {3.7 (default), 8.5,20.6,}, N/A (read-only) PSS-8: {AC7, DC30(default)} <p>For PSS-4, the PF A Expected Amps parameter is only applicable when the Expected PF Amps field is set to Mixed. Otherwise, the NFM-T GUI displays the PF A Expected Amps parameter as N/A.</p> <p>For PSS-8, the AC PF is 2 slots wide and DC is 1 slot wide. If a card is provisioned in Slot 2, PF A Expected Amps cannot be set to AC7.</p>
PHN NE	PF B Expected Amps	<p>It is applicable to PSS-4 and PSS-8 universal shelves only.</p> <p>The values can be the following:</p> <ul style="list-style-type: none"> PSS-4: {3.7, 8.5 (default),20.6,}, N/A (read-only) PSS-8: {AC7, DC30(default)} <p>For PSS-4, the PF B Expected Amps parameter is only applicable when the Expected PF Amps field is set to Mixed. Otherwise, the NFM-T GUI displays the PF B Expected Amps as N/A.</p> <p>For PSS-8, the AC PF is 2 slots wide and DC is 1 slot wide. If a card is provisioned in Slot 8, PF B Expected Amps cannot be set to AC7.</p>
OCS NE	Primary State	Indicates the primary state of the shelf provisioned. The possible values are In Service and Out Of Service .
OCS NE	Application Mode	Application mode of the shelf provisioned. The possible value is OCS.

Table B-1 Shelf Configuration Parameter Description (continued)

NE Type	Parameter	Description
OCS NE	Air Flow Application mode	Indicates the air flow application mode in the 1830 PSS-36 shelf provisioned to consider the air flow restriction of the different rack types and the position of the shelf in the rack. The possible values are the following: <ul style="list-style-type: none">• HP36 - High power application for 1830 PSS-36 shelf.• HP36LOWSUBR - High power application for 1830 PSS-36 shelf and the sub-rack is mounted as the lower sub-rack on an ETSI rack.
OCS NE	ASAP	ASAP (Alarm Severity Assignment Profile) indicates the reference to an existing shelf ASAP instance using the string of the USERLABEL parameter of that ASAP instance.
PHN NE and OCS NE	Matrix Size	The parameter defines the planned bandwidth switching capacity in Gbps for the shelf provisioned. This parameter can be configured for OCS shelves only.
PHN NE and OCS NE	OLC State	Indicates the OLC State (Object Life Cycle state) of the shelf. The values can be Maintenance and In Service . By default, the OLC State is In Service while configuring the shelf. After shelf configuration, user can modify this parameter to Maintenance . This option allows the user to filter out alarms based on OLC state of a shelf and hence dynamically updates the display of alarms on shelves in maintenance state. See <i>OLC State</i> section, in NFM-T OTN Guide, for more information.

Result:

- A confirmation message on the shelf creation appears at the bottom right side of the window.
- After successful shelf configuration message appears, the information in the **Equipment Manager** is refreshed in two seconds for OCS shelf and fpur seconds for PHN shelf, only if the user has not navigated to another entity on the navigation tree. If the user navigates to another entity before the refresh occurs, the **Equipment Manager** must be manually refreshed.

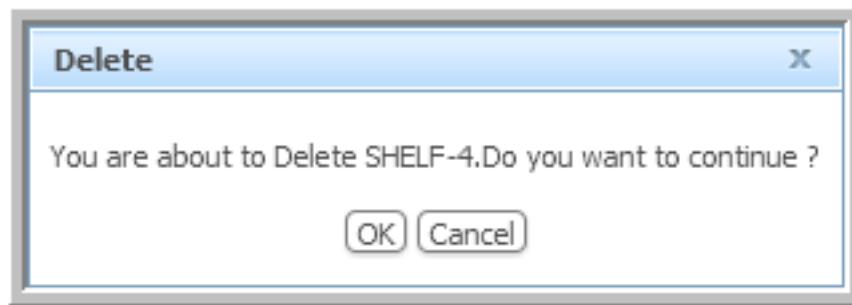
-
- After the refresh occurs the shelf is displayed on the navigation tree along with the description label.

5

Select a shelf and click **Delete** to delete the selected shelf.

Result: The **Delete** confirmation window opens.

Figure B-5 Equipment Manager – Shelf Deletion Confirmation



6

Click **OK** to delete the shelf configured.

Result:

- A confirmation message on shelf deletion appears at the bottom right side of the window.
- The shelf is removed from the navigation tree.
- After successful shelf deletion message appears, the information in the **Equipment Manager** is refreshed only if the user has not navigated to another entity on the navigation tree. If the user navigates to another entity before the refresh occurs, the **Equipment Manager** must be manually refreshed.

7

Click the **Provisioning History** button on the top right corner of the **EQM** window to view the Provisioning History.

Figure B-6 Equipment Manager – Provision History



END OF STEPS

Task: Modify shelves

Perform the following procedure to modify the shelves.

1

From the NFM-T GUI, follow this navigation path: **OPERATE > Equipment Manager**.

Result: The system displays the **Equipment Manager** window in its default state.

2

From the **EQM** window, navigate to the required NE or use the Search box that is above the tree. Expand the tree to access the configured shelves.

Result: The system displays information for the shelf that you have selected.

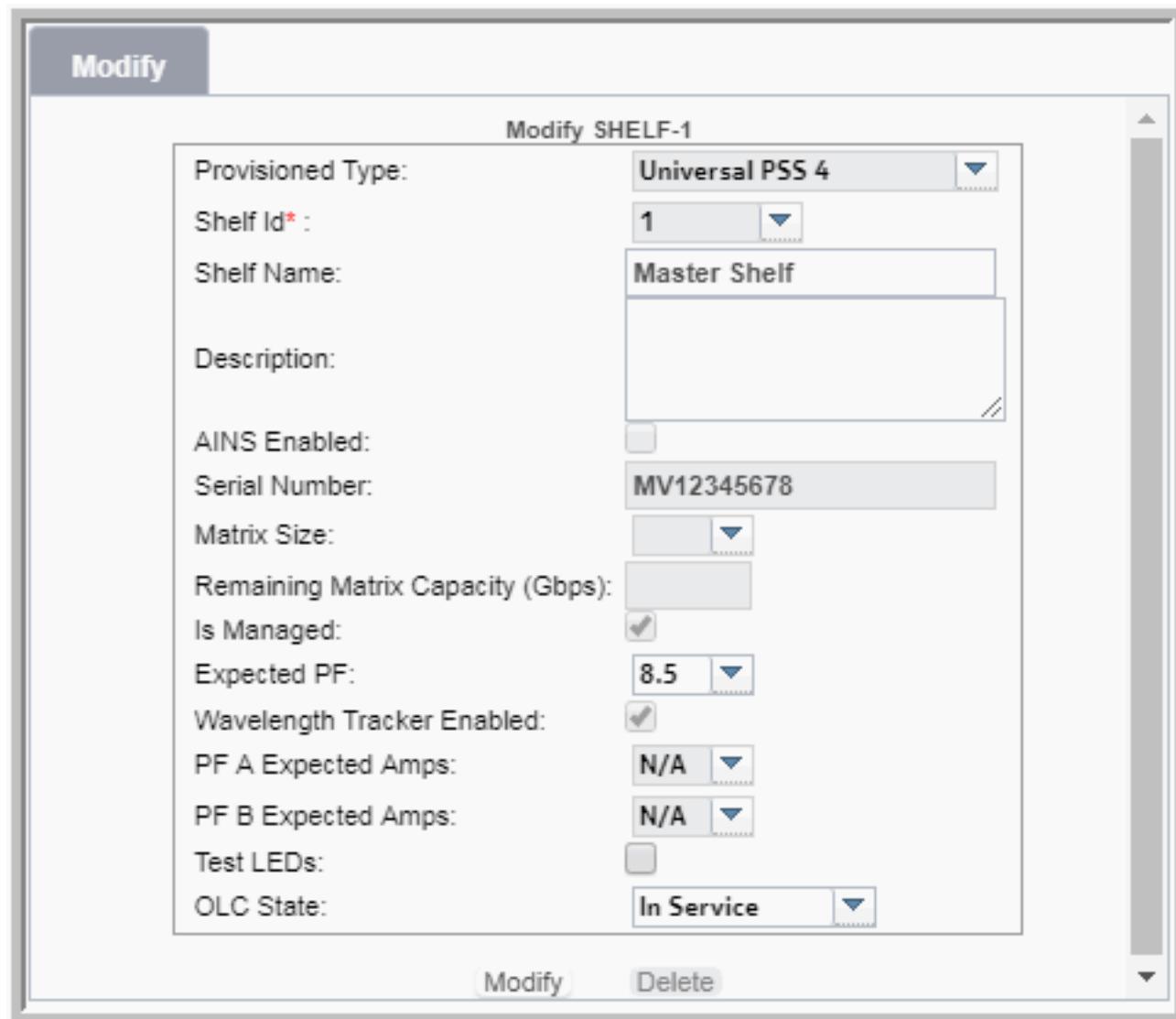
3

Click on the **Configure** tab.

Note: **Configure** tab is replaced with **NE-WEB-Configure** tab from 1830 PSS NE R12.0 onwards and PSI-2T/ PSI-M NE R4.0 onwards.

Result: For 1830 PSS PHN NEs, the system displays the **Modify** sub-tab for the shelf that you have selected under the **Configure** tab.

Figure B-7 Equipment Manager – Modify Shelf on 1830 PSS PHN NEs

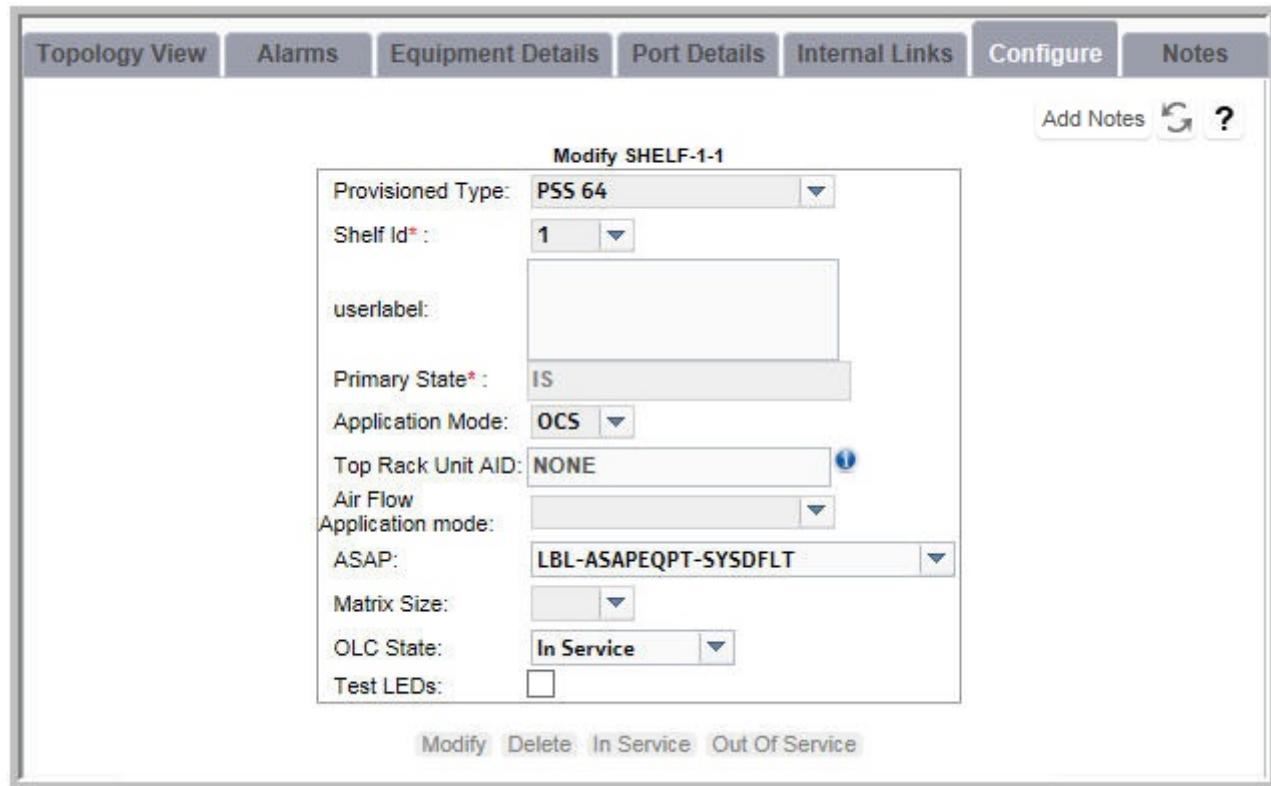


The parameters that are modified for an 1830 PSS PHN shelf include the following:

- Shelf Name
- Description - This parameter when configured appears next to the shelf name on the navigation tree and below the shelf name in the Graphical View tab of the PHN NE which contains the selected shelf.
- Expected PF
- Wavelength Tracker Enabled

- PF A Expected Amps
- PF B Expected Amps
- Test LEDs
- OLC State - This parameter is modified only in NFM-T and the value is not passed over to the NE

Figure B-8 Equipment Manager – Modify Shelf on 1830 PSS OCS NEs



The parameters that can be modified on an 1830 PSS OCS NEs include the following:

- userlabel - This parameter when configured appears next to the shelf name on the navigation tree and below the shelf name in the Graphical View tab of the OCS NE which contains the selected shelf.
- ASAP
- OLC State - This parameter is modified only in NFM-T and the value is not passed over to the NE.
- Test LEDs



Note: AINS Enabled parameter is not listed in the **Modify Shelf** window in case of an OCS device. The **AINS Enabled** parameter is displayed in the **Configure** tab for all supported OCS cards at the card level.

4

Change the required parameters and click **Modify**.

Result:

- A confirmation message on shelf modification appears at the bottom right side of the window.
- After successful shelf modification message appears, the information in the **Equipment Manager** is refreshed only if the user has not navigated to another entity on the navigation tree. If the user navigates to another entity before the refresh occurs, the **Equipment Manager** must be manually refreshed.
- If you modify the shelf description and the **Show Shelf Description** option is enabled in the **Preferences** drop-down list in the top panel, the navigation tree is refreshed to display the new shelf description.

5

Select the **Test LEDs** check box and click **Modify** to initiate a lamp test on the universal shelf.

Result: The LED lamp on the shelf lights to an amber color for 30 seconds.



Note: A user with access levels of administrator, provisioner, or observer can execute the lamp test using the following CLI command on SWDM NE:

`tools lamptest [<shelf>]`, where shelf specifies the shelf number. If the parameter is not provided with a value, then the lamp test is executed for all the shelves of the node. The TL1 command for the OCS NE is the following:

`DGN-EQPT: [TID] :AID: [CTAG] ::LEDTEST`

In case of an 1830 PSS OCS NE, the following LEDs light up:

- FLC: LED1 - LED8
- Matrix: LED1, LED2
- PSF: LED1, LED2
- Fan Unit: LED2
- Other I/O packs: Status LED, Port Status LEDs (if present)



Note: The LEDs of HPCFAP are not included in the lamp test procedure.

In case of an 1830 PSS OCS NE, the following all LEDs turn amber except the following:

- The status LED on the SFC8 radiates in green.
- The LOS LED on the SFC8 radiates in red.
- The critical alarm LED on an FLC radiates in red.
- The major alarm LED on an FLC radiates in red.

6

Use **CTRL** key and select multiple 1830 PSS PHN shelves and select the **Expected Amps** parameter and click **Modify** to change the value on the selected multiple PHN shelves simultaneously.

Figure B-9 Multiple 1830 PSS PHN Shelves Modification

**END OF STEPS**

Task: Configure and remove cards

Perform the following procedure to configure a card on an empty card slot and remove a card from a card slot. Before removing a card from a card slot, ensure that the ports in the card do not have a configured signal rate. Also ensure to set the **Primary State** parameter to **OOS-AUMA** (Out of Service, Autonomous and Management) under the **Card Config** sub-tab of the **Configure** tab before removing a card.

1

From the NFM-T GUI, follow this navigation path: **OPERATE > Equipment Manager**.

Result: The system displays the **Equipment Manager** window in its default state.

2

From the **EQM** window, navigate to the required NE or use the Search box that is above the tree. Expand the tree to access the slots.

Result: The system displays information for the slot that you have selected.

3

Click the **Configure** tab.



Note: **Configure** tab is replaced with **NE-WEB-Configure** tab from 1830 PSS NE R12.0 onwards and PSI-2T/ PSI-M NE R4.0 onwards.

Result: The system displays the **Provision SLOT** window for the slot that you have selected.

Figure B-10 Equipment Manager – Configure Card Slot for PHN NE

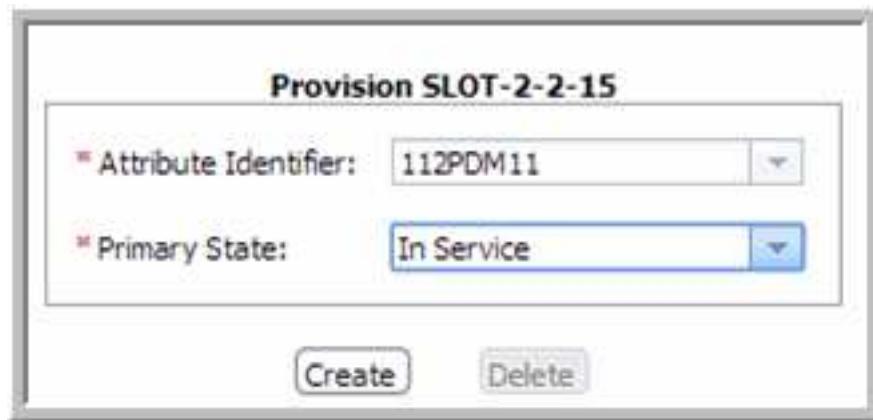
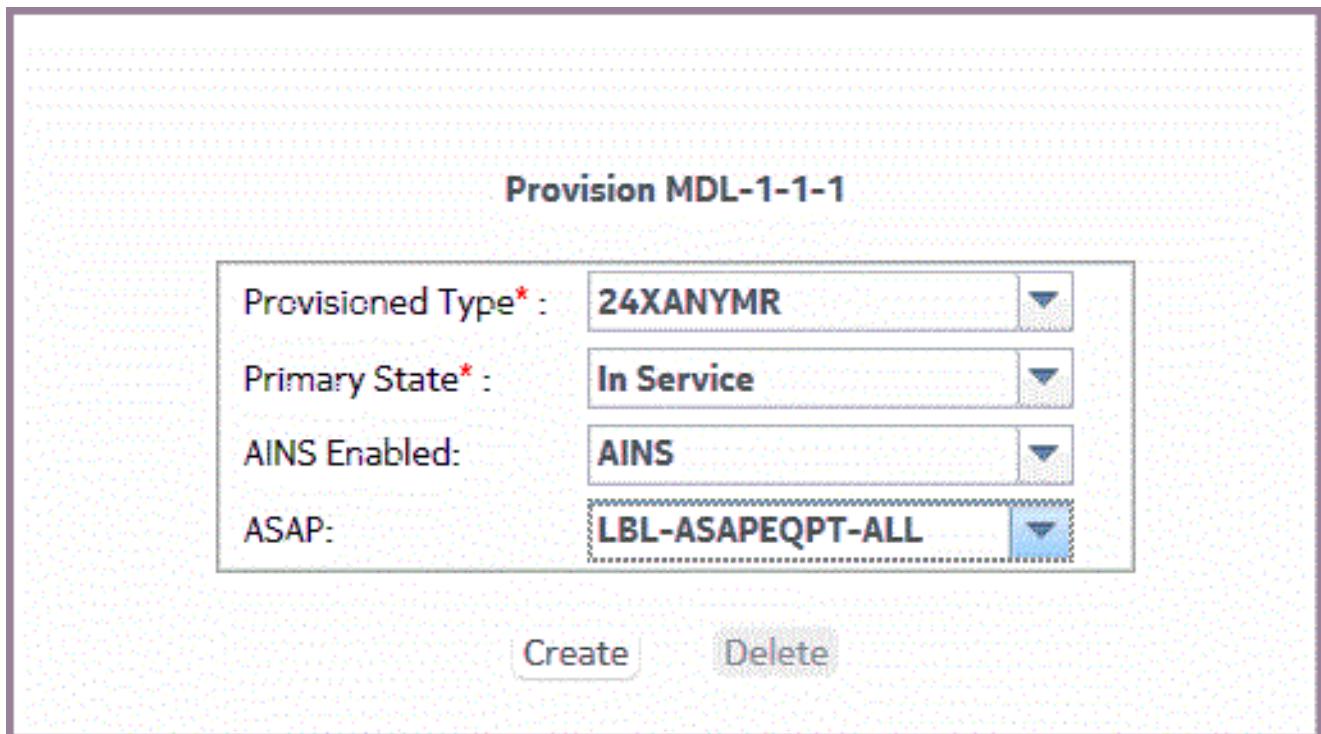


Figure B-11 Equipment Manager – Configure Card Slot for OCS NE



4

Configure the required parameters and click **Create**.

Table B-2 PHN NE Card Slot Configuration Parameters

Parameter	Description
Attribute Identifier	Drop-down list containing the types of cards that can be configured on the selected port.
Primary State	Indicates the primary state of the card being configured. The possible values are In Service , In Service , AINS , and Out Of Service . Here AINS indicates that the card is allowed to transition to the in-service state, if it is operationally capable of that. For example, an OC-3 transitions from OOS-AU,AINS to IS when all OC-3 alarm conditions have cleared.

Table B-3 OCS NE Card Slot Configuration Parameters

Parameter	Description
Provisioned Type	Displays the cards that can be configured on the selected port in a drop-down list.
Primary State	Indicates the primary state of the card being configured. The possible values are In Service and Out Of Service .
AINS Enabled	This parameter decides whether the alarms are raised or suppressed depending on whether the card is equipped or not. The possible values are the following: <ul style="list-style-type: none"> • AINS - If the provisioned card is not equipped, then alarms are suppressed for this card. If the provisioned card is equipped, then alarms are raised. In the latter case, the alarms are cleared and suppressed again only when the card is removed or not equipped anymore. • NOWAIT - In this condition alarms are raised irrespective of whether the addressed equipment is equipped or not. Plugging-out of this card later does not suppress the alarms.
ASAP	ASAP (Alarm Severity Assignment Profile) indicates the reference to an existing card ASAP instance using the string of the USERLABEL parameter of that ASAP instance.

Result:

- A confirmation message on card creation appears at the bottom right side of the window.
- The card is displayed under the selected shelf in the navigation tree of the **EQM** window.
- After successful card configuration message appears, the information in the **Equipment Manager** is refreshed in two seconds for OCS shelf and four seconds for PHN shelf, only if the user has not navigated to another entity on the navigation tree. If the user navigates to another entity before the refresh occurs, the **Equipment Manager** must be manually refreshed. In certain cards such as, 11QCE12X, 30AN300, or 11QPE24 card, that has more than 20 ports, it takes approximately 18 seconds to refresh the **Equipment Manager**.

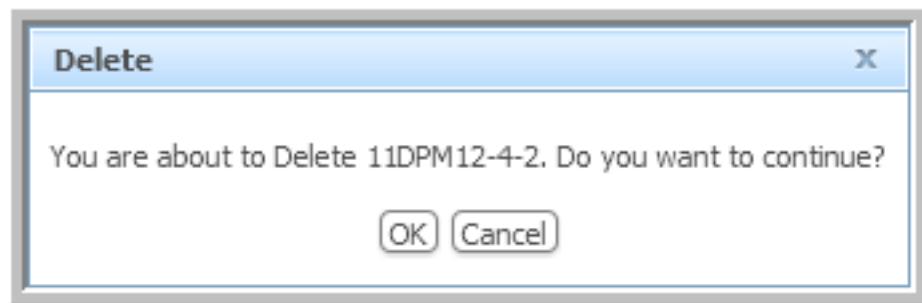
5

Click **Delete** to remove a card from the selected slot.

Note: Ensure that the card is in Out Of Service, that is, **OOS-AUMA** state

Result: The **Delete** confirmation window opens.

Figure B-12 Equipment Manager – Card Removal Confirmation



6

Click **OK** to remove the card.

Result:

- A confirmation message on card removal appears at the bottom right side of the window.
- After successful card removal message appears, the information in the **Equipment Manager** is refreshed only if the user has not navigated to another entity on the navigation tree. If the user navigates to another entity before the refresh occurs, the **Equipment Manager** must be manually refreshed.

7

Click the **Provisioning History** button, located in the upper right corner of the **EQM** window to view the Provisioning History.

See [Figure B-6, "Equipment Manager – Provision History" \(p. 2352\)](#).

END OF STEPS

Task: Set card migration

Perform the following procedure to set a card migration. This procedure applies to the following cards: **WTOCM**, **WTOCMA**, **WR8-88A**, and **RA2P**.

1

From the NFM-T GUI, follow this navigation path: **OPERATE > Equipment Manager**.

Result: The system displays the **Equipment Manager** window in its default state.

2

From the **EQM** window, navigate to the required NE or use the Search box that is above the tree. Expand the tree to access the slots and select the card to be replaced.

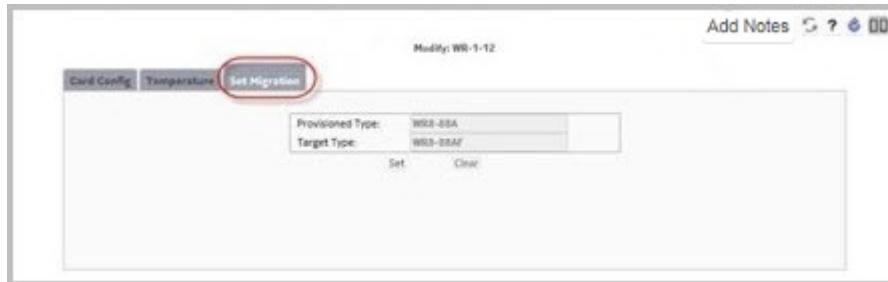
Result: The system displays information for the card that you have selected.

3

Click the **Configure** tab.

Result: The system displays a window with three sub tabs.

Figure B-13 Set Migration Example for WR8-88A card

**4**

Click the **Set Migration** sub tab.

Result: The system displays the selected card in the **Provisioned Type** field, and the possible card that it can be replaced with, in the **Target Type** field.

5

Click **Set** to apply the change.

END OF STEPS

Task: Modify cards

Perform the following procedure to modify a card's parameters.

1

From the NFM-T GUI, follow this navigation path: **OPERATE > Equipment Manager**.

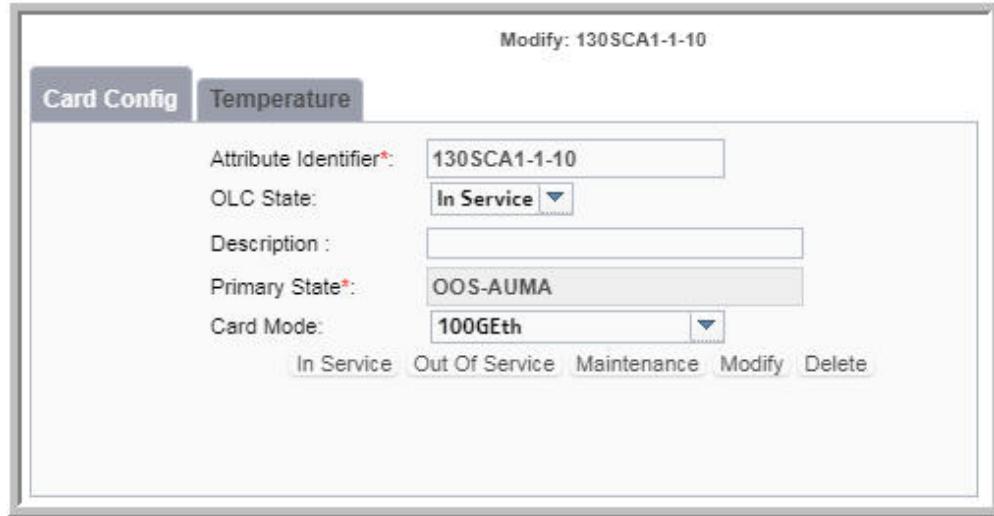
Result: The system displays the **Equipment Manager** window in its default state.

2

From the **EQM** window, navigate to the desired card.

Result: For the 1830 PSS PHN NE, the system displays the modification window with two sub-tabs: **Card Config** and **Temperature**.

Figure B-14 Equipment Manager – Modify Card on 1830 PSS PHN



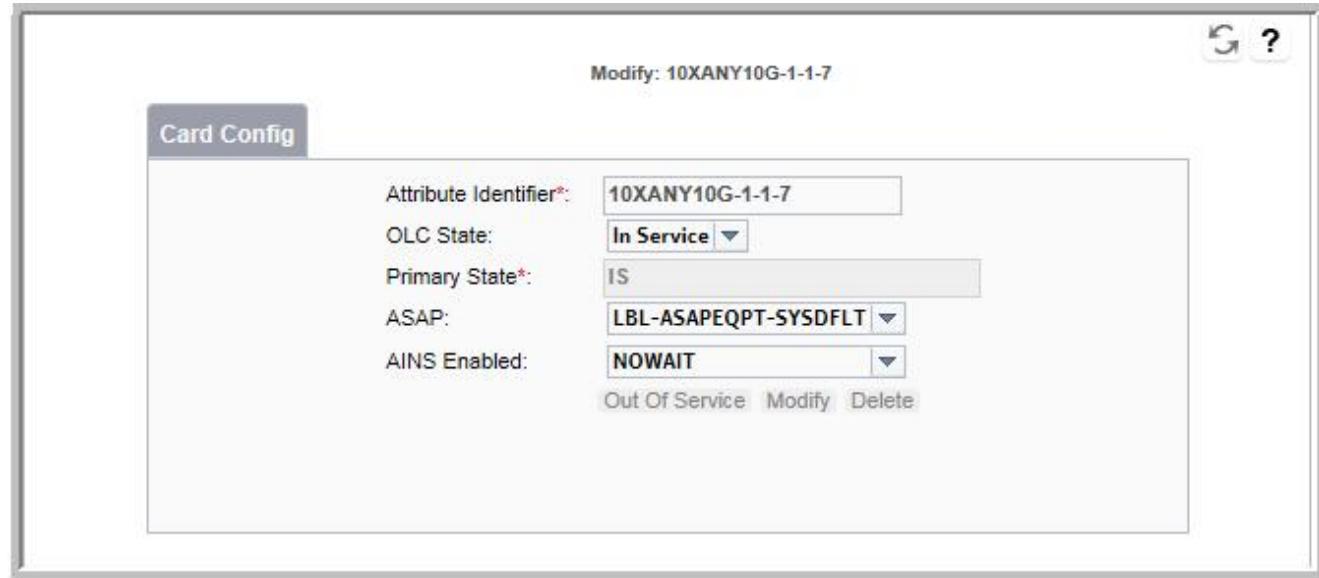
The following options are provided to change the state of the card, and are enabled based on your selection.

- **In Service**
- **Out Of Service**
- **Maintenance**

For cards that are **In Service**, the state change option for **In Service** is not displayed.

For the 1830 PSS OCS NE, the system displays the modification window with the **Card Config** sub-tab.

Figure B-15 Equipment Manager – Modify Card on 1830 PSS OCS

**3**

Select a **Primary State** and click the **Refresh** icon at the top right corner of the **Configure** tab in the middle panel.

Result: The **Primary State** changes, depending on the administrative state and operational state of the card.



Note: For more information on **Primary** and **Secondary** states of network objects, see *1830 Photonic Service Switch (PSS) Product Information and Planning Guide*.

4

Configure the **Description** parameter for the selected card and click **Modify**.



Note: The **Description** parameter is not supported for OCS cards.
The **Attribute Identifier** parameter displays the card name.

Result:

- A confirmation message about card modification appears at the bottom right side of the window.
- If users do not navigate to another entity on the navigation tree after receiving a successful card modification message, then the information in the **Equipment Manager** is refreshed in two seconds for OCS shelves and four seconds for PHN shelves. If users navigate to another entity before the refresh occurs, then the **Equipment Manager** needs to be refreshed manually.

5

Configure the **OLC State** parameter to **Maintenance** when performing maintenance on the card to dynamically update the corresponding alarms on the Fault Management application. By default, cards are configured with the **OLC State** as **In Service**.

6

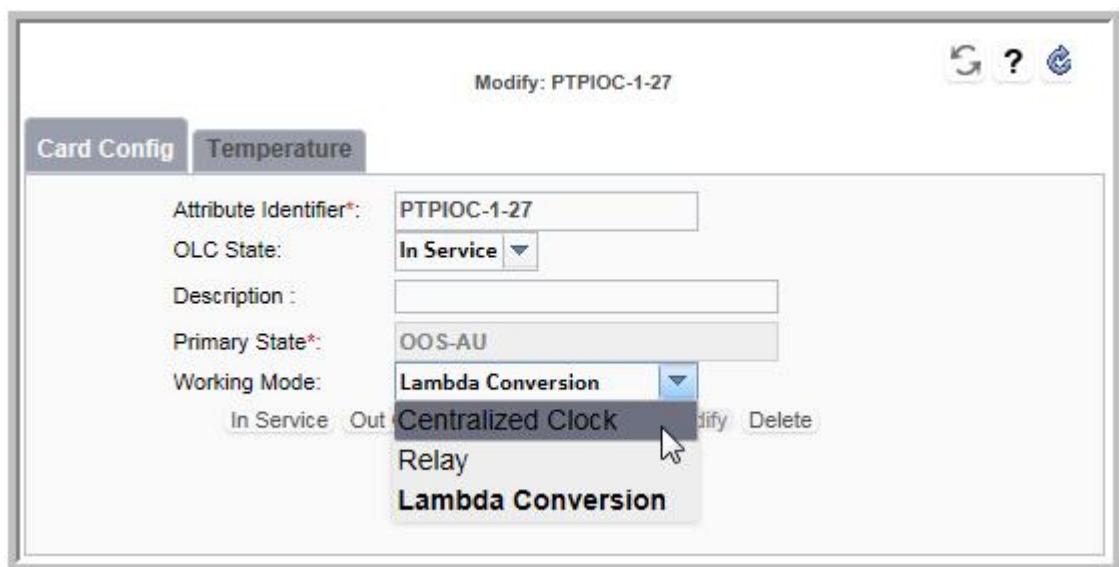
For PHN NE cards that support different line signal rates, modify the **Card Mode** parameter as required after setting the card out of service.

7

Configure the **Working Mode** parameter for a PTPIOC card with one of the following options:

- **Centralized Clock** - In this mode, the timing information from the OTC Line side and OTC Signal side are transported to the backplane and terminated at the shelf-level centralized clock.
- **Relay** - In this mode, the timing information from the OTC Line side of one module is relayed to the OTC Line side of another module.
- **Lambda Conversion** - In this mode, the timing information from the OTC Line side (1510 nm wavelength) is transported to the OTC Signal side (1310 nm wavelength). The 11OPE8 is not supported in Lambda conversion mode.

Figure B-16 Working Modes of PTPIOC Card



Note: When **Working Mode** is modified, the OTCL (Line) and OTCS (SIG) ports are not reset automatically by the **EQM**. For changes to take effect, users need to perform a port synchronization.

8

If a FAN card is selected, configure the **Fan Speed** parameter. The possible values are **Normal** for automatic speed control and **Maximum** for constant full speed.

9

Select the **DGE Filterless** checkbox to enable the Filterless DGE attribute for configurations requiring 37.5GHz channel width.



Note: For 1830 PSS-8/16/16II/32 NEs (starting from R11.1), Filterless DGE is available only on the following cards/packs:

- WR20-TF (C-F)
- WR20-TFM (CDC-F)
- WR20TFML (L-band CDC-F)

in managed plane configurations. Filterless DGE is not supported for L0 GMPLS. For greenfield deployments, Filterless DGE is enabled by default. For brownfield deployments, users can set Filterless DGE manually.

Result: A confirmation message appears, indicating that this action is traffic impacting.

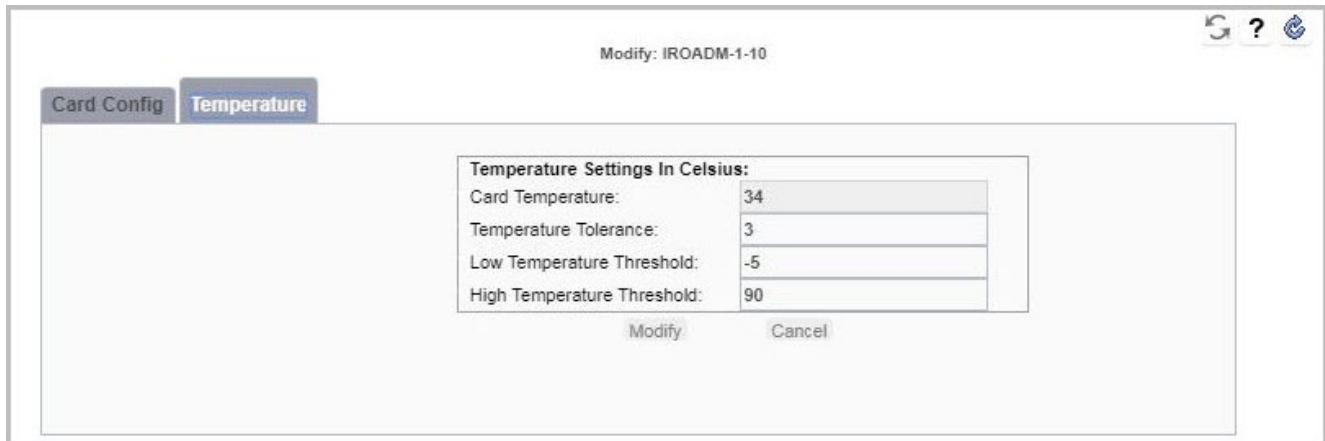
Click **OK** to continue.

10

Select a card from the navigation tree and click the **Temperature** sub-tab under the **Configure** tab, or use the **CTRL** key, select multiple cards on an 1830 PSS PHN NE, configure the following properties, and click **Modify** to configure the properties simultaneously on all selected cards:

- **Temperature Tolerance** - The temperature margin for which no alarms will be raised when the temperature reaches the low temperature threshold or high temperature threshold.
- **Low Temperature Threshold** - The lowest temperature allowed on the selected card.
- **High Temperature Threshold** - The highest temperature allowed on the selected card.

Figure B-17 Temperature Sub-tab on 1830 PSS PHN Cards

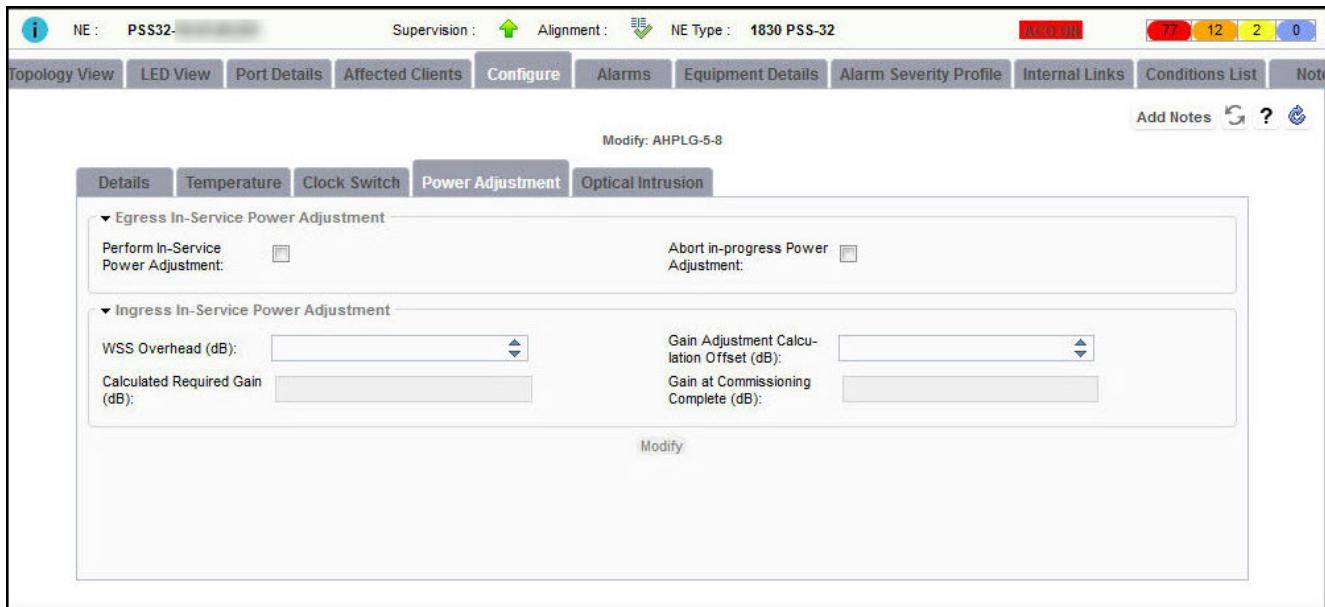


11

For AHPLG, AM2125B, and AM2318A cards, click the **Power Adjustment** sub-tab under the **Configure** tab to configure the:

- **Egress In-service Power Adjustment** parameters
- **Ingress In-service Power Adjustment** parameters

Figure B-18 Power Adjustment Sub-tab at Card Level



12

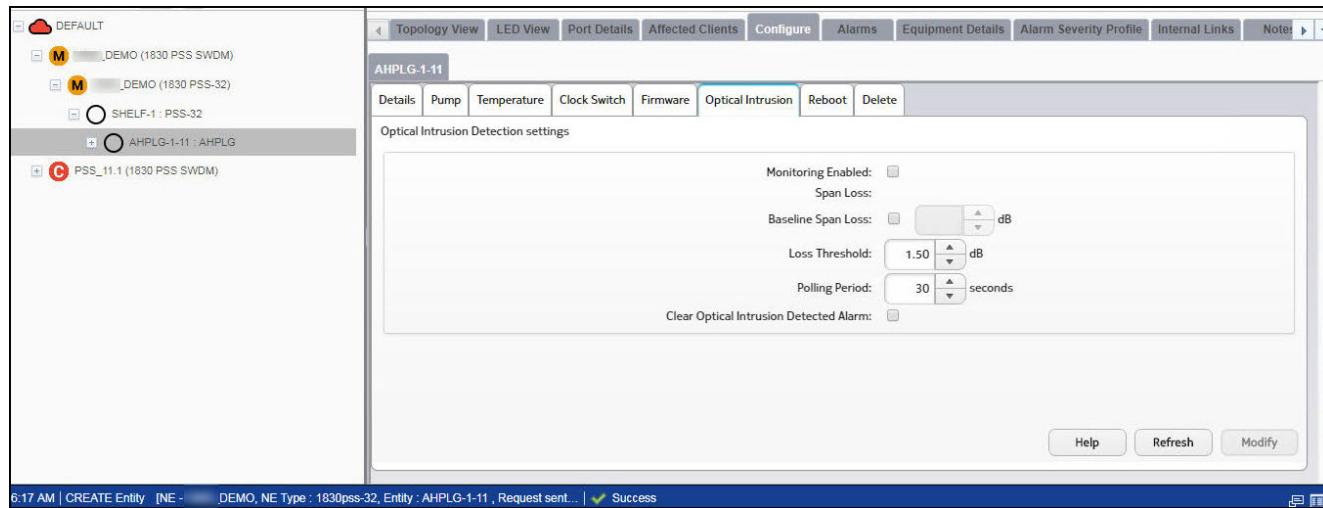
For A2325A, AHPHG, AHPLG, ALPHG, AM2032A, AM2125A, AM2125B, AM2318A, AM2625A, IPREAMP, and OSCT cards, click the **Optical Intrusion** sub-tab under the **Configure** tab which allows the user to provision the **Optical Intrusion Detection settings**. This tab is used to clear the Optical Intrusion alarm.

The following parameters are configurable:

- **Monitoring Enabled**
- **Baseline Span Loss (dB)**
- **Polling Period (seconds)**
- **Span Loss**
- **Loss Threshold (dB)**
- **Clear Optical Intrusion Detected Alarm**

i Note: When the user selects the **Clear Optical Intrusion Detected Alarm** check box and clicks the **Modify** button, EQM will clear an optical intrusion detected alarm on the selected amplifier.

Figure B-19 Optical Intrusion detection tab



13

Click the **Provisioning History** button, located in the top right corner of the **EQM** window to view the Provisioning History.

END OF STEPS

Task: Modify ports



Note: Ensure to configure the client ports of the D5X500 card before performing any photonic configuration using the card. You must configure the line port L1 of the D5X500 card with one of the supported rates before configuring the client port. The line port L2 is automatically configured with the same rate as L1 port. You can configure the client ports with the supported rates only after the line ports are configured. All client ports can be set to same rates only - that is, all of the client ports can be set either to OTU4 or 100GbE. For example, if you select **Signal Rate** parameter for the port C1 as 100GbE, then the only option available in the **Signal Rate** drop-down list for the ports C2, C3, and C4 is 100GbE, and OTU4 is not listed.

Ports are automatically configured under the cards when the cards are configured. Perform the following procedure to modify the ports.

1

From the NFM-T GUI, follow this navigation path: **OPERATE > Equipment Manager**.

Result: The system displays the **Equipment Manager** window in its default state.

2

From the **EQM** window, navigate to a port of a newly configured card on an 1830 PSS PHN. Click the **Configure** tab. For port configuration on an 1830 PSS OCS NE, go to step [Step 9](#).

Result: For a card on an 1830 PSS PHN, the system displays the information for the selected port.

Figure B-20 Equipment Manager – Configure Signal Rate for a port in PHN card

Attribute Identifier*	11DPM12-1-2-L2
Primary State*	Out Of Service
Signal Rate*	OTU2
Provision All Ports :	<input checked="" type="checkbox"/>

Modify Delete

3

Configure the **Signal Rate**, select or deselect **Provision All Ports** check box and click **Modify** to configure the signal rate of the port or ports.

Result:

- A confirmation message on port modification appears at the bottom right side of the window.
- After successful port modification message appears, the information in the **Equipment Manager** is refreshed in two seconds for OCS shelf and four seconds for PHN shelf, only if the user has not navigated to another entity on the navigation tree. If the user navigates to another entity before the refresh occurs, the **Equipment Manager** must be manually refreshed.
- If **Provision All Ports** is selected, all the similar ports (like line, or client, or VA) are assigned the same values as configured for the selected port. Depending on the rate configured, the Configure tab lists sub-tabs and the rate of the port is displayed on the navigation tree.

Figure B-21 Example of Signal Rate Displayed on Navigation Tree

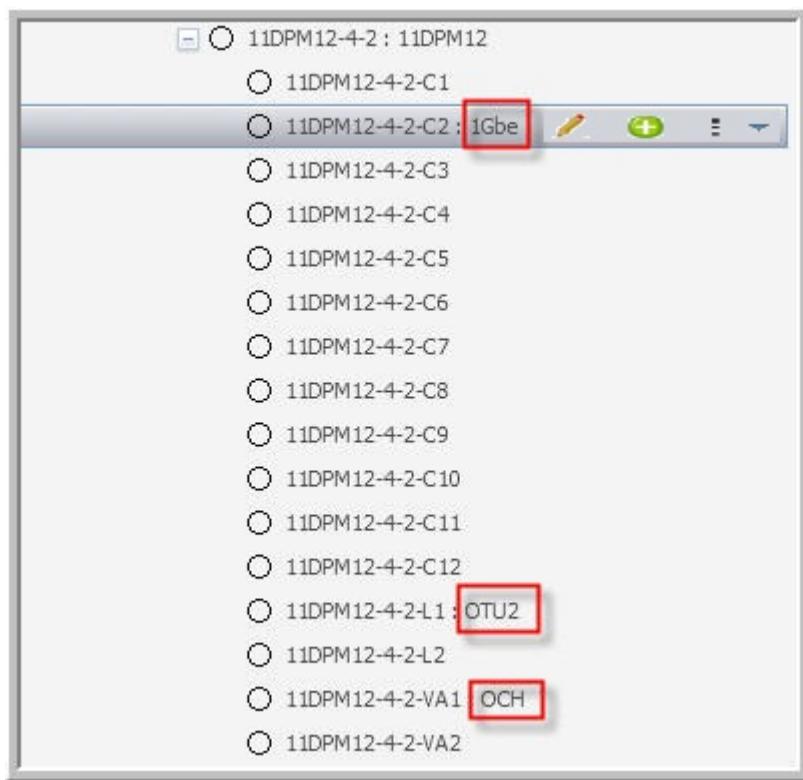


Figure B-22 Example of sub-tabs under Configure Tab of a Port

Modify: 112SCX10-1-11-L1

PortDetails		ODU4 Details	OTU4 Details	Power Management
Operational Mode:	AddDrop	Description :		
Transmit Frequency :	None	Primary State:	OOS-AU AINS, Supporting Entity Outage	
Receive Frequency:	None	Secondary State :		
Transmit Power (dBm):		Receive Power (dBm):		
Status LED Color :		Clear GMRE Topology Alarm:	<input type="checkbox"/>	
Connected From :		Connected To :		
Connection Type (From):	NOTCONNECTED	Connection Type (To):	NOTCONNECTED	
Remote Connected Port:		Use System AINS Timer :	<input checked="" type="checkbox"/>	
AINS Timer (Hr):	0	AINS Timer (Min):	10	
AINS Countdown Hr-Min:	0 Hrs - 10 Mins	FEC Mode:	AFEC	
OLCState:	In Service			
<input type="button" value="In Service"/> <input type="button" value="In Service-AINS"/> <input type="button" value="Deactivate AINS"/> <input type="button" value="Out Of Service"/> <input type="button" value="Maintenance"/> <input type="button" value="Modify"/> <input type="button" value="Delete"/>				

The sub-tabs under the **Configure** tab of the selected port depends on the type of port selected and the signal rate configured on the port.

4

Click on the **PortDetails**, **LineDetails**, or **ClientDetails** sub-tab under the **Configure** tab of a port on a card in an 1830 PSS PHN NE and configure the following parameters:

The **PortDetails** tab of S13X100R and S13X100E client ports and **ClientDetails** tab of D5X500Q client ports display an additional parameter: **SSDConsequetiveAction**.

Figure B-23 PortDetails tab of EQM

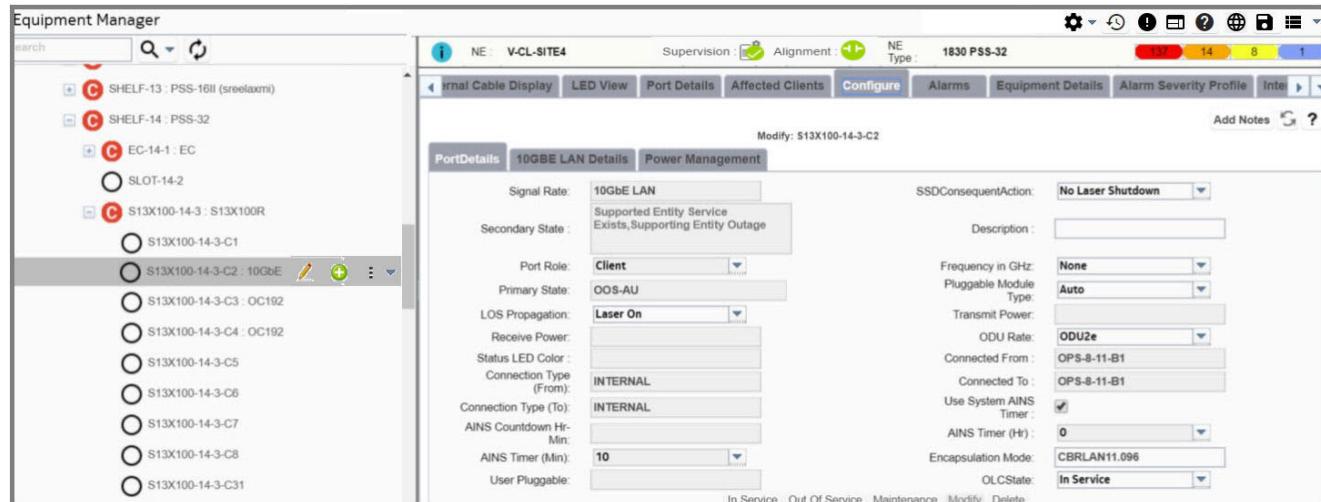


Table B-4 Parameters under PortDetails Sub-tab

Parameters	Description
Signal Rate	Displays the signal rate configured on the port.
SSD Consequent Action	Displays the parameters for signal degrade for OPSB or OPSB5 protections. This field is applicable only for S13X100E, S13X100R and D5X500Q cards. The possible values are: <ul style="list-style-type: none">• No Laser Shutdown• Laser off
Description	The description for the selected port. The description provided by the user in this field appears in the navigation tree.
Primary State	Displays the primary state of the selected port and can be modified using the possible state buttons listed below the port properties. For example, In Service, Out of Service, Maintenance, In Service-AINS, and so on. For more information on primary states see <i>1830 PSS Photonic Service Switch (PSS) Product Information and Planning Guide</i> .

Table B-4 Parameters under PortDetails Sub-tab (continued)

Parameters	Description
Secondary State	Displays the secondary state of the selected port. The value changes when the primary state of the port changes. For more information on secondary states see <i>1830 PSS Photonic Service Switch (PSS) Product Information and Planning Guide</i> .
LOS Propagation	To ensure the traffic interrupt time on the selected client port set the parameter to Laser On, else Laser Off.
Regen Response	Displays the regen response value as Laser On or Laser Off.
Status LED Color	Displays the port status LED color. This parameter cannot be configured.
Clear GMRE Topology Alarm	Select this option to clear the GMRE topology alarm.
Encoding	Displays the modulation or line code which is applied on the selected port. For example, QPSK, 16QAM_250G, and so on.
Transmit Shape	Specifies the transmit wave shape applied to the selected optical carrier of a line port. The possible values are: <ul style="list-style-type: none">• Single Channel - single channel application.• Alien - transport over an alien DWDM system.• Super Channel - super channel application.
Phase Encoding	Specifies the phase encoding mode applied to the optical carrier of the line port. The possible values are: <ul style="list-style-type: none">• Absolute - indicates high performance mode.• Differential - indicates compatibility mode.
CD Pre-Compensation (ps/nm)	Specifies the transmit chromatic dispersion pre-compensation on a line port. Possible values are: <ul style="list-style-type: none">• {-3100..3100} - for BPSK• {-3100..3100} - for QPSK• {-1900..1900} - for SPQPSK The default is 0.

Table B-4 Parameters under PortDetails Sub-tab (continued)

Parameters	Description
FEC Mode	Select the FEC (forward error correction) mode from this drop-down list for the selected port. The values vary depending on the selected port. Changing fecotype while admin status is 'up' can cause loss of traffic/data link (GCC). Changing fecotype should only be made in 'down' state.
Pluggable Module Type	Indicates the pluggable module type used in providing physical layer function on the port. The value varies depending on the selected port. Note: If user selects Other , then the user is required to enter the value of the pluggable module in User Pluggable field. For example, user. Click Modify after entering the value in the User Pluggable field. The entered value will reflect in the Pluggable Module Type field. For valid User Pluggable values, see Table B-5, "Supported User Pluggable values" (p. 2377) For pluggables with or without wavekey support, see B.4 "Pluggables and filters" (p. 2405) .
WT Encoder Enabled	WT Encoder Enabled can be selected as per the Line port and VA port values. For pluggables with or without wavekey support, see B.4 "Pluggables and filters" (p. 2405) .
Pluggable Module Supports WT Encoder	When a pluggable module supports the wavekey encoder, this parameter is set to Yes by the system. For pluggables with or without wavekey support, see B.4 "Pluggables and filters" (p. 2405) .
Pre-FEC BER	Displays the bit error rate (BER) before forward error correction (FEC) stage.
Post-FEC BER	Displays the bit error rate (BER) after forward error correction (FEC) stage.

Table B-4 Parameters under PortDetails Sub-tab (continued)

Parameters	Description
Operational Mode	This parameter is used to set the operational mode on the 11QPA4 and the hardened 11QPA4A cards. The possible values are AddOnly , AddDrop , CrossRegen , Regen , and DropContinue . See <i>1830 PSS Photonic Service Switch (PSS) Product Information and Planning Guide</i> for more information. For the following cards modification from AddDrop mode to Regen mode is possible only when the corresponding server ports are un-assigned. <ul style="list-style-type: none"> • LCI2000 (for PSI-2T) - OTU4x2, OTU4 • D5X500 - OTU4, OTU4x2, OTU4Half • D5X500L - OTU4, OTU4x2, OTU4Half • D5X500Q - OTU4, OTU4x2, OTU4Half
CrossRegen Partner Port	For a 4DPA4 or 11QPA4 card, when the operational mode is CrossRegen, this parameter identifies the port through which the input signal from the selected line port is looped.
Multicast From	If the chosen line port supports multicast connection, then use this parameter to identify the client port through which the multicast connection is established.
Transmit Frequency	Configure the channel frequency transmitted from the selected port. The values vary depending on the port and card selected.
Receive Frequency	Configure the channel frequency received at the selected port. The values vary depending on the port and card selected.
Transmit Power (dBm)	Displays the power transmitted from the port. This parameter cannot be configured.
Receive Power (dBm)	Displays the power received at the port. This parameter cannot be configured.
Connected From	Displays the port from which there is an internal connection to the selected port. This parameter cannot be configured.
Connected To	Displays the port to which there is an internal connection from the selected port. This parameter cannot be configured.
Connection Type (From)	Displays the type of connection from a port to the selected port. If there is no connection on the selected port from another port, the value is displayed as NOTCONNECTED. This parameter cannot be configured.

Table B-4 Parameters under PortDetails Sub-tab (continued)

Parameters	Description
Connection Type (To)	Displays the type of connection to a port from the selected port. If there is no connection from the selected port to another port, the value is displayed as NOTCONNECTED. This parameter cannot be configured.
Remote Connected Port	Displays the port to which the selected port is connected remotely. This parameter cannot be configured.
Use System AINS Timer	Select this option to use the system AINS timer to start the AINS countdown for the selected port.
AINS Countdown Hr-Min	Displays how long an input signal must be present on the selected port without a failure condition before the system automatically transitions the facility into the In-Service state. This parameter cannot be configured.
AINS Timer (Hr)	Displays the time in hours on how much time is currently remaining on the AINS timer before the selected port is placed into the In-Service state. This parameter cannot be configured.
AINS Timer (Min)	Displays the time in minutes on how much time is currently remaining on the AINS timer before the selected port is placed into the In-Service state. This parameter cannot be configured.
Defect Holdoff Timer Enabled	Select this option to enable defect holdoff timer. When this timer is enabled, consequent action on the port for fault propagation will be held until a configured timer.
SSF Delay Timer (ms)	Determines how long after ODU SSF is detected an alarm is raised. The SSF Delay Timer (ms) field is a numerical field with values in the range of 0 to 2550 ms in 10 ms steps.
SSF Delay Consequent Action	Determines the action taken after ODU SSF is detected until the delay timer expires. Possible values are: <ul style="list-style-type: none">• LFI• IDLE
SSF Consequent Action	Determines the action taken after ODU SSF is detected and the delay timer expires. Possible values are: <ul style="list-style-type: none">• Laser Shutdown• No Action

Table B-4 Parameters under PortDetails Sub-tab (continued)

Parameters	Description
Laser Bias Current (mA)	Displays the LBC (Laser Bias Current) on the selected port, which is the current that runs through the laser to make it work. LBC is monitored by performance monitoring. If the current goes beyond a certain threshold, the circuit pack must be replaced.
Laser Case Temperature (°C or °F)	Displays the temperature of the laser case in °C or °F.
OCH Type	Displays the OCH type on the selected port. Possible values are: <ul style="list-style-type: none">• BW - OCH is black & white.• FIXED - OCH is Colored with fixed frequency determined by the provisioned equipment module type.• TUNABLE - OCH is Colored with provisionable frequency.• UPLINK - OCH is Colored with provisionable frequency and is managed by DWDM compound.
Compensation Module	Displays the compensation module on the selected port.
Encapsulation Mode	Configure the encapsulation mode used to map the 10GbE LAN signal. The following values are possible selections in the drop-down list: <ul style="list-style-type: none">• GFP-F - Standard, frame-based GFP encapsulation mode• GFP-P - Proprietary GFP encapsulation mode, semi-transparent• CBRLAN11.096 - Transparent mode, no GFP• CBRLAN11.049 - Transparent mode, no GFP.
OLC State	Configure the OLC State parameter to Maintenance when performing maintenance on the card to dynamically update the corresponding alarms on the Fault Management application. By default, the ports are configured with OLC State as In Service . See OLC State section, in NFM-T OTN Guide, for more information.
User Pluggable	Enter the valid user pluggable values for configuration Click Modify after entering the value in the User Pluggable field. The entered value will reflect in the Pluggable Module Type field. For valid User Pluggable values, see Table B-5, “Supported User Pluggable values” (p. 2377)

Table B-4 Parameters under PortDetails Sub-tab (continued)

Parameters	Description
Note 1:	
<ul style="list-style-type: none"> For S13X100R and S13X100E cards, Client Ports with OTU2 and OTU2E rates, select as pluggable type: SL64TU. SL64TU does not support wavekey. For S13X100R and S13X100E cards, select the pluggable type: 16FCLC-L, 16FCSN-I (R11.1), SI64.1BU, SI64.1BD, SS64.2BU, SS64.2BD, Q28ER4d (R12.0), Q28C10e (R11.1), S10GB-LR, or S10GB-SR. For S13X100 C21, Client Ports with OTU4, select the pluggable type: C4CLR4d. For S13X100 C32, Client Ports with OTU4, select the pluggable type: Q28LR4d (R11.1). For S13X100 C21, Client Ports with 100GbE LAN, select the pluggable type: C4CLR4d or C4CLR4e. For S13X100 C32, Client Ports with 100GbE LAN, select the pluggable type: Q28CWDM4 or Q28LR4e or Q28SR4e or Q28LR4d. Q28CWDM4, LR4e and SR4e are applicable only to 100GbE, and Q28LR4D is dual rate which applies to OTU4 as well. For S13X100L (R11.1) cards, select the pluggable type: SXI64.1, SXS64.2b, Q28LR4d, or Q28LR4e. For 4MX200, client ports with 100 GbE, select the pluggable type: Q28CWDM4, Q28LR4d (R11.1), Q28SR4e, or Q28LR4e (R11.1). For 2UX200, client ports with OTU4 or OTU4x2, select the pluggable type: C4AC0. For 4DPA4 (FlexMUX) cards, select the pluggable type: 3GSDI-E. For 11DPA4B (R11.1) cards, select the pluggable type: SXS64.2D. For 11DPM8 cards, select the pluggable type: SL-16.2D, 4FCSN-I, S8FCLF-L, or SS-16.1A. For 11DPM12 cards, select the pluggable type: 3GSDIM30 or SL-16.2D. For 10AN400 cards, select the pluggable type: Q28ER4d or Q28C10e. For 11QPA4 cards, select the pluggable type: XI64.1BU, XI64.1BD, XS64.2BU, or XS64.2BD. For 260SCX2 cards, select the pluggable type: C2CSE10d (NE R11.1). For 8P20 cards, select the pluggable type: SS-1.1 (R11.1), SL-1.1 (R11.1), SL-1.2 (R11.1), SS-4.1 (R11.1), SL-4.1 (R11.1), SL-4.2 (R12.0), SI-16.1 (R11.1), SS-16.1A (R12.0), 100BLX10 (R12.0), FE-BX40U (R12.0), FE-BX40D (R12.0), 4FCSN-I (R12.0), SL-16.2C (R11.1), SS-16.2C (R12.0), or SXL64.2. For 20P200 cards, select the pluggable type: SXL64.2 or SL64TU. For 12P120 cards, select the pluggable type: S10GBSRO (R11.1) or SL64TU. For 12CE120/1 (R11.1) cards, select the pluggable type: SXL64.2C. For 20UC200 cards, select the pluggable type: SXL64TU, S10GB-LR, S10GB-SR, SXI64.1, or SXS64.2b. For 20AN80 cards, select the pluggable type: S16.1DB or S16.1BU. For 20AX200 cards, select the pluggable type: SL64TU, SL64TUW, or SS64CTU. For 20MX80 cards, select the pluggable type: SXL64TU, S16.1BD, S16.1BU or SL64TU. . 	

Table B-5 Supported User Pluggable values

User Pluggable Values			
auto	ctSs41	ct4FCOC	ctC4Clr4D
user	ctSs42	ct4FCOD	ctCFP2ALUMetro
ctSi11	ctSi41	ctGeBx20U	ctCFP2ALULH
ctSs11	ctSi42	ctGeBx20D	ctC2CER4E
ctSs12	ct2FCSNI	ctGeBx40U	ctSL64TUW
ctSI11	ct2FCLCL	ctGeBx40D	ct1DC100M
ctSI12	ct4FCSNI	ctFeBx40U	ctSWR120
ctSi161	ct4FCLCL	ctFeBx40D	ct2Ac100H
ctSs161	ct8FCSNI	ctL642	ct2Ac100
ctSs162	ct8FCLCL	ct100BFXS	ctSXL642
ctSI161	ct8FCLCLC	ctX8FCLCL	ctSXL642C
ctSI162	ct8FCLCLD	ctC113G4Cd	ctSgE1
ctXi641	ctSul12	ctX8FCSNI	ctSgS11C
ctXi642	ctSs161A	ct3GSDISH	ctSULS1BOU
ctXi643	ct1000BT	ct3GSDIMH	ctSULS1BOD
ctXi645	ct1000BCX	ct1000BT2	ct3GSDIE
ctXs641	ct1000BSX	ctSFEETEE	ctQ28CWDM4
ctXs642B	ct1000BLX	ctC11G4C	ctQ28LR4D
ctXs643	ct1000BZX	ctC43G4C	ctSi641BU
ctXs645	ctXi641R	ctC113S10	ctSi641BD
ctXI641	ctXi642R	ct16FCLCL	ctSs642BU
ctXI642	ctXs642A	ct16FCSNI	ctSs642BD
ctXI643	ctXs643A	ctC113G4D	ctC4csr4E
ctXv642	ctXs645A	ct1000GT2	ctC2cer4D
ctXv643	ctXI642A	ctS10GBLR	ctXi641BU
ctSs162C	ctXv642A	ctS10GBSR	ctXi641BD
ctSI162C	ct10GBSR	ctS8FCLCL	ctXs642BU
ctXi642C	ct10GBLR	ctC113G4T	ctXs642BD
ct1000B	ct10GBER	ctXL64TCW	ctSeul12O

Table B-5 Supported User Pluggable values (continued)

User Pluggable Values			
ct10GB	ct10GBLRM	ct100BULHO	ct100BLXS
ctSs161AR	ct10GBSW	ctXs642D	ctQ28LR4E
ctETHEMR	ct10GBLW	ctC2Clr4E	ctQ28SR4E
ctXP1L12D2	ct10GBEW	ctSxi641	ctSxs642D
ctS41	ctXs642C	ctQ40Gsr4	ctSgT1
ctL41	ctSul12O	ctQ40Glr4	ctS10GBSRO
ctL42	ctSs162O	ctSxs642B	ctS161BU
ctAnyOC3	ctSI162O	ctS1E	ctS161BD
ctAnyOC12	ctEvoaFast	ctSgS11	ctC2ACO
ctAnyOC48	ctEvoaSlow	ctSgL11	ctC2ACOD
ctAnyOC192	ct10GBZR	ctSgS41	ctSL64TU
ctAnyDATAS	ct100BLX10	ctSgL41	ctC4ACO
ctAnyDATAx	ctSEU12O	ctSxs642C	ctSS1GOU
ctXL642C	ctXI64Tu	ctC2Csr10E	ctSS1GOD
ctXL642D	ctBncdvRx	ctC2Clr4D	ctSWR12OL
ctSI162D	ctBncdvTx	ct2CBx10U	
ctSul11	ctC113G4C	ct2CBx10D	
ctSi41	ctC113G10C	ctC4Clr4E	

The label entered in the **Description** parameter for the port is updated to the NE as well.

The port parameters that can be modified depends on the port selected and the signal rate configured on it.

The following buttons are provided to change the primary state of a port, and are enabled based on the combination of the current primary state and secondary state of the port on the NE as described in [Table B-6, “Primary State for a port and support for deletion of port” \(p. 2379\)](#). If the combination of the primary and secondary state are such that the state modification cannot be performed, then the buttons are not available to the user.

- **In Service**
- **In Service-AINS**
- **Deactivate AINS**
- **Out Of Service**
- **Maintenance**

- **Unassign ServerPorts**

Note: This button is available only for the following packs to change the operational mode from **Add/Drop to Regen**

- LCI2000 (for PSI-2T) - OTU4x2, OTU4
- D5X500 - OTU4, OTU4x2, OTU4Half
- D5X500L - OTU4, OTU4x2, OTU4Half
- D5X500Q - OTU4, OTU4x2, OTU4Half

If a port is a part of a connection or service, setting the port to **Maintenance** sets the **Service State** of the connections or services to **Maintenance** as well.

If the **Primary State** of a port on certain OCS cards is modified using FRCD (forced) command, the corresponding traffic is impacted and the following warning message is displayed:

Figure B-24 Forced Primary State Update on OCS Card Port

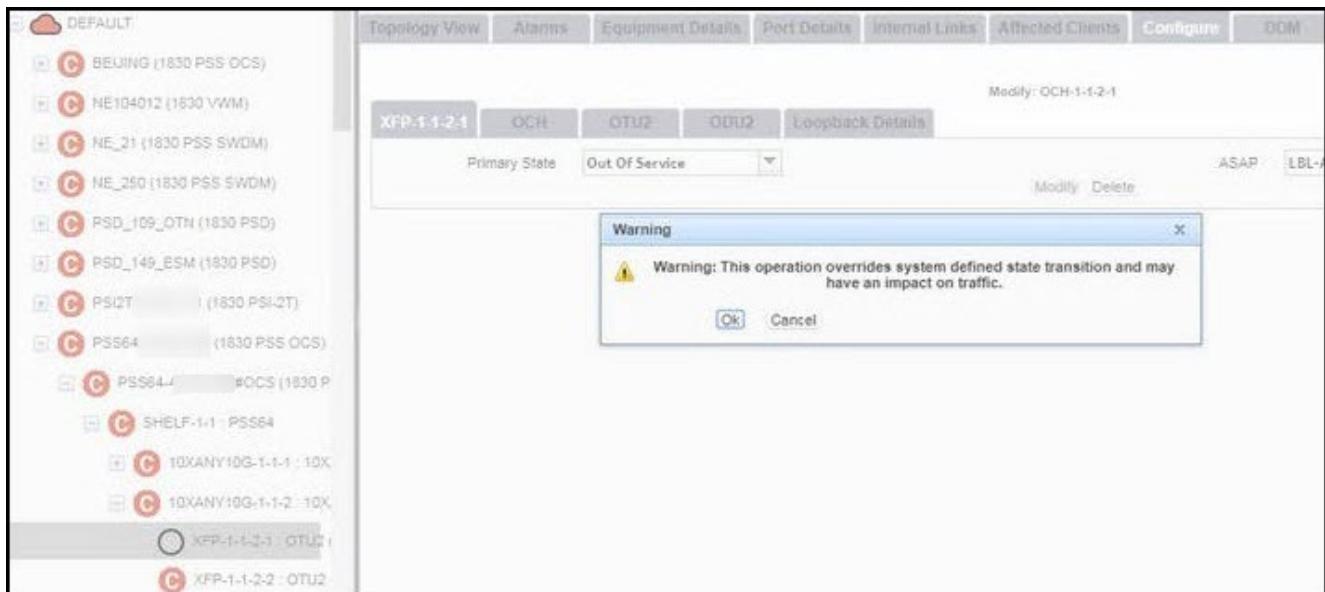


Table B-6 Primary State for a port and support for deletion of port

Current Primary State	Current Secondary State	Possible States for Port Creation	Possible States for Port Modification	Port Deletion Allowed (Yes/No)
OOS-MA (Out of Service - Management)	UAS (Unassigned)	IS (In Service) AINS (Automatic In Service) OOS (Out of Service)	-	No

Table B-6 Primary State for a port and support for deletion of port (continued)

Current Primary State	Current Secondary State	Possible States for Port Creation	Possible States for Port Modification	Port Deletion Allowed (Yes/No)
IS-NR (In Service - Normal)	-	-	IS OOS MT (Maintenance)	No
OOS-AU (Out of Service - Autonomous)	AINS	-	IS AINS AINS-DEA (Deactivate AINS) OOS MT	No
IS-ANR (In Service - Abnormal)	-	-	IS OOS MT	No
OOS-AU	FLT (Fault)	-	IS OOS MT	No
OOS-AU	FLT, AINS	-	IS AINS AINS-DEA OOS MT	No
OOS-AU	FAF (Facility Failure)	-	IS OOS MT	No
OOS-AU	FAF, AINS	-	IS AINS AINS-DEA OOS MT	No
OOS-AU	SGEO (Supporting Entity Outage)	-	IS OOS MT	No

Table B-6 Primary State for a port and support for deletion of port (continued)

Current Primary State	Current Secondary State	Possible States for Port Creation	Possible States for Port Modification	Port Deletion Allowed (Yes/No)
OOS-AU	SGEO, AINS	-	IS AINS AINS-DEA OOS MT	No
OOS-MA	-	-	IS AINS OOS MT	Yes
OOS-MA	ANR (Abnormal)	-	IS AINS OOS MT	Yes
OOS-AUMA (Out of Service – Autonomous and Management)	FLT	-	IS AINS OOS MT	Yes
OOS-AUMA	FAF	-	IS AINS OOS MT	Yes
OOS-AUMA	SGEO	-	IS AINS OOS MT	Yes
OOS-MA	MT	-	IS AINS OOS MT	No
OOS-MA	ANR, MT	-	IS AINS OOS MT	No

Table B-6 Primary State for a port and support for deletion of port (continued)

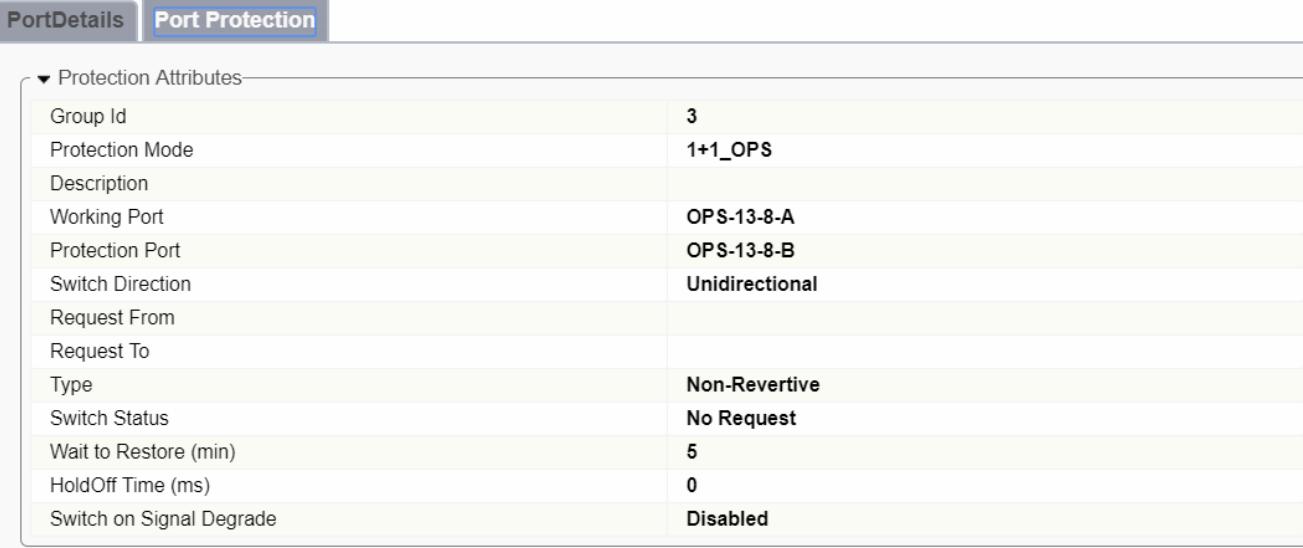
Current Primary State	Current Secondary State	Possible States for Port Creation	Possible States for Port Modification	Port Deletion Allowed (Yes/No)
OOS-AUMA	MT, FLT	-	IS AINS OOS MT	No
OOS-AUMA	MT, FAF	-	IS AINS OOS MT	No
OOS-AUMA	MT, SGEO	-	IS AINS OOS MT	No

5

Click the **OTUk Details** and **ODUk Details** sub-tabs under the **Configure** tab of the port configured with an OTUk signal rate to view the related port properties. The values in these sub-tabs cannot be modified.

For 13SCX10, OPSA, OPSB, OPSFlex, and OT packs, click the **Port Protection** sub-tab, to view the parameters associated with the protection group. The values in the **Port Protection** sub-tab cannot be modified.

Figure B-25 Example of Port Protection Tab



The screenshot shows a software interface for managing port protection. At the top, there are two tabs: "PortDetails" and "Port Protection". The "Port Protection" tab is selected and highlighted in blue. Below the tabs, there is a section titled "▼ Protection Attributes:" followed by a table with 13 rows. The columns represent various parameters: Group Id, Protection Mode, Description, Working Port, Protection Port, Switch Direction, Request From, Request To, Type, Switch Status, Wait to Restore (min), HoldOff Time (ms), and Switch on Signal Degrade. The values for these parameters are listed in the table.

Group Id	3
Protection Mode	1+1_OPS
Description	
Working Port	OPS-13-8-A
Protection Port	OPS-13-8-B
Switch Direction	Unidirectional
Request From	
Request To	
Type	Non-Revertive
Switch Status	No Request
Wait to Restore (min)	5
HoldOff Time (ms)	0
Switch on Signal Degrade	Disabled

6

Click on the **Network Interface** sub-tab under the **Configure** tab of the port that can be a network interface, configure the following parameters, and then click **Create**.



Note: Auto power mode is supported on NFM-T when OSC is not available. However, user needs to enable an appropriate GCC from NFM-T **EQM**, or NE WebUI/CLI. NFM-T supports high power amplifiers without OSC. In this case, however, NFM-T must use EPT or CPB for commissioning auto power adjustments, and user must create appropriate topological links.

Table B-7 Port Properties Configuration to Create Network Interface

Parameter	Description
Interface ID	Configure the network interface ID. The value/limit is validated by the NE and is unique per interface.
ECC Channel	Select the ECC channel type from the drop-down list. Currently, NFM-T supports only GCC0. for the OTUk facility of the applicable cards.

After creation of the network interface the following parameters can be viewed or modified.

Table B-8 Port Properties Modification for Network Interface

Parameter	Description
Interface ID	Displays the configured the network interface ID. The value/limit is validated by the NE and is unique per interface.
Facility	Displays the selected port at which the network interface is configured. This parameter cannot be modified.
Interface Enabled	After creating the network interface, select the check box to enable the interface. ACL filtering is supported on all Network Interfaces that are enabled.
ECC Channel	Displays the selected ECC channel type during network interface creation.
Packet Type	Displays the standard packet type used by the NE.
Provisioned MTU Size (576-1500)	Modify the provisioned MTU size on the NE. {576-1500} when Packet Type is set to Standard. By default, it is 1500.
Present MTU Size	Displays the present MTU size on the NE. {0-1500} or Not Available.
Area Index	Displays the unique identifier for the OSPF area from the NE. {0-3}
Area ID	Displays the OSPF area for the port.
Adjacency State	Displays the remote network element's adjacency state. Possible values are - Full, Down, 2Way, Init, Exchange, and ExchangeStart.
MD5 Authentication Enabled	Select or deselect to enable or disable MD5 authentication on the OSPF area. Authentication can only be enabled if MD5 Key and MD5 Key ID are set.
MD5 Key ID (1-255)	Configure the Key ID used for MD5 128 bit hash value key calculation.
MD5 Key	Configure the Key used for MD5 128 bit hash value key calculation.
Hello Interval seconds (1-65534)	Configure the OSPF Hello interval timer in seconds and click Modify . The value for the Hello Interval seconds (1-65534) parameter must always be smaller than the value for the Dead Interval seconds (2-65535) parameter. Both of these parameters must be modified one at a time.

Table B-8 Port Properties Modification for Network Interface (continued)

Parameter	Description
Dead Interval seconds (2-65535)	Configure the OSPF Router Dead interval timer in seconds and click Modify . The value for the Hello Interval seconds (1-65534) parameter must always be smaller than the value for the Dead Interval seconds (2-65535) parameter. Both of these parameters must be modified one at a time.
Cost Metric (1-65535)	Configure the cost metric of the route.

Figure B-26 Enable Network Interface

The screenshot shows the 'Network Interface' configuration page for port 3. The 'Interface Enabled' checkbox is checked. The 'ECC Channel' dropdown is set to 'GCC0'. The 'Hello Interval seconds (1-65534)' field contains '10'. The 'Cost Metric (1-65535)' field contains '30'. The 'Area Index' field contains '0'. Other fields like 'Interface ID', 'Facility', 'MTU Size', and 'MD5 Key' are also visible.

The GCC0 set up from **Equipment Manager** must be done by the operator in the following workflow:

1. Identify the connection between the required NEs. (OTUk for GCC0).
2. Select one endpoint of connection in **EQM** and enable GCC on OTUk facility.
3. Select other endpoint of connection in **EQM** and enable GCC on OTUk facility.
4. Manually verify the channel setup and communication.

7

Click on the **OSPF** sub-tab under the **Configure** tab of an **AUX** port in an **EC** card or of an **OAMP** port in a **USRPNL** card and view or configure the following properties:

Parameters	Description
OSPF Routing	Set the parameter to one of the following: <ul style="list-style-type: none">• Enable• Disabled• Redistribute
OSPF Area Index	Indicates the OSPF area index configured for the NE.
OSPF Area ID	The OSPF area ID configured on the NE.
Router Priority(0-255)	Specifies the OSPF router priority.
Hello Interval seconds (1-65534)	Specifies the OSPF Hello interval timer in seconds.
Dead Interval seconds (2-65535)	Specifies the OSPF Router Dead timer in seconds
OSPF Adjacency State	Displays the remote network element's adjacency state. Possible values are Full, Down, 2Way, Init, Exchange, ExchangeStart.
Cost Metric (1-65535)	Specifies the cost of sending traffic over the link
MD5 Authentication Enabled	Enables or disables MD5 authentication on the OSPF area. Authentication can only be enabled if MD5 Key and MD5 Key ID are set.
MD5 Key ID (1-255)	Key ID used for MD5 128 bit hash value key calculation.
MD5 Key	Key used for MD5 128 bit hash value key calculation. The format of this field value must be upper or lower case alphanumeric characters

8

When users configure:

- The **Signal Rate** parameter on ports of Ethernet cards such as 11QPE24, 11OPE8, and 11QCE12X; or
- Ethernet rates such as 100GbE or 100GbELANETH on the D5X500 (100GbE) and LCI2000 (100GbELAN ETH) cards of the PSI-2T
- Ethernet rates such as 100GbE or OTU4 on:
 - SFM6, DD2M4, DFC12, DFC12E, DA2C4/E cards of the PSI-M
 - S6AD600H, S4X400H, S4X400L, S13X100R/E cards of the 1830 PSS
- Ethernet rates such as 100GBE or 400GE GbE on 10AN1T/ 5MX500.
- Ethernet rates such as 400GbE on the DFM6/DFM6E, SFM6, DD2M4 card of the PSI-M and S5AD400H, S6AD600H of the 1830 PSS.

The **LLDP Remote Peer Information** parameters and **LLDP Remote Management** parameters are listed.



Note: This does not apply when configuring the **Signal Rate** parameter on VA and TOD ports of Ethernet cards.

For 11QPE24, 11OPE8, and 11QCE12X cards, the LLDP parameters are listed under the **Ethernet** tab of the corresponding port in the NFM-T **EQM** WebUI.

Figure B-27 EthernetTab Example on 11QCE12X Card

For S6AD600H, S4X400H, S4X400L, S13X100R, S13X100E, DFC12, DFC12E, DFM6, SFM6, 5MX500, D5X500, LCI2000 cards, these parameters are listed under the **LLDP** sub tab of the **Configure** tab for the corresponding port in the NFM-T **EQM** WebUI.

Figure B-28 LLDP Sub-tab Example on DFM6E Card

You can also view the **LLDP** sub tab from the **360 Degree View from Services or Nodes** under **OPERATE** Menu in the NFM-T application.

Figure B-29 LLDP Sub-tab from Nodes menu

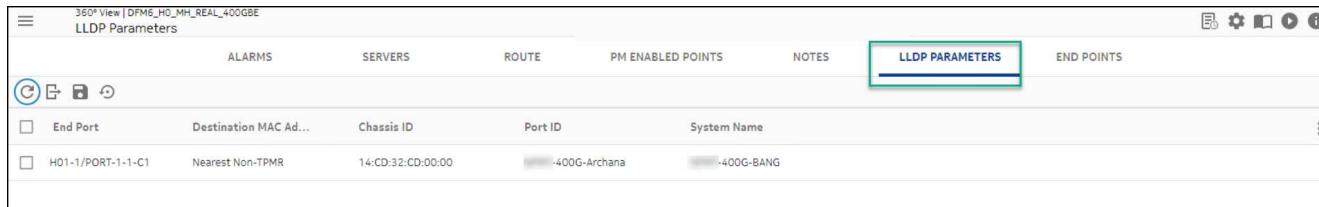
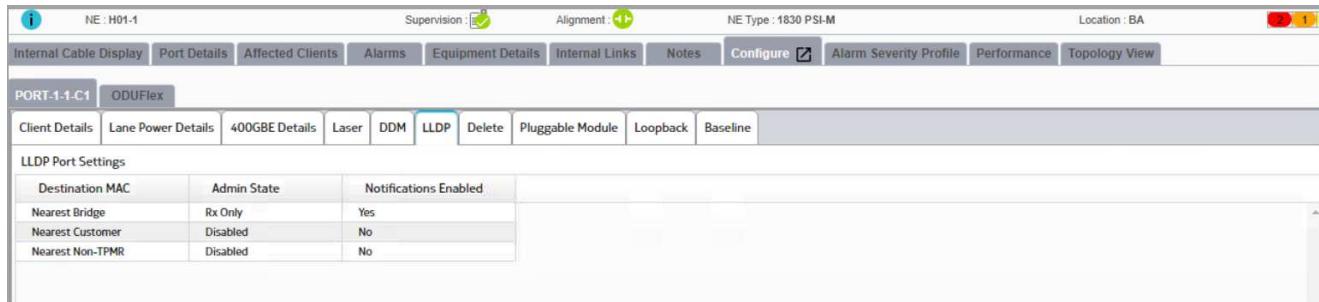


Figure B-30 LLDP Port Settings



Click on the **Ethernet** tab and modify the parameters as allowed and required.

The following table describes the parameters for LLDP:

Table B-9 LLDP Remote Peer Information and LLDP Remote Management Parameters

Parameter Name	Description
Destination MAC	Signifies the context to configure LLDP parameters on the chosen port of the specified destination MAC address. It can have a value of nearest bridge, nearest non-TPMR bridge, or nearest customer LLDP configuration.
Remote Peer Index	Identifies a connection to a remote peer for the chosen port.
Timestamp	Provides the date and time for the last received information.
Supported Capabilities	Represents the supported capabilities of the transmission, which includes bridge, router, TPMR, and so on.
Enabled Capabilities	Represents the enabled capabilities of the transmission, which includes bridge, router, TPMR, and so on.
Chassis ID Subtype	Provides the subtype of the chassis that includes MAC address, IP address, port, or chassis itself.

Table B-9 LLDP Remote Peer Information and LLDP Remote Management Parameters
(continued)

Parameter Name	Description
Chassis ID	Provides the chassis ID per subtype. For example if chassis ID subtype is 4 (MAC address), chassis ID, in such case, gives the value of the MAC address like c4:09:4a:40:b3:df.
Port ID Subtype	Provides the subtype of the port that includes MAC address, IP address, or port.
Port ID	Provides the port ID per subtype.
Port Description	Description of the port as specified on the chosen port.
System Name	Name of the system, as specified.
System Description	Description of the system, as specified.
Address Subtype	Management address subtype ranging from 1 to 255, denoting the address family numbers. For example, 1 represents IPv4 address, 2 represents IPv6 address, and so on.
Address	Management address as per the address subtype.
Address IF Subtype	Management address interface subtype, that includes unknown interface represented by 0, interface index represented by 1, and port number represented by 2.
Address IF ID	Value of the management address interface as per the subtype.
Address OID	Object identifier associated with the management address.

Also, the following **LLDP Configuration** parameters for the **Nearest non-TPMR bridge**, **Nearest customer LLDP configuration** and **Nearest Bridge Destination MAC** in the **LLDP Port Settings** table are set on the NE on the NE WebUI.

Table B-10 LLDP Configuration for Nearest Bridge Destination MAC

Parameter Name	Description
Destination MAC	Setting the Destination MAC parameter as Nearest Bridge enables the context to configure LLDP parameters on the specified port based on the nearest bridge LLDP configuration.
Admin State	The Admin State parameter of the destination MAC LLDP agent is set to transmit and receive (TX and RX) LLDP transmission signals.
Transmit TLVs	The LLDP agent is set to transmit port description, system name, system description, and system capabilities TLVs. TLVs are type, length, and value field of these parameters.

Table B-10 LLDP Configuration for Nearest Bridge Destination MAC (continued)

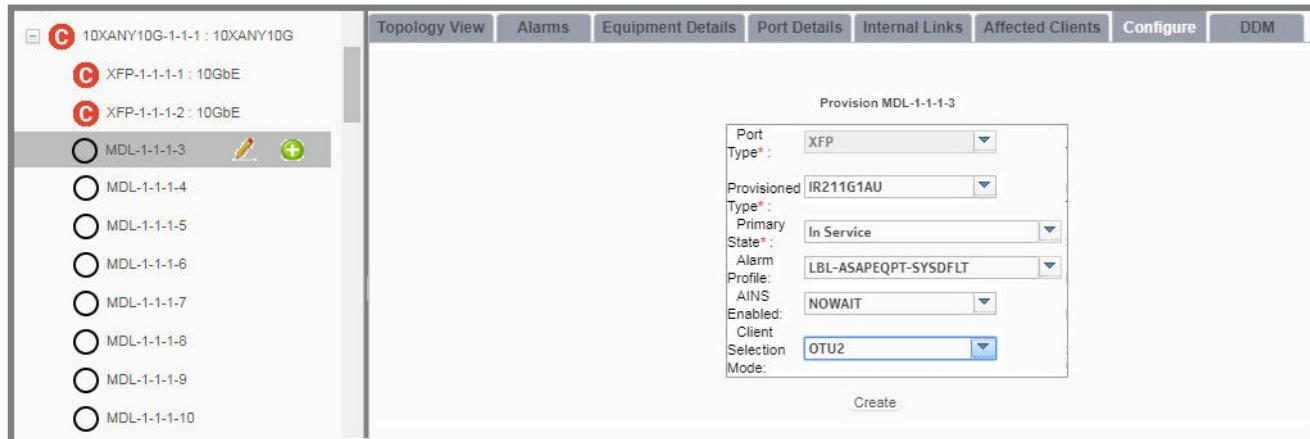
Parameter Name	Description
Transmit Management Address (System)	The Transmit Management IP Address (System) is enabled indicating that the system IP address (OAMP management IP address) is used for transmission of the management address TLV by the destination MAC LLDP agent.
Management Address	The management address is set as 0.0.0.0 by default.
Notifications	The notifications from the destination MAC LLDP agent are enabled.

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From the **EQM** window, navigate to a port of a newly configured card on an 1830 PSS OCS NE. Click the **Configure** tab.

Result: For a card on an 1830 PSS OCS, the system displays the information for the selected port.

Figure B-31 Equipment Manager – Configure port on an OCS card



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Configure the following parameters and click **Create**:

Parameters	Description
Provisioned Type	Select the type of equipment to be provisioned from the drop-down list.
Primary State	Select the primary state of the port from the drop-down list. The possible values are In Service and Out Of Service.

Parameters	Description
Alarm Profile	Select the ASAP (alarm severity assignment profile) for the selected port from the drop-down list.
AINS Enabled	Select the Automatic in service mode to which the equipment is to be set: The possible values are AINS and NOWAIT.
Client Selection Mode	Select the client selection mode for the port. For more information on the port group modes and associated client selection modes supported per I/O card, see <i>1830 Photonic Service Switch (PSS) User Provisioning Guide</i> .

The **Port Type** parameter is restricted and is configured as SFP, XFP, or HSMOD as per the card selected.

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Click on the **<SFP or XFP>** sub-tabs under the **Configure** tab of a port on an OCS NE card, modify the **Primary State** and **ASAP** parameters and click **Modify**.

Result:

- A confirmation message on port modification appears at the bottom right side of the window.
- After a successful port modification message appears, the information in the **Equipment Manager** is refreshed in two seconds for OCS shelf and four seconds for PHN shelf, only if the user has not navigated to another entity on the navigation tree. If the user navigates to another entity before the refresh occurs, the **Equipment Manager** must be manually refreshed.

12

Click on the **<Rate>** sub-tab under the **Configure** tab of a port on an OCS NE card and modify the following properties:

Parameters	Description
Primary State	Displays the primary state of the port and can be modified by clicking on the state buttons below the port properties.
Secondary State	Select the secondary state from the drop-down list. The values depend on the current primary state of the port. For more information in primary state and secondary state of ports, see <i>1830 PSS Photonic Service Switch (PSS) Product Information and Planning Guide</i> .
FlowControlMode	Select the flow control mode from the drop-down list. This mode decides the flow for the pause frames. For more information see <i>1830 Photonic Service Switch (PSS) User Provisioning Guide</i> .

Parameters	Description
Port Type	Displays the port type of the selected port. The possible values are CBRODU (in which, Ethernet is mapped as CBR into ODUn), GFPFODU (in which, Ethernet is mapped via GFP-F into ODUn), or PPOSODU (in which, Ethernet is mapped via PPOS).
CSFLaserCA	This parameter defines the Consequent Action in case of client signal failure (CSF) for port-port applications. Possible values are: <ul style="list-style-type: none">• No Action - No action is to be performed on the facility in case of CSF.• Laser Shutdown - Laser-shutdown is to be performed on the facility in case of CSF.
SSFLaserCA	This parameter defines the Consequent Action in case of server signal failure (SSF) for port-port applications. The possible values are: <ul style="list-style-type: none">• No Action - No action is to be performed on the facility in case of SSF.• Laser Shutdown - Laser-shutdown is to be performed on the facility in case of SSF.
NegotiationType	Negotiation mode with link partner. The possible values are AUTO, DISABLED, and RESTART.
NE Native AID	Displays the access identifier of GBE facility on the native NE.
Description	Description for the port selected. After modifying this parameter, it appears on the navigation tree.
AssociatedAID	Displays the associated access identifier of GBE facility.
AssociatedTID	Displays the associated target identifier of GBE facility.
Threshold	Displays how long an input signal must be present on the selected port without a failure condition before the system automatically transitions the facility into the In-Service state. The value is given in HHH-MM (hours-minutes).
Timer	Displays the time in minutes on how much time is currently remaining on the AINS timer before the selected port is placed into the In-Service state.

Parameters	Description
PortMODE	<p>Determines if the conditions for the facility are reported or not.</p> <p>The meaning of the different port modes is as follows:</p> <ul style="list-style-type: none"> • AUTO - Port monitoring is disabled. The conditions as defined by Primary State Correlation are not reported. However, when a transition from “no input signal present” to “input signal applied” is detected, and the AINS timer has expired, then the port mode is autonomously switched to monitored. Note that the transition from “no input signal present” to “input signal applied” is mandatory in order that the port mode can autonomously be switched to monitored. The port mode remains unchanged (Auto) as long as no transition from “no input signal present” to “input signal applied” takes place. • MON (Monitored) - Port monitoring is enabled, conditions are reported according the defined ASAP. • NMON (Not monitored) - Port monitoring is disabled, the incoming port signal is not monitored for defects. Conditions as defined by the Primary State Correlation are not reported. <p>For more information, see <i>1830 Photonic Service Switch (PSS) User Provisioning Guide</i>.</p>
Primary State Correlation	Determines the set of conditions which shall not be reported when the Port Mode is NMON. Possible values are LOS (loss of signal) and ALL (all non off-normal conditions reported by the OCH port).
AutoMatic In service Criteria	Indicates the criteria for taking the OCh port into the In-Service state. Possible values are NOLOS (No loss of signal) and NOSF (No signal failure).
Capabilities	Displays a list of capabilities supported by the selected GBE port facility.
ManagerAccessControl	<p>Displays the list of managers currently in control of the selected port. The possible values are:</p> <ul style="list-style-type: none"> • <null> - The entity identified by AID (access identifier) is free. • CP - The entity identified by AID is owned by CP (control plane). • MNGPLN - The entity identified by AID is owned by MNGPLN (managed plane).
Laser	The parameter determines whether the laser is switched off, or works in “normal” mode. Possible values are Allow Laser to switch on or Force Laser to switch off .

Parameters	Description
OLC State	Configure the OLC State parameter to Maintenance when performing maintenance on the card to dynamically update the corresponding alarms on the Fault Management application. By default, the ports are configured with OLC State as In Service . See <i>OLC State</i> section, in NFM-T OTN Guide, for more information.

13

Click on the **PORT-BayID-ShelfID-CardID-PortID** tab and the **OCH** tab of an uplink card port and view or modify the following parameters:

Parameters	Description
Primary State	Click on the PORT-BayID-ShelfID-CardID-PortID tab and select a state from the Primary State drop-down list and click Modify .
ASAP	Select the ASAP (Alarm Severity Assignment Profile) from the drop-down list in the PORT-BayID-ShelfID-CardID-PortID tab.
Primary State	Click on the OCH tab. The Primary State of the port is displayed. This parameter changes when you change the primary state in the PORT-BayID-ShelfID-CardID-PortID tab.
NE Native AID	Indicates the access identifier of the OCH port.
Secondary State	Indicates the secondary state of the OCH port. The following values can be selected: <ul style="list-style-type: none"> • AINS - Automatic In-Service • AINS-DEA - Automatic In-Service Deactivate
Threshold	Configure the time for which an input signal must be present on the OCH port without a failure condition before the system takes the OCH port into the In-Service state.
Timer	Indicates how much time is currently remaining on the AINS timer before the OCH port is taken into the In-Service state.
AutoMatic In service Criteria	Indicates the criteria for taking the OCH port into the In-Service state. Possible value is NOLOS - No loss of signal. The OCH port is taken into the In-Service state as soon as a transition from “no input signal present” to “input signal applied” is detected.

Parameters	Description
Remote Connected Port	The parameter specifies the remote connected port to the OCH as determined using cable provisioning as configured in the DWDM compound. The value NONE is used if a cable connection is not yet provisioned.
PortMODE	<p>Configure if the conditions for the OCH port are reported or not. The criteria for leaving the AUTO state autonomously depends on the current value of the parameter AutoMatic In service Criteria. In addition, the set of conditions which are considered for the alarm correlation with Port Mode depends on the current value of the parameter Primary State Correlation.</p> <p>The possible values are the following:</p> <ul style="list-style-type: none"> • AUTO - Port monitoring is disabled. The conditions as defined by Primary State Correlation are not reported. However, when a transition from "no input signal present" to "input signal applied" is detected (see Automatic In Service Criteria), and the AINS timer has expired (see Automatic In Service Timer), then the port mode is autonomously switched to monitored. Note that the transition from "no input signal present" to "input signal applied" is mandatory in order that the port mode can autonomously be switched to monitored. The port mode will remain unchanged (Auto) as long as no transition from "no input signal present" to "input signal applied" takes place. • MON - (Monitored) Port monitoring is enabled and conditions are reported according to the defined ASAP. • NMON - (Non-monitored) Port monitoring is disabled and the incoming port signal is not monitored for defects. Conditions as defined by the Primary State Correlation are not reported.
Primary State Correlation	<p>Configure the set of conditions which shall not be reported when the Port Mode is NMON.</p> <p>Possible values are the following:</p> <ul style="list-style-type: none"> • LOS - Loss of Signal conditions are not reported. • ALL - all non off-normal conditions reported by the OCH port are not reported.
Frequency in GHz	Indicates the frequency (in GHz) of the optical channel for OCH type FIXED, TUNABLE, and UPLINK.
MinFrequencyinGHz	Indicates the minimum frequency (in GHz) that is supported by the optical channel.

Parameters	Description
Max Frequency in GHz	Indicates the maximum frequency (in GHz) that is supported by the optical channel.
Spacing Between Min and Max in GHz	Indicates the difference between the maximum and minimum frequencies (in GHz) that is supported by the optical channel.
UPLINK Info	Displays the uplink information of the OCH port. For example, MATRIX .
DOWNLINK Info	Displays the downlink information of the OCH port. For example, EXTERNAL .
Capabilities	Specifies a list of capabilities supported by the selected port and its embedded tributaries. If more than one capability is supported, the different capabilities are separated by &.
Encoding	<p>Determines the modulation/line code which is applied on the selected port.</p> <p>Possible values are the following:</p> <ul style="list-style-type: none"> • NRZ - Non-Return-to-Zero (for OTU2/OTU2E), • NRZ - Non-Return-to-Zero (for OTU3). • COHPMBPSK - Coherent Polarisation Multiplexing Binary Phase-Shift Keying (for OTU3E2) • PDMQPSK - (OTU4 / UPLINK) Polarization Division Multiplexing and Quadrature Phase-Shift Keying with coherent detection • PDMINRZQPSK - UPLINK (OTU4 / UPLINK) Polarization Division Multiplexing with Interleaved Non-Return-to-Zero and Quadrature Phase-Shift Keying with coherent detection.
ManagerAccessControl	<p>Indicates which manager is currently assigned to the OCH port.</p> <p>Possible values include the following:</p> <ul style="list-style-type: none"> • CP - The OCH port is managed by the control plane. • MNGPLN - The OCH port is managed by the management plane. • CP&MNGPLN - The OCH port is managed by the control plane and the management plane. • <not specified> - The OCH port is not managed by any specific manager.

Parameters	Description
OCHTYPE	Determines the OCH sub-type. Possible values include the following: <ul style="list-style-type: none">• Black and white• Colored with fixed frequency determined by the provisioned equipment module type• Colored with provisioningable frequency• Colored with provisioningable frequency and is managed by DWDM compound
OTULevel	Indicates the OTU rate carried by the OCH. For example, OTU2, OTU2E, OTU3, OTU3E2, or OTU4.
Laser	Determines whether the laser can be switched on or off. Possible values are Allow Laser to switch on and Force Laser to switch off .
TX Target Power(mBm)	The parameter specifies the target transmit power (unit: mBm) at the addressed WaveTracker.
TX Delta Power(mBm)	The parameter describes the acceptable power delta (unit: mBm) from the target transmit power at the addressed WaveTracker encoder.
Power Achieved	Indicates whether the power is achieved. Possible values listed include Yes and No.
WaveTracker Enable	The parameter specifies whether Wave Tracker encoder is enabled or not. Possible values that can be configured include Yes and No.
WaveTracker Enable Key SP	The parameter specifies whether WaveTracker key use is enabled or not. Possible values that can be configured include Yes and No.
WaveTracker Enable Power Control	The parameter specifies whether WaveTracker power control is enabled or not. Possible values that can be configured include Yes and No.
OLC State	Configure the OLC State parameter to Maintenance when performing maintenance on the card to dynamically update the corresponding alarms on the Fault Management application. By default, the ports are configured with OLC State as In Service . See <i>OLC State</i> section, in NFM-T OTN Guide, for more information.

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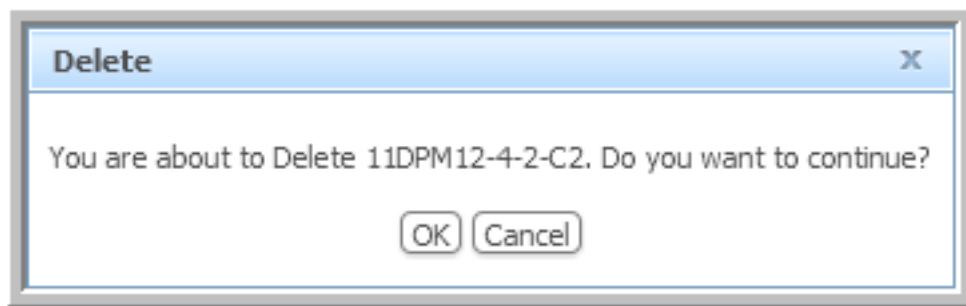
Click on the **Loopback Details** sub-tab of the **Configure** tab of a port on an OCS NE card and select either **Terminal Loopback** or **Facility Loopback** option to configure the selected port as one of them.

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Click **Delete** under the **<SFP or XFP>**, **PortDetails**, **LineDetails**, or **ClientDetails** sub-tab to unassign the selected configured port.

Result: The **Delete** confirmation window opens.

Figure B-32 Equipment Manager – Port Deletion Confirmation



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Click **OK** to unassign the port.

Result:

- A confirmation message on port deletion appears at the bottom right side of the window.
- After successful port deletion message appears, the information in the **Equipment Manager** is refreshed only if the user has not navigated to another entity on the navigation tree. If the user navigates to another entity before the refresh occurs, the **Equipment Manager** must be manually refreshed.

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Click the **Provisioning History** button in the top right corner of the **EQM** window to view the Provisioning History.

END OF STEPS

B.3 States of an NE object

Primary and secondary states

The primary state of an object on an NE indicates the basic condition of the object, for example, **In Service** or **Out of Service**.

The secondary state of an object on an NE indicates the condition of the object at a lower level. For example, the following conditions are indicated:

- the object is active
- the clock of the object is aligned
- the object has loopback set on it
- the object is in maintenance

See the topic *Primary and secondary states of system components* in the *Product Information and Planning Guide* for more information.

Maintenance administration state on NE

Setting a shelf, card, or port of an NE to maintenance state prevents the NE from raising any alarms and subsequent alarm correlation until the object is in maintenance state. This action allows to perform temporary maintenance activity on the object. In this state, a card can continue to provide service and perform fault monitoring. But it does not generate an alarm.

The following cards support administrative maintenance state:

- OCS cards: 24NM, 10AN10G, 130SCUP
- PHN cards: 11DPM12, 11QPA4, S13X100R, 130SCX10, 130SCA1, 20P200, 1UD200, 112SCA1, 260SCX2
- PSS-24X cards and PSS-8X cards

NFM-T supports configuration of administrative state for physical entities and not logical entities using **Equipment Manager**. A card cannot be moved into maintenance state if any of its ports are administratively in service. Alarm suppression occurs at the selected object level and not for the object below it. For example, setting a port to maintenance does not set the port's CTP objects to maintenance. On **Equipment Manager** we cannot view the PTP and CTP levels on the navigation tree.

The following table illustrates the behavior of setting maintenance administrative state on an NE object and hence suppression of alarms.

NE Type	Module	Support to set object to Maintenance and suppress alarms (Yes/No)			
		Card Level	Port Level	PTP Level (OCH/OTS level alarm)	CTP level (ODUK, OTUk alarm)
1830 PSS-32	D5X500	Yes	Yes	Yes	Yes CTPs can be placed into maintenance state through the NE ZIC, and not through EQM.
	SFD8A	Yes	Yes	Yes	Not Applicable
	11QPA4	Yes	Yes	Yes	Yes
	AHPHG/AHPLG	Yes	Yes	Yes	Not Applicable
	260SCX2	Yes	Yes	Yes	Yes CTPs can be placed into maintenance state through the NE ZIC, and not through EQM.
	11DPM12	Yes	Yes	Yes	Yes
1830 PSS-24X	2UC400	Yes	Yes	Yes	Yes CTPs can be placed into maintenance state through the NE ZIC, and not through EQM.
	30AN300	Yes	Yes	Yes	Yes CTPs can be placed into maintenance state through the NE ZIC, and not through EQM.
1830 PSS-8X	1UX100	Yes	Yes	Yes	Yes CTPs can be placed into maintenance state through the NE ZIC, and not through EQM.
	20AX200	Yes	Yes	Yes	Yes CTPs can be placed into maintenance state through the NE ZIC, and not through EQM.

NE Type	Module	Support to set object to Maintenance and suppress alarms (Yes/No)			
		Card Level	Port Level	PTP Level (OCH/OTS level alarm)	CTP level (ODUk, OTUk alarm)
OCS NEs - 1830 PSS-36 and 1830 PSS-64	130SCUP	Yes	Yes	Yes	Yes CTPs can be placed into maintenance state through the TL1 Cut Through tab of the Equipment Manager window or the NE CIT.
	10AN10G	Yes	Yes	Yes	Yes CTPs can be placed into maintenance state through the TL1 Cut Through tab of the Equipment Manager window or the NE CIT.
	24ANM	Yes	Yes	Yes	Yes CTPs can be placed into maintenance state through the TL1 Cut Through tab of the Equipment Manager window or the NE CIT.
1830 PSD	Client	No line port or pack level support	Yes	Yes	Yes
1830 PSI	PSI-2T	Yes	Yes	Yes	Yes



Note: If the selected object is a physical entity on a card modelled as equipment, alarms are suppressed for the underlying facility objects. If the selected object is modelled as a facility object, the user needs to navigate to the ZIC to change the administrative state to maintenance, and hence suppress alarms.

Maintenance administration state on connections and services

OTN supports modification of maintenance administrative state on services but does not support on infrastructure connections. Service state for a service can have the values **In Service**, **Automatic In Service**, **Out of Service**, or **Maintenance** and Service state for a connection is only **In Service**. However, it displays the maintenance state in the **Service State** column of an infrastructure connection or service, when either of the end points/client ports of the connection or service is set to **Maintenance**. Similarly, for physical connections, the **Administrative State** column displays the maintenance administrative state.

The service state of a connection or service depends on the primary state, secondary state, and the alarm reporting parameter of the NE object. The following table provides more information:

Primary State (PST)	Secondary State (SST)	Alarm Reporting Parameter	Service/Administrative State
IS, IS-NR	NA (Not applicable)	ON	IS (In Service)

Primary State (PST)	Secondary State (SST)	Alarm Reporting Parameter	Service/Administrative State
AINS	NA (Not applicable)	ON/OFF	AINS (Automatic In Service)
OOS-AU	NA	ON	IS (In Service)
OOS-MA	MT	ON/OFF	OOS-MA (Maintenance)
OOS-MA	Not MT	ON/OFF	OOS (Out of Service)
OOS-AUMA	NA	OFF	OOS (Out of Service)

i Note: The administrative/service state is displayed as **Maintenance**  only if one or both the end points have Primary State as **OOS-MA** and Secondary State as **Maintenance**.

For more information on how to set the states of NE objects using **Equipment Manager**, see [B.2 "Configure shelves, slots/cards, and ports from the Equipment Manager" \(p. 2336\)](#).

The Service administrative state is enhanced to have additional Port Administrative state management and is applicable on Physical ports and Services including NNI. The administrative state is also applicable to terminated and unterminated ODUK services.

Table B-11 Administrative State Definitions for Services

Administrative states	Definitions
IS	In Service - if there is no traffic flowing when the service is created, then the client port alarms are immediately raised when a defect is detected.
AINS	Automatic In Service - if there is no traffic flowing when the service is created, then the client port alarms are inhibited. When the traffic flows in, then the standard alarm management is activated.
OOS	Out Of Service - if the client traffic goes down, then the alarm reporting on the involved client port is disabled.
OOS-MA	Out Of Service - Maintenance - if the NE reports a Maintenance alarm on the involved client port, then the alarm reporting is disabled and the traffic keeps flowing.

The Administrative/service state is enabled or set to In service, then the client ports are set to **In Service (IS)**. If the Administrative/service state is disabled or set to Out Of Service, then the client ports are set to **Out Of Service (OOS)**.

Figure B-33 Service Administrative state

Connection Name	Protection	From Node #1	From Port #1	Service State	To Node #1	To Port #1
FC400 service	Unprotected	PSS32-1	11DPM8-1-5-C1	▲	<input checked="" type="checkbox"/> Select all	11DPM12-1-2-C1
IOP_F9260_23-99_BL1 ODU...	Unprotected	ONS-32-23	130SCX10-1-8-C1-1	▲	<input checked="" type="checkbox"/> In Service	130SCX10-1-6-C
IOP_WDM ADM_R9_AB_956...	Unprotected	ONS-32-23	130SNX10-6-5-C1	▲	<input checked="" type="checkbox"/> Out Of Service	20P200-1-7-1
i09425-3_Phil_Top...	Unprotected	ONS-32-18	11DPM8-4-5-C3	▼	<input checked="" type="checkbox"/> N/A	11DPM12-3-3-C3
-409425-3_Phil_Top...	Unprotected	ONS-32-18	11DPM8-4-5-C6	▼	<input checked="" type="checkbox"/> Automatic In Service	11DPM12-3-3-C6
IOP_F9260_18-23_BL1 ODU...	Unprotected	ONS-32-23	260SCX2-1-13-C1	▲	<input checked="" type="checkbox"/> Maintenance	260SCX2-1-16-C
i09425-3_Phil_FC...	Server Protected	ONS-32-18	11DPM8-4-5-C7	▼	ONS-16II-99	11DPM12-3-3-C7
WDM-CAS-PRO3-REG-R12-D...	Unprotected	ONS-32-23	OTUODU2-4-3-C1	▲	ONS-32-18	OTUODU2-6-3-C
WDM-CAS-PRO3-REG-R12-D...	Unprotected	ONS-32-23	OTUODU2-4-3-C2	▲	ONS-32-18	OTUODU2-6-3-C
Muhammad-OTU2:3	Unprotected	ONS-32-18	OTUODU2-6-3-C9	▲	ONS-32-23	OTUODU2-4-3-C
Muhammad 10G:4 DSR:1	Unprotected	ONS-32-18	S13X100-6-3-C8	▼	ONS-32-23	S13X100-4-3-C8
AGG-OTN-PRO2-R12-A SK D...	Unprotected	ONS-16II-97	4MX200-3-27-1	▼	ONS-32-44	D5X500-5-8-C4

Last Update: 15:26:49 GMT+0530 (India Standard Time) Total: 4

The service state action menu that is supported for the different service states.

Table B-12 Service state menu support on service list window

Service State	Service state menu options
AINS – Automatic In Service	IS – In Service
	OOS – Out Of Service
	MT- Maintenance
IS – In Service	OOS – Out Of Service
	MT- Maintenance
	AINS – Automatic In Service
OOS – Out Of Service	IS – In Service
	MT- Maintenance
	AINS – Automatic In Service
MT- Maintenance	IS – In Service
	OOS – Out Of Service
	AINS – Automatic In Service
NA	Not Applicable



Note: By default, the service template is deployed with the service state as **AINS**. When a service is created with the default service state as **AINS** and user changes the service state to **IS**, the service state icon remains as **AINS** and does not change to **IS**. This is because, there is no event being generated on the NE due to the port state change from AINS to IS.

The following table provides a detailed information on the admin state values at both the end points and the set service state value along with the available actions that the user can set.

Table B-13 Admin state at the end points

A-end	Z-end	Current Service state	Available SET actions
IS	IS	IS	AINS, OSS, OSS-MA
IS	AINS	AINS	IS, AINS, OSS, OSS-MA
IS	OOS	OOS	IS, AINS, OSS, OSS-MA
IS	OOS-MA	OOS-MA	IS, AINS, OSS, OSS-MA
AINS	AINS	AINS	IS, OSS, OSS-MA
AINS	OOS	OOS	IS, AINS, OSS, OSS-MA
AINS	OOS-MA	OOS-MA	IS, AINS, OSS, OSS-MA
OOS-MA	OOS-MA	OOS-MA	IS, AINS, OSS
OOS-MA	OOS	OOS	IS, AINS, OSS, OSS-MA
OOS	OOS	OOS	IS, AINS, OSS-MA



Note: When the Service Administrative state is modified on the NFM-T GUI through one of the above SET actions, then the A and Z ports are appropriately set. EQM reflects the appropriate administrative state values for each of the ports.

B.4 Pluggables and filters

Pluggables

Overview

Pluggable optical transceivers are the basic building blocks of Optical Networks used to transmit and receive an optical signal over an optical fiber. Pluggables are standardized and can be plugged into various types of hardware such as switches, routers, and servers. Interchangeable nature of these transceivers allow a single device to support a wide range of protocols and fiber interfaces.

The optical signals that are supported by the transceiver can be of different characteristics depending on the type of network, bit rate, and operating distance. It has high-performance and is cost effective.

Following are the different types of form-factor pluggable transceivers.

- Single Fiber (Bi-directional Small Form Factor Pluggable SFP, SFP+, and XFP)
- XFP Dual Fiber (10 Gigabit Small Form Factor Pluggable)
- SFP+ Dual Fiber (enhanced small form-factor)
- CFP Single Fiber (compact form-factor)
- QSFP Optics and Cables (Quad, 4-channel, small form-factor)
- Tunable DWDM (XFP and SFP+ tunable Dense Wavelength Division Multiplexing (DWDM) transceivers)

Pluggable with or without wavekey support

NFM-T supports WT-XFP (WT key enabled XFP, that is, XL-64TCW and/or SFP+: SL64TUW pluggables) along with sVoA (Slow VoA) or fVoA (Fast VoA) pluggables, with or without wavekey support.

WT-XFP equipped keyed connection with sVoA (VA pluggable) for 12P120, 11DPM8, and 11QPA4B cards are supported.

Wavekey can be provided by WT-XFP pluggables or VoA pluggables; and Wavekey Encoder (WTE) can be enabled or disabled when wavekey is supported by these pluggables.

Keyed and unkeyed connection.

- For keyed connection, fVoA with WTE pluggables are present on an OT/UL card, fVoA takes precedence over wavekey pluggables.
- For unkeyed connection, sVoA with WTE pluggable, wavekey can be supported, that is, if WTE pluggable is present, select an unkeyed sVoA (default) connection or select a keyed connection.

NFM-T validates the existing configuration for keyed connections from EQM, that is, pluggable module types on Line ports, VA ports, Line port WT Encoder, and user inputs (keyed or unkeyed). If the configuration is invalid, an error message is displayed to modify the configuration appropriately. If the configuration is modifiable, set relevant pluggable on Line port and VA port along with Line port WT Encoder for applicable OT Packs. For more information, see [Table B-14, “List of different Pluggable configurations on NFM-T EQM WebUI” \(p. 2408\)](#).



- For 11QPA4B card, when creating keyed infrastructure connection use only L1 and L3 ports. This is an explicit behavior of 1830 PSS NE.
- Cluster scenario: During a Keyed Infrastructure connection creation, ensure to pre-configure the Line port and VA port with suitable pluggables and set WT Encoder value for applicable cards before creating the OPS Cluster connection between the Cluster NEs. These values must be set at OPS Cluster connection creation time and cannot be modified later from NFM-T. A valid configuration must be ensured to create a successful Keyed Infrastructure connection.
- When an unkeyed Alien service is created, the pluggable module to be set to sVoA (irrespective of what is set on the NE).
- When a keyed Alien service is created, the pluggable module to be set to fVoA.
- When an Alien service is deleted, the pluggable module resets to Auto.

Example for puggable configurations from Equipment Manager (EQM).

Figure B-34 Pluggable Module Type Auto and Pluggable Module Supports WT Encoder No for 11QPA4B Card

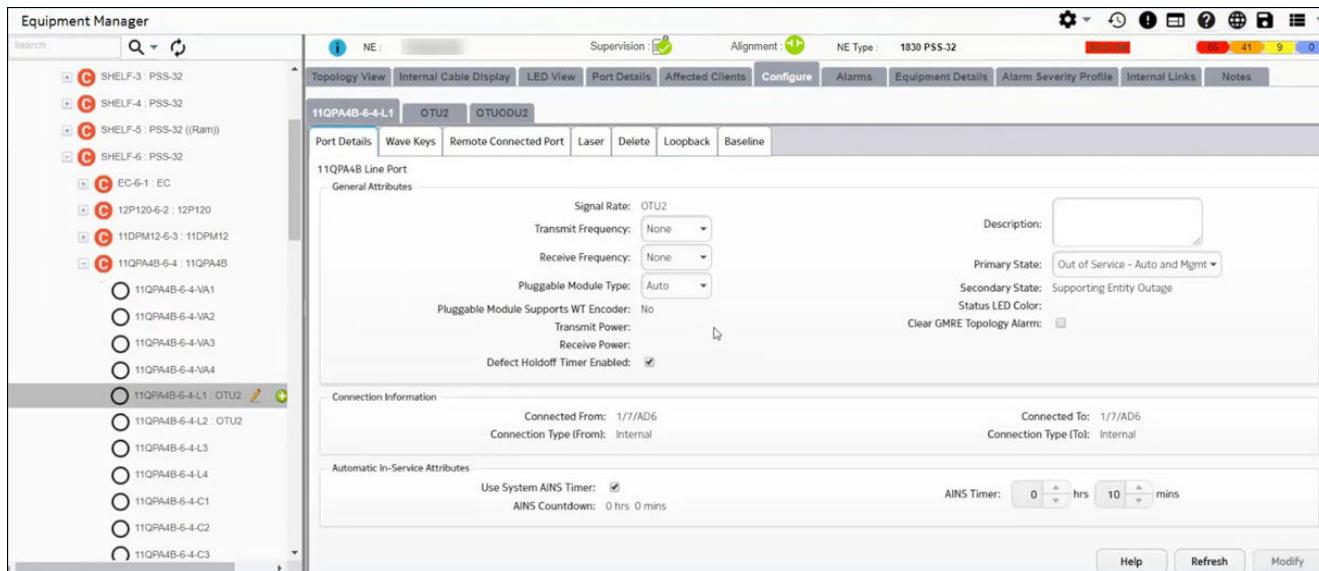


Figure B-35 Pluggable Module Type Auto and WT Encoder Enabled NA (WT encoder is invisible)

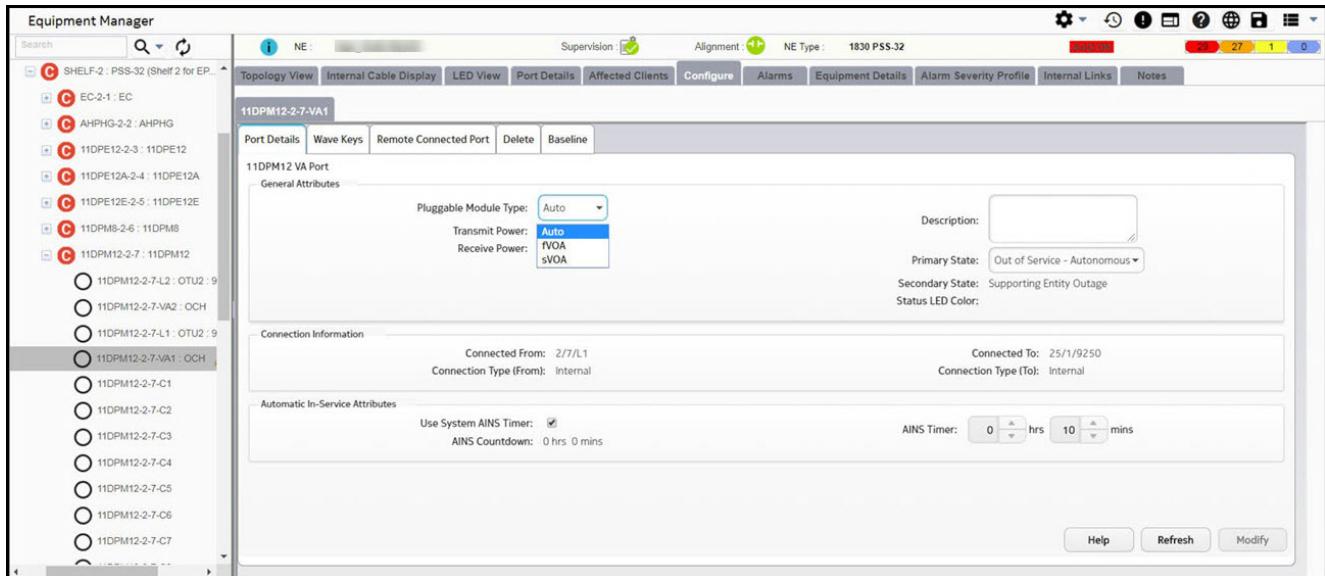
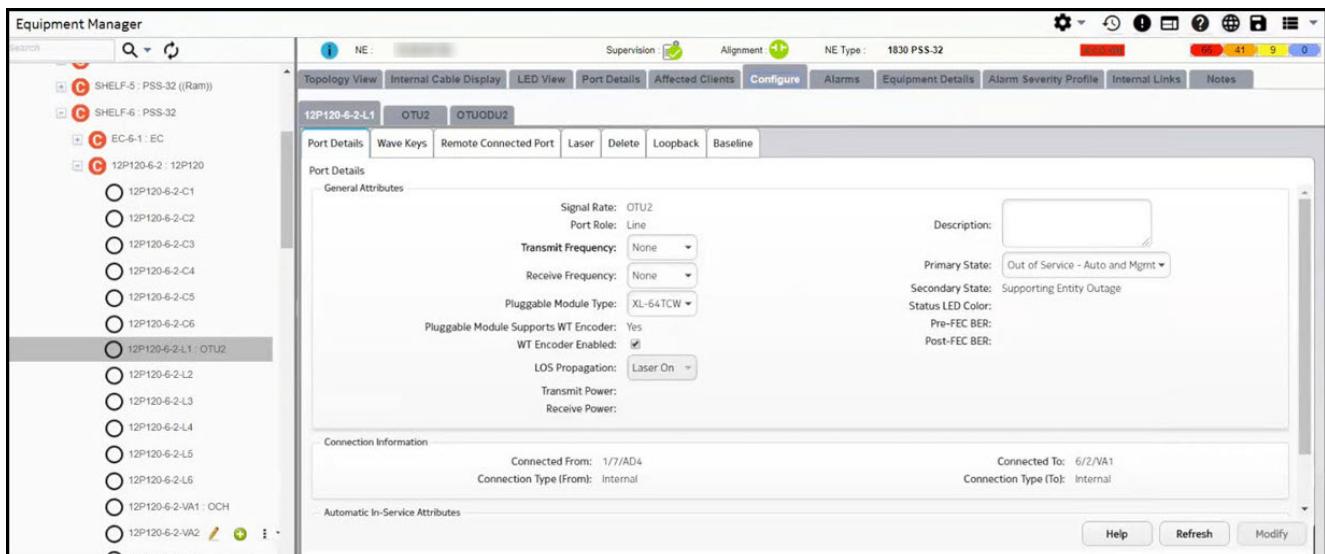


Figure B-36 Pluggable Module Type XL-64TCW, Pluggable Module Supports WT Encoder Yes, and WT Encoder Enabled Selected for 12P120 Card



Following table lists different pluggable configurations for **Pluggable Module Type** (Line port), **Pluggable Module Type** (VA port), and **WT Encoder Enabled** (Wavekey line port).

Table B-14 List of different Pluggable configurations on NFM-T EQM WebUI

Pluggable Module Type (Line port)	WT Encoder Enabled (Wavekey line port)	Pluggable Module Type (VA port)	User action for Keyed or Unkeyed Services
Wavekey Capable	Yes	No	No action
Wavekey Capable	Yes	sVoA	No action
Wavekey Capable	No	Auto	Set VA port to fVoA In case of 12P120/11DPM8, set VA port to sVoA and select WT Encoder Enabled. See image Figure B-34, "Pluggable Module Type Auto and Pluggable Module Supports WT Encoder No for 11QPA4B Card" (p. 2406)
Wave Key capable	Yes	Auto	Set VA port to sVoA.
Wavekey Capable	No	No	Select WT Encoder Enabled
Wavekey Capable	No	sVoA	Select WT Encoder Enabled
Wavekey Capable	NA	Auto	No action is required, this combination works by default.
Wavekey Capable	NA	No	No action is required, this combination works by default.
Wavekey Capable	NA	sVoA	Set wavekey capable to line port pluggable. Applicable for 11QPA4B.
Auto	NA	sVoA	Set wavekey capable to line port pluggable and select WT Encoder Enabled. Applicable for 12P120 and 11DPM8.
Auto	NA	Auto	Set VA to fVoA for 12P120 and 11DPM8 For 11QPA4B, set wavekey capable to SL64TUW.
Auto	NA	sVoA	Applicable only for 11QPA4B. Set wavekey capable to SL64TUW.

Table B-14 List of different Pluggable configurations on NFM-T EQM WebUI (continued)

Pluggable Module Type (Line port)	WT Encoder Enabled (Wavekey line port)	Pluggable Module Type (VA port)	User action for Keyed or Unkeyed Services
Not Wavekey Capable	NA	Auto	Set VA to fVoA for 12P120 and 11DPM8 For 11QPA4B and 8P20, the error message is displayed: <i>Please create unkeyed connection or put pluggable module which supports keyed connection.</i>
Not Wavekey Capable	NA	No	Request is rejected as it is not an appropriate combination and the error message is displayed: <i>Please create unkeyed connection or put pluggable module which supports keyed connection.</i>
Not Wavekey Capable	NA	sVoA	Request is rejected as it is not an appropriate combination and the error message is displayed: <i>Please create unkeyed connection or put pluggable module which supports keyed connection.</i>

Notes:

- Pluggable Module Type** (Line port): Supports all types of pluggables including XL-64TCW, SL64TUW, and Auto (if wavekey pluggable is not provisioned it can be provisioned later)
- WT Encoder Enabled** (Wavekey line port): Applicable only for 12P120 and 11DPM8 cards and supported values are Auto, Yes, No, and NA (WT encoder is invisible)
- Pluggable Module Type** (VA port): Supported values are Auto, sVoA, fVoA, and No (when VA is not connected)

Table B-15 Keyed Services for different Cards

Card	fVoA	sVoA	No VoA
11DPE12	Y ¹	N ²	N ¹
11DPE12A	Y ¹	N ²	N ¹
11DPE12E	Y ¹	N ²	N ¹
11DPM8	Y ¹	N ²	N ¹
11DPM8 with WTE SFP	NA	NA	Y ¹
11DPM12	Y ¹	N ²	N ¹
11OPE8	Y ¹	N ²	N ¹

Table B-15 Keyed Services for different Cards (continued)

Card	fVoA	sVoA	No VoA
11QPA4	Y ¹	N ¹	N ¹
11QPA4B	NA	N ¹	N ¹
11QPA4B with WTE SFP+	NA	NA	Y ¹
11QPE24	Y ¹	N ¹	N ¹
11QPEN4	Y ¹	N ¹	N ¹
12P120	Y ¹	N ²	N ¹
12P120 with WTE XFP	N ¹	NA	Y ¹
20P200 with WTE SFP+	Y ¹	N ²	Y ¹
4DPA4	Y ¹	N ²	N ¹
MVAC/MVAC8B	Y ²	Y ¹	N ²

Notes:

1. Y¹: Qualified by 1830 PSS NEs and NFM-T.
2. N¹: Not qualified by 1830 PSS NEs, qualified by NFM-T.
3. N²: Not qualified by 1830 PSS NEs and not considered by NFM-T.
4. NA: Not Applicable.

Table B-16 Unkeyed Services for different Cards

Card	fVoA	sVoA	No VoA
11DPE12	N ²	Y ¹	Y ¹
11DPE12A	Y ²	Y ¹	Y ¹
11DPE12E	Y ²	Y ¹	Y ¹
11DPM8	Y ²	Y ¹	Y ¹
11DPM8 with WTE SFP	Y ²	Y ¹	Y ¹
11DPM12	Y ²	Y ¹	Y ¹
11OPE8	N ¹	Y ¹	Y ¹
11QCE12X	N ¹	Y ¹	Y ¹
11QPA4	N ²	Y ¹	Y ¹
11QPA4B	N ²	Y ¹	Y ¹
11QPA4B with WTE SFP+	N ²	Y ¹	Y ¹

Table B-16 Unkeyed Services for different Cards (continued)

Card	fVoA	sVoA	No VoA
11QPE24	N ¹	Y ¹	Y ¹
11QPEN4	N ²	Y ¹	Y ¹
12CE120 with WTE SFP+	N ²	NA	Y ¹
12P120	N ²	Y ²	Y ¹
12P120 with WTE XFP	N ²	Y ²	Y ¹
20P200 with WTE SFP+	N ¹	NA	Y ¹
4DAP2	N ¹	N ²	Y ¹
4DPA4	N ¹	NA	Y ¹
8P20	N ¹	Y ²	Y ¹
MVAC/MVAC8B	Y ²	Y ¹	N ²

Notes:

1. Y¹: Qualified by 1830 PSS NEs and NFM-T.
2. Y²: Qualified by 1830 PSS NEs and not considered by NFM-T R19.9.2 release.
3. N¹: Not qualified by 1830 PSS NEs, qualified by NFM-T.
4. N²: Not qualified by 1830 PSS NEs and not considered by NFM-T.
5. NA: Not Applicable.

For information on EQM parameters, see table *Parameters under PortDetails Sub-tab*.

Filters

SFDC8 support

SFDC8 is a Compact 8-channel Static Filter DWDM – DWDM optical channel filter (MUX and DeMUX) pack. There are five variants of this card - each variant can Add/Drop eight 100GHz spaced channel and provide an additional expression port for through connection in Multi-degree FOADM, or Filter cascading. The pack is made for low cost 8-channel SFD in ½ height and single slot.

The SFDC8 card is supported by 1830 PSS-32 NEs, starting from R10.0 with 1830 PSS-8 and 1830 PSS-16II shelves.

Main Functions for this card are:

- 8-channel SFD.
- Supporting Add/Drop and THRU OCH channels.
- Add/Drop and THRU 100G spaced channels, 192.1THz to 196.0THz (Exp port support channel plan from [1970..9600]) – 40 continuous channel frequency support (different from the existing SFD8), THRU port support full 44 DWDM channels.

-
- Total input/output Optical Performance Monitoring.
 - Cascading between SFDC8 is allowed, but not recommended.
 - Interwork with legacy filters/SFDs.
 - EPT support.

Packet Switch

B.5 Packet Switch Introduction

Overview

Packet switch is a grouping of packet (12CE120, 1CE100/1CE100Q, 12CE121) and uplink (20P200, 1UD200, S13X100R, S13X100E) cards. These cards together behave as a logical single pack. Packet cards interwork with uplink cards in a packet switch configuration. The users would require minimum one packet card to a maximum of four cards (two packet cards and two uplink cards) for packet switch configuration. The combination of four cards is called as **Full** configuration. The cards added to the packet switch are backplane connected, hence there is a fixed slot positioning for packet cards and uplink cards. The slot positioning varies for 1830 PSS-8, 1830 PSS-16II, and 1830 PSS-24x. The general convention is that the packet cards occupy inner slots of a quad and uplink cards occupy the outer slots of the quad. For more information on the packet switch combinations, see “[Packet Switch Combinations](#)” (p. 2416).

In 1830 PSS-24x, 30SE300 and 6SE300 packet cards are supported and a maximum of two packet cards can be used.

i **Note:** 30SE300 and 6SE300 packet cards interwork with S13X100R and S13X100E uplink card.

i **Note:** 1CE100 and 1CE100Q cards differ in the pluggables supported. In the port level, both the 1CE100 and 1CE100Q cards are displayed as 1CE100 only.

Figure B-37 Packet Switch Example - with 20P200 uplink card

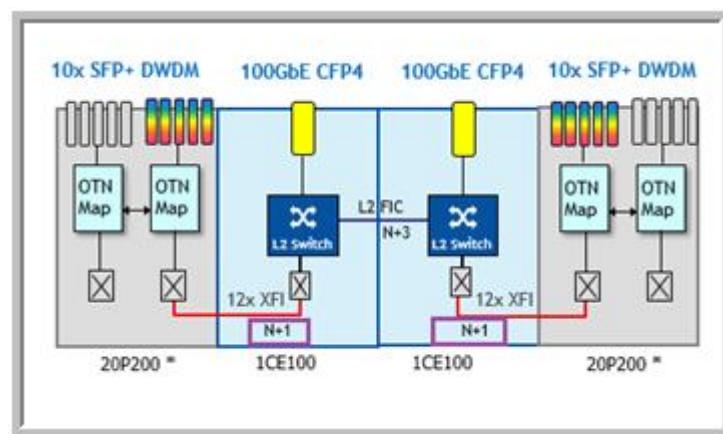
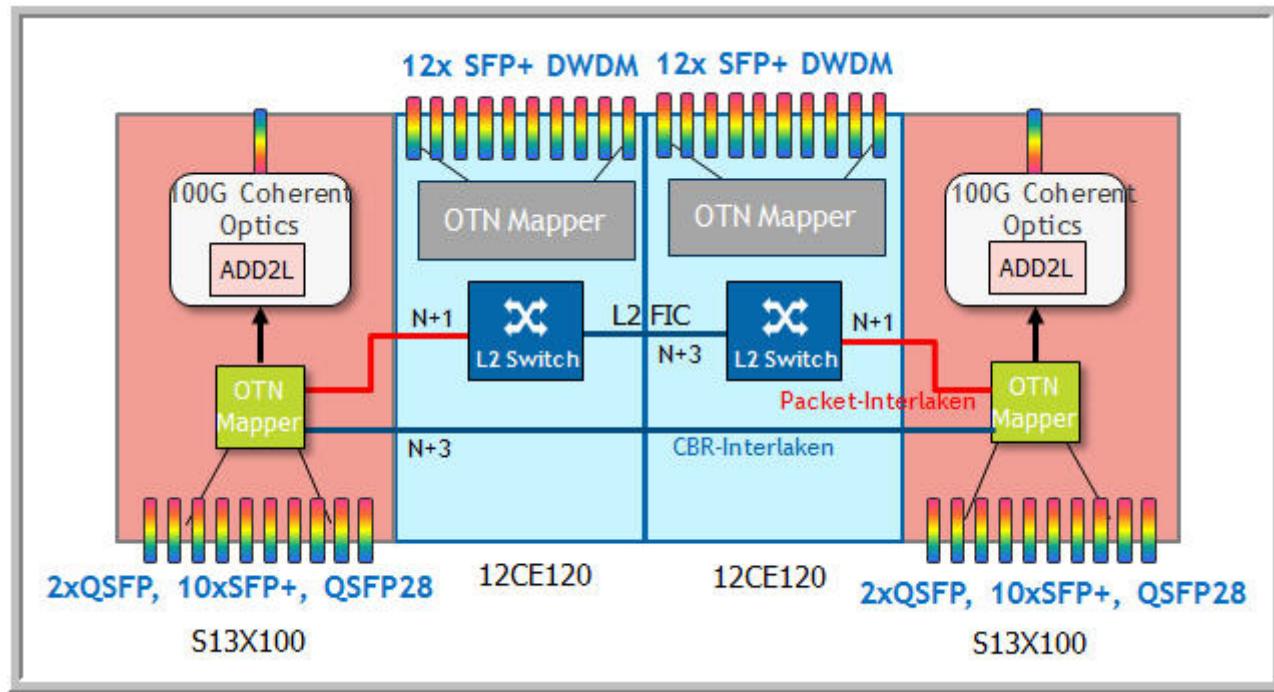


Figure B-38 Packet Switch Example - with S13X100 uplink card



Supported packet cards

The following packet cards are supported in ESM for packet switching:

Table B-17 Packet Cards supported

Packet Card	Rate	Description
1CE100/ 1CE100Q	100GbELANETH	1 face plate port and 2 backplane ports
12CE120	10GbELANETH, OTU2eWANETH	12 face plate ports and 2 backplane ports
12CE121	10GbELANETH, 1GbELANETH, FELANETH	12 face plate ports and 2 backplane ports
30SE300	ODUFlex, 1GbELANETH, 10GbELANETH, and EL1GbELANETH rate.	30 face plate ports. For ELPLUGS, it is a mix of optical and electrical pluggable modules.
6SE300	ODUFlex, 100GbELANETH	6 face plate ports

For more information on cards, see the *NE Management guide*.

Supported uplink cards

The following uplink cards are supported in ESM for packet switching:

Table B-18 Uplink Cards supported

Uplink Card	Port	Rate
1UD200	L1 Port	OTU4WANETH
	BP1 Port	OTL4.10 (OTU4)
	BP2 Port	OTL4.10 (OTU4)
20P200	20 ports	10GbELANETH, OTU2eWANETH
	BP1 Port	OTL4.10 (100G)
	BP2 Port	OTL4.10 (100G)
S13X100R/S13X100E	WANIF port	ODU2e
	WANIF port	ODU4
	WANIF port	ODUFlex

Number of ports added in LAG

The below table lists the maximum number of ports that can be added in a LAG for a specific NE type.

Table B-19 Number of Ports added in LAG

NE Type	Number of LAGs supported	Maximum number of ports in a LAG
Packet Switch configurations - 1830 PSS-8, 1830 PSS-16II	1-24	16
Packet Switch configurations - 1830 PSS-24x	1-24	16

Packet switch equipment rules

The rules listed below must be followed while setting up the packet switch configurations:

- Create a packet switch as there is no packet switch by default.
- Packet cards in a packet switch must be of the same type (Combinations are not supported).
- Uplink cards in a packet switch must be of the same type (Combinations are not supported).
- Packet switch configurations are independent. Any packet switch configuration less than a fully equipped packet switch configuration is allowed.
- All L2 provisioning (including port commands) **config** or **show** packet switch commands are used.

-
- Packet cards are only used for services in a packet switch configuration.

Packet switching capability

For supporting the Packet switching capability, the following configurations are created:

- 1830 PSS-8 or 1830 PSS-16II shelves are used. A packet switch is a configuration within a 1830 PSS-8 or 1830 PSS-16II quadrant for creating an L2 switch from packet cards.
- Backplane ports are used on the 1830 PSS-8 or 1830 PSS-16II shelves for backplane connectivity. Backplane ports associate uplink cards, to define all the backplane interfaces. Backplane port mode should be set to "Access-Uplink" (possible values are Access-uplink, Network).

For example:

- 12CE120, port [1], Access-uplink
- 20P200, port [L1], Access-uplink

Packet switch combinations on 1830 PSS-8, 1830 PSS-16II, and 1830 PSS-24x

Packet Switch Combinations

The following table describes the port configuration for the packet switch cards:

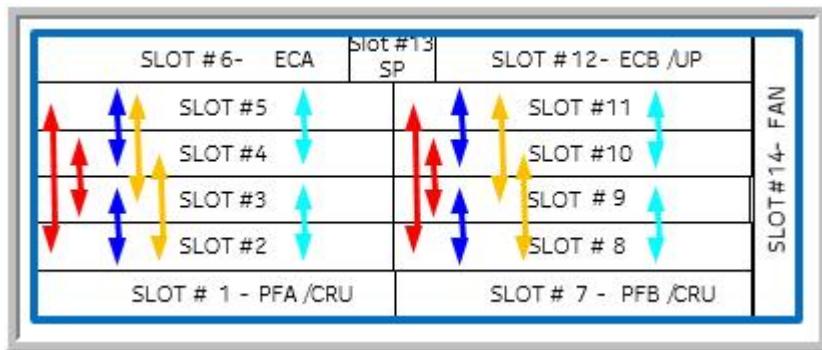
Card	Port
12CE120	{1-12}
12CE121	{1-12}
1CE100/1CE100Q	1
1UD200	L1
20P200	BP1(N+2): {6-10, 16-20} if ODUk; {1-10} if 10GbE , (11-15 not supported)
	BP2(N+1) : {6-10, 16-20} if ODUk; {11-20} if 10GbE, (1-5 not supported)
S13X100R/S13X100E	<ul style="list-style-type: none">ODU4 {101-110} or ODU2e {101-110} is supported upto NE R11.0.ODU4 {101-180}, ODU2e {101-180}, or ODUFlex {101-180} is supported
30SE600	{1-30}
6SE300	{1-24}

The following table describes the possible packet switch combinations supported on 1830 PSS-8:

Table B-20 Packet switch combinations supported on 1830 PSS-8

Configuration type	Packet switch	Slot number	Card type
Full	1	2	Uplink
		3	Packet
		4	Packet
		5	Uplink
Bis	1	2	Uplink
		3	Packet
		4	-
		5	Uplink
Quad	1	2	Uplink
		3	Packet
	2	4	Packet
		5	Uplink
		2	-
Only packet mated	1	3	Packet
		4	Packet
		5	-
		2	-
Only packet	1	3	Packet
		4	Packet
	2	5	-
		2	-
		3	Packet

Figure B-39 Slot Configurations on 1830 PSS-8



The following table describes the possible packet switch combinations supported on 1830 PSS-16II:

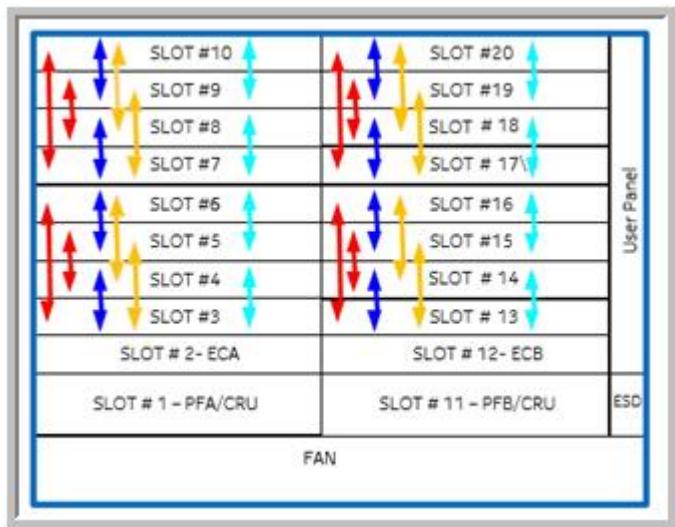
Table B-21 Packet switch combinations supported on 1830 PSS-16II

Configuration type	Packet switch (sample id)	Slot number	Card type
Full	1	3	Uplink
		4	Packet
		5	Packet
		6	Uplink
Full	2	7	Uplink
		8	Packet
		9	Packet
		10	Uplink
Bis	1	3	Uplink
		4	Packet
		5	-
		6	Uplink
Bis	2	7	Uplink
		8	-
		9	Packet
		10	Uplink

Table B-21 Packet switch combinations supported on 1830 PSS-16II (continued)

Configuration type	Packet switch (sample id)	Slot number	Card type
Quad	1,2	3	Uplink
		4	Packet
		5	-
		6	-
Quad	3,4	7	-
		8	-
		9	Packet
		10	Uplink
Only packet mated	1,2	3	-
		4	Packet
		5	Packet
		6	-
Only packet mated	1	7	-
		8	Packet
		9	Packet
		10	-
Only packet	1	3	-
		4	Packet
	2	5	Packet
		6	-
	3	7	-
		8	Packet
	4	9	Packet
		10	-

Figure B-40 Slot Configurations on 1830 PSS-16II



i Note:

1. Packet Card 1 selection is mandatory. For example: If you want to add a packet card in slot 4 and leave the slot 3 as blank, then select the Packet Card 1 in Slot 4.
2. Two packet cards with one uplink card combination is not supported.
3. Only 20P200 uplink card supports bis configuration. An error message is displayed if 1UD200 or S13X100R/E uplink cards are used in bis configuration.

Figure B-41 Error for 1UD200 in bis configuration

```
PSS16II- config packetswitch 11 packetcard1 5/8 uplinkcard1 5/7 uplinkcard2 5/10 operational-mode access-uplink create
Unable to complete request.
Error: Request failed - only uplinkcard type 20P200 is supported for card combination 1packet+2uplink
```

In a bis configuration, there is only one packet card. The card can handle a maximum of twelve 10G channels. Therefore, a total of 12 ports can be assigned for the two 20P200 cards.

The following table describes the possible packet switch combinations supported on **1830 PSS-24x**

Table B-22 Packet Switch Combination Supported on 1830 PSS-24x

Configuration	Packet Switch	Cards
Unprotected Single Card Switching System (SCSS) Maximum number of packet switches on PSS-24x shelf: 24	1	30SE300
	2	6SE300
Protected Dual Card Switching System (DCSS) Maximum number of packet switches on PSS-24x shelf: 4	3	30SE300
		30SE300
	4	6SE300
		6SE300

Table B-23 Slot Configuration on 1830 PSS-24x

Packet Switch Configuration	Allowed Slots
Single Card Switching System (SCSS)	1-24
Dual Card Switching System (DCSS)	1 and 2, 14 and 15, 17 and 18, and 27 and 28

Homogeneous and mixed packet switch can be created.

Maximum number of packet switch supported on the NE with multiple 1830 PSS-24x shelves is 100.

Table B-24 Loopback behavior in 30SE300 and 6SE300 cards

Loopbacks	30SE300 Client ports	6SE300 client ports	30SE300 WAN IF ports	6SE300 WAN IF ports
Facility	YES	NO	NO	NO
Terminal	YES	YES	NO	NO

For example,

Client ports means 30SE300-1-1-1, 30SE300-1-1-2 and so on.

WANIF ports means 30SE300-1-1-101, 30SE300-1-1-201 and so on.

i Note: For Packs 30SE300 and 6SE300, maximum 120 WANIFs are supported.

- slice 1: 101 - 150 -> maximal 50 Wanports
- slice 2: 201 - 210 -> maximal 10 Wanports
- slice 3: 301 - 350 -> maximal 50 Wanports
- slice 4: 400 - 410 -> maximal 10 Wanports

Each slice Capacity is 100 G.

For S13X100 pack, a maximum of 80 WANIFs ports are supported. The number of ODUFlex logical ports (WANIF) on S13X100 extends from 40 to 80, when used in combination with the Falcon packet card.

Different types of configurations

The following configurations are supported:

Node Representations

A node is composed of multiple physical shelves in one node.

Figure B-42 Node



The nodal system view is realized by multiple cards.

Figure B-43 Nodal System view

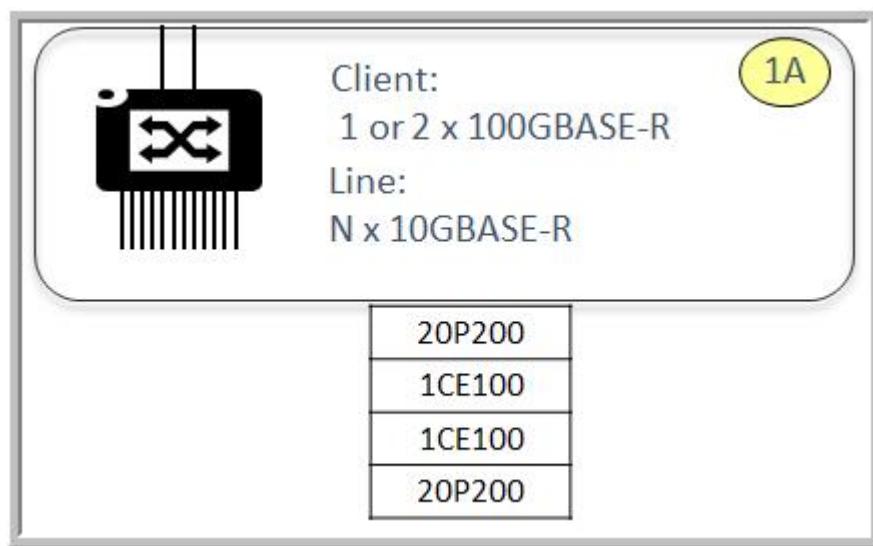
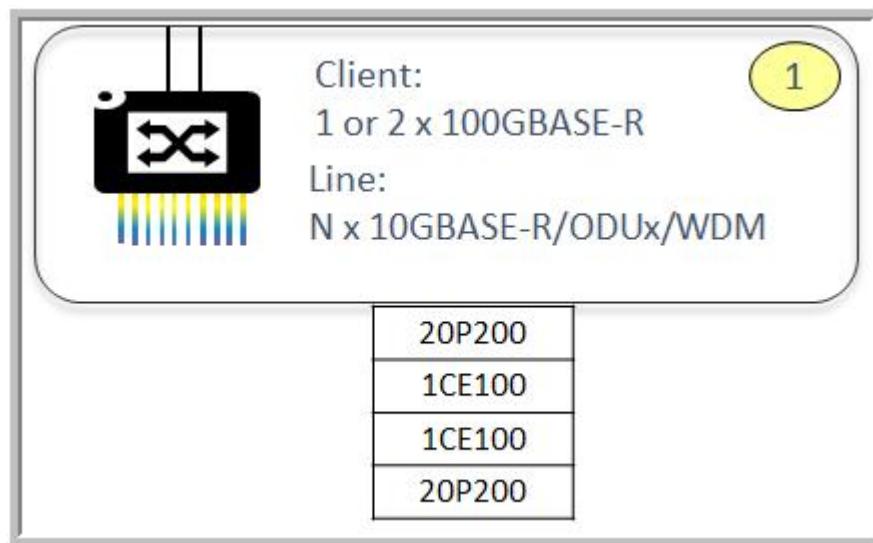


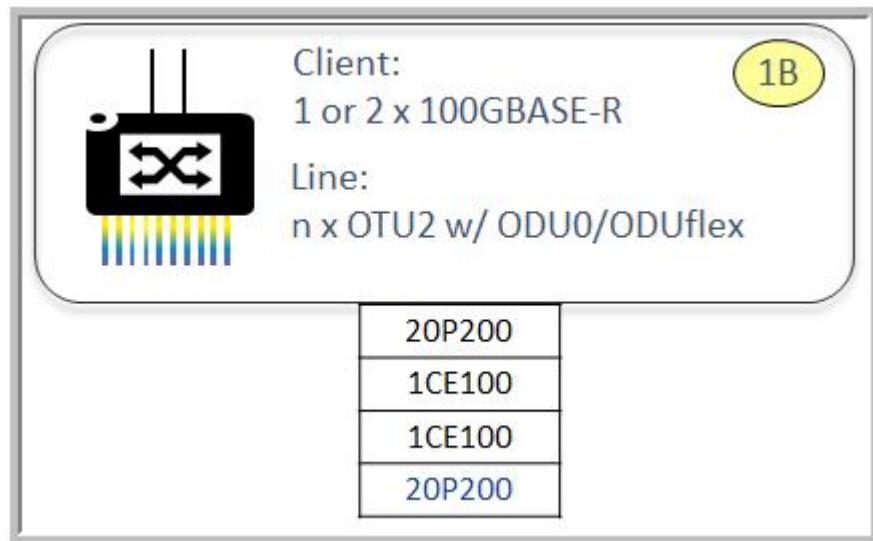
Configurations 1 and 1A

Configurations 1 and 1A are **Full** configurations created using the combination 20P200, 1CE100, 1CE100, 20P200.

A **bis** configuration is created using the combination 20P200, 1CE100, 20P200, 1CE100 in either slot 3 or slot 4.

A **quarter** configuration is created using the combination 20P200, 1CE100 Pair in either slot 2/3 or 4/5.



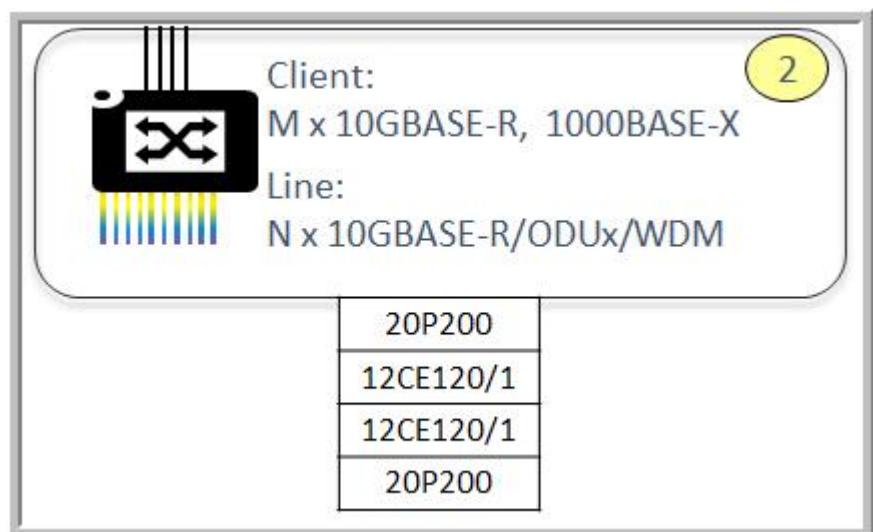


Configurations 2 and 2A

Configurations 2 and 2A are **Full** configurations created using the combination 20P200, 12CE120, 12CE120, 20P200.

A **bis** configuration is created using the combination 20P200, 12CE120, 20P200, 12CE120 in either slot 3 or slot 4.

A **quarter** configuration is created using the combination 20P200, 12CE120 Pair in either slot 2/3 or 4/5.

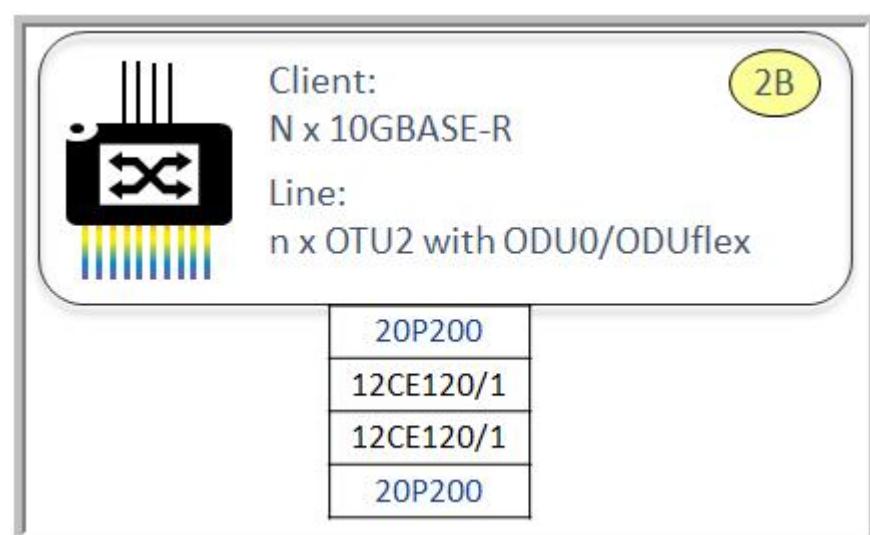
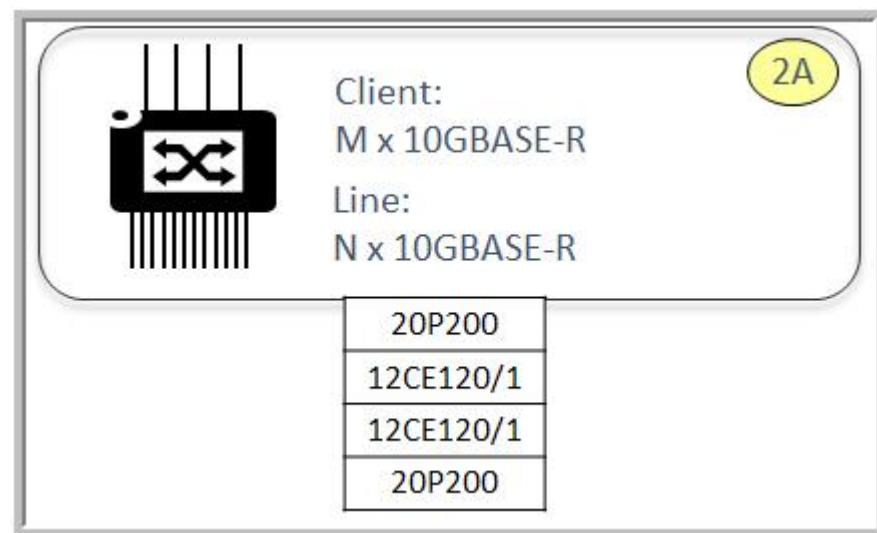


Configurations 2 and 2A

Configurations 2 and 2A are **Full** configurations created using the combination 20P200, 12CE121, 12CE121, 20P200.

A **bis** configuration is created using the combination 20P200, 12CE121, 20P200, 12CE121 in either slot 3 or slot 4.

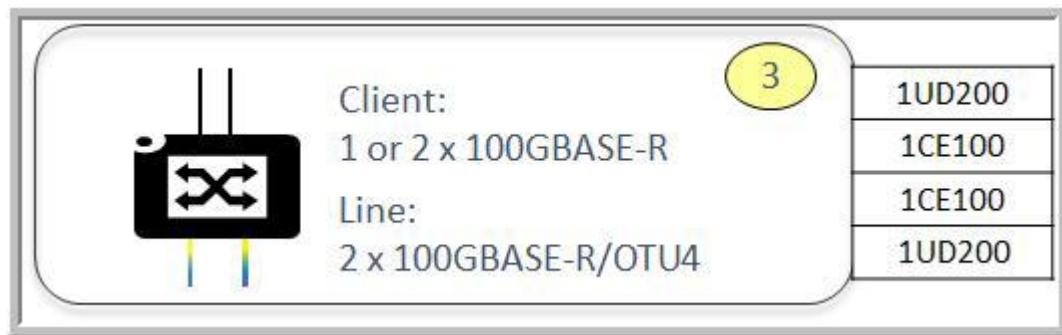
A **quarter** configuration is created using the combination 20P200, 12CE121 Pair in either slot 2/3 or 4/5.



Configuration 3

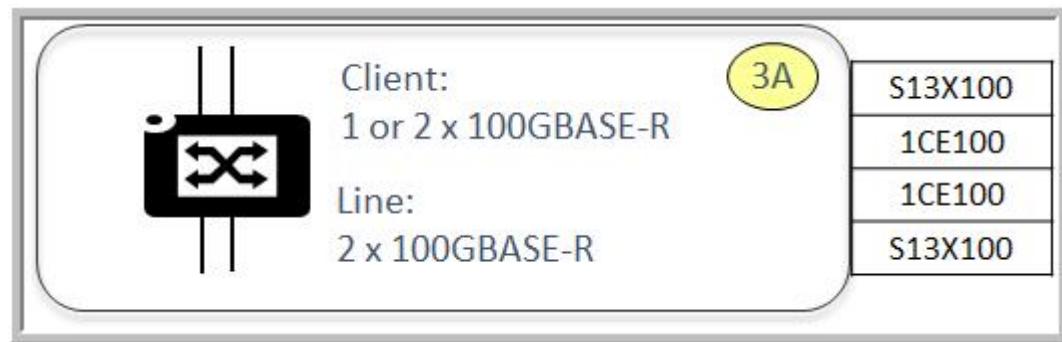
Configuration 3 is a **Full** configuration created using the combination 1UD200, 1CE100, 1CE100, 1UD200.

A **quarter** configuration is created using the combination 1UD200, 1CE100 Pair in either slot 2/3 or 4/5.



Configuration 3A is a **Full** configuration created using the combination S13X100, 1CE100, 1CE100, S13X100.

A **quarter** configuration is created using the combination S13X100 and 1CE100 pair in either slot 2/3 or 4/5.



Configurations 4, 5, and 5A

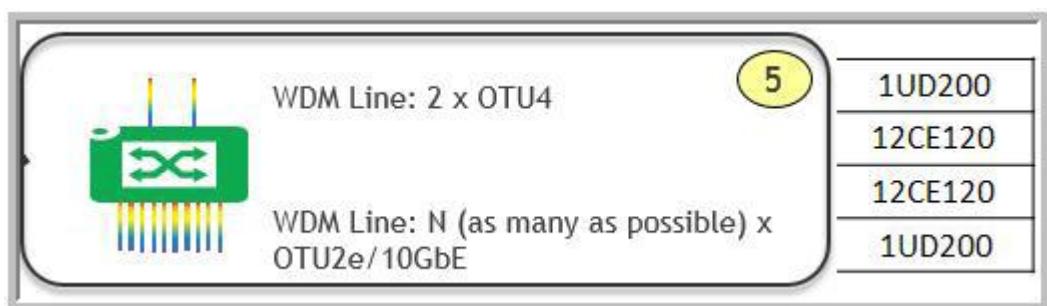
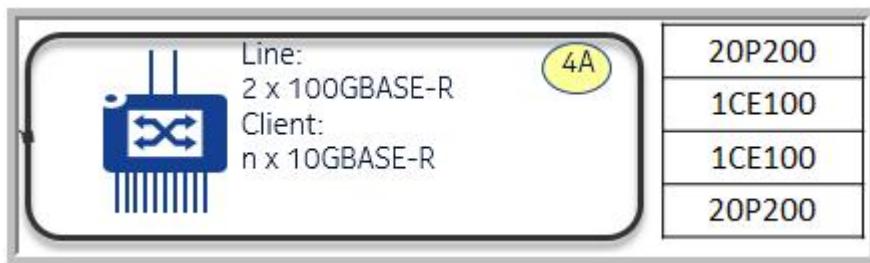
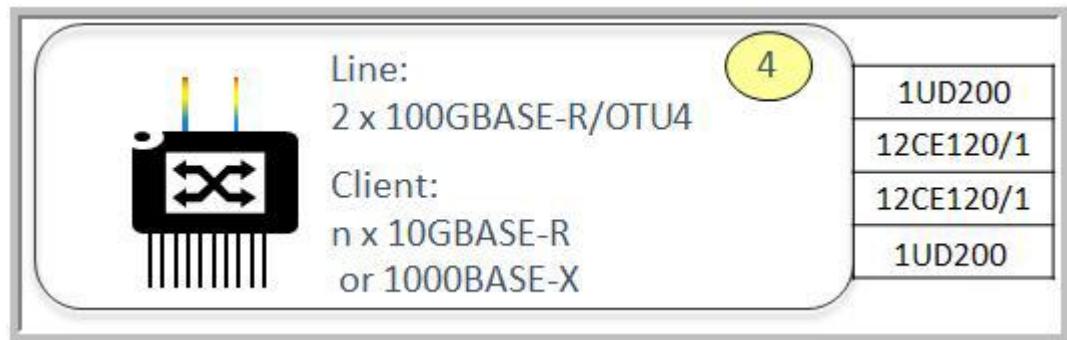
Configurations 4, 5, and 5A are **Full** configurations created using the combination 1UD200, 12CE120, 12CE120, 1UD200.

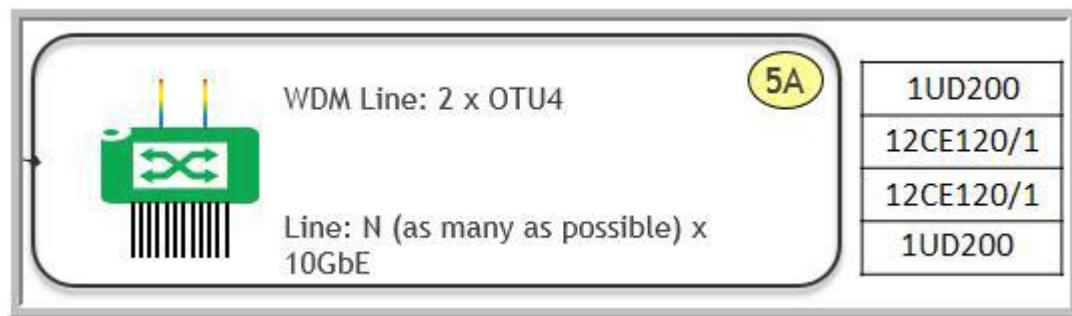
Configuration 4 and Configuration 5 can be created using S13X100R/E cards in combination with 12CE120.

A **quarter** configuration is created using the combination 1UD200 and 12CE120 pair in either slot 2/3 or 4/5.

Configurations 4, 5, and 5A are **Full** configurations created using the combination 1UD200, 12CE121, 12CE121, 1UD200.

A **quarter** configuration is created using the combination 1UD200 and 12CE121 pair in either slot 2/3 or 4/5.

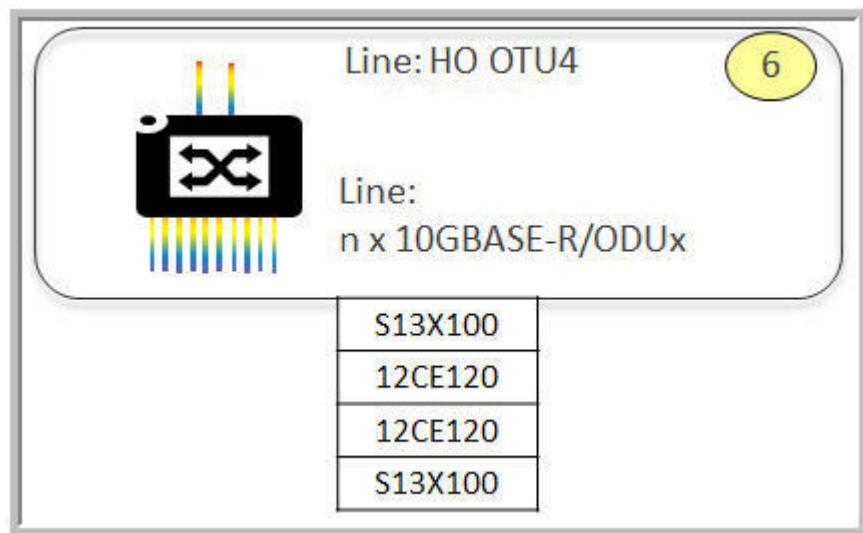


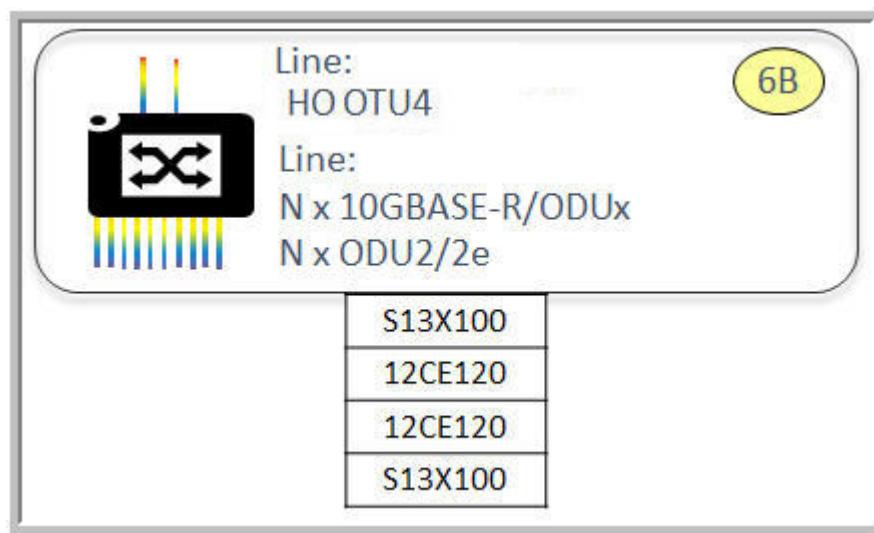
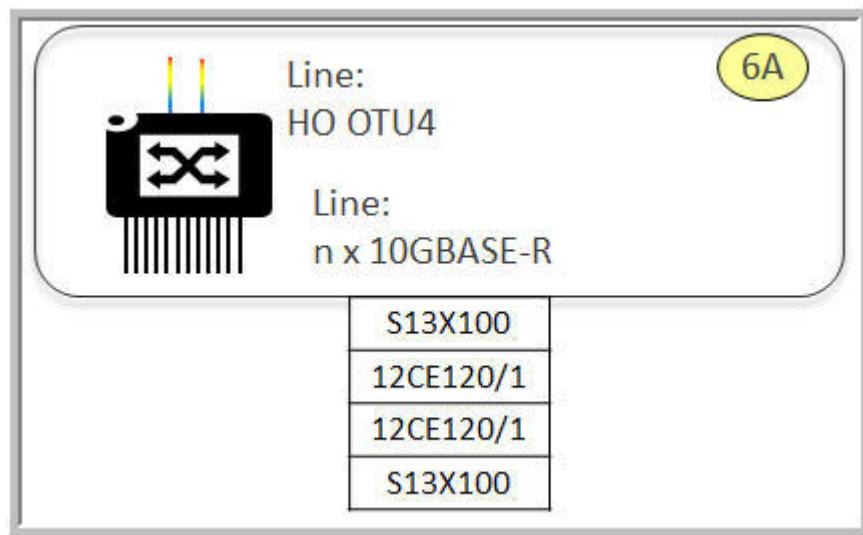


Configurations 6, 6A, and 6B

Configurations 6, 6A, and 6B are **Full** configurations created using the combination S13X100, 12CE120/12CE121, 12CE120/12CE121, S13X100.

A **quarter** configuration is created using the combination S13X100 and 12CE120/12CE121 pair in either slot 2/3 or 4/5.





Slot configurations

The following table provides the information of the slots where the Packet cards and the Uplink cards can be created for a packet switch:

1830 PSS-8	Slot 2	Slot 3	Slot 4	Slot 5
1830 PSS-16II	Slot 3	Slot 4	Slot 5	Slot 6

	Slot 7	Slot 8	Slot 9	Slot 10
	-	Packet card	-	-
	-	-	Packet card	-
	Uplink card	Packet card	-	-
	-	-	Packet card	Uplink card
	Uplink card	Packet card	-	Uplink card
	Uplink card	-	Packet card	Uplink card
	Uplink card	Packet card	Packet card	Uplink card

Packet switch creation

Ensure the following while creating a packet switch:

- No configurations under packet switch context or packet card interfaces are allowed until the packet switch is created.
- The slots are configured for the uplink and packet cards either by auto-provision or manual by setting the slot type (config slot <slot-aid>) to create a packet switch.
- Supported packet card types are 12CE120, 1CE100/1CE100Q, and 12CE121.
- Supported uplink card types are 20P200, 1UD200, and S13X100R/E.
- All interfaces of all the cards are in **unassigned** state.
- Pre-provisioning is allowed after the packet switch is created.

Packet switch deletion

Ensure the following while deleting a packet switch:

- Remove the packet switch before setting a slot to empty, if a packet switch exists.
- All interfaces on uplink and access cards involved in the packet switch must be removed.
- All card interfaces are unassigned when the packet switch is removed. All card interfaces are unassigned when the packet cards have all L2 configurations removed.

L2 Cards shelf support and card interworking

Table B-25 L2 card interworking

Card	11STGE12	11DPE12	11DPE12E	11DPE12A	11QPE24	11QCE12X	11OPE8	1CE100/ 1CE100Q	12CE120
11STGE12 (DR6)	No	No	No	No ²	No ²	No ²	No ²	No ²	No ²
11DPE12 (DR6)	No	Yes	Yes	Yes ¹	No ²	No ²	No ²	No ²	No ²
11DPE12E	No	Yes	Yes	Yes ¹	No ²	No ²	No ²	No ²	No ²
11DPE12A	No	Yes ¹	Yes ¹	Yes	No ²	No ²	No ²	No ²	No ²
11QPE24	No ²	No ²	No ²	No ²	Yes	Yes	Yes	Yes	No ²
11QCE12X	No ²	No ²	No ²	No ²	Yes	Yes	Yes	Yes	No ²
11OPE8	No ²	No ²	No ²	No ²	Yes	Yes	Yes	Yes	No ²
1CE100/ 1CD100Q	No ²	No ²	No ²	No ²	Yes	Yes	Yes	Yes	No ²
12CE120	No ²	No ²	No ²	No ²	Yes	Yes	Yes	Yes	No ²
12CE121	No ²	No ²	No ²	No ²	Yes	Yes	Yes	Yes	No ²

Table B-26 Max Number of Cards per Shelf

Card	1830 PSS-4	1830 PSS-16	1830 PSS-32	1830 PSS-8	1830 PSS-16II	1830 PSS-36	1830 PSS-64
11STGE12 (DR6)	2	8	32	-	-		
11DPE12 (DR6)	2	8 ⁴	32	-	-		
11DPE12E	2	8 ⁴	32	-	-		
11DPE12A	2	8 ⁴	32	4	8		
11QPE24	1	2	4	-	-	-	
11QCE12X	2	3 ⁴	4 ^{5,6}	4	8		
11OPE8	1 ³	3 ⁴	4 ^{5,6}	4	8		
1CE100/1ICE100Q	-	-	-	2	4		
12CE120	-	-	-	2	4		
12CE121	-	-	-	2	4		

Notes:

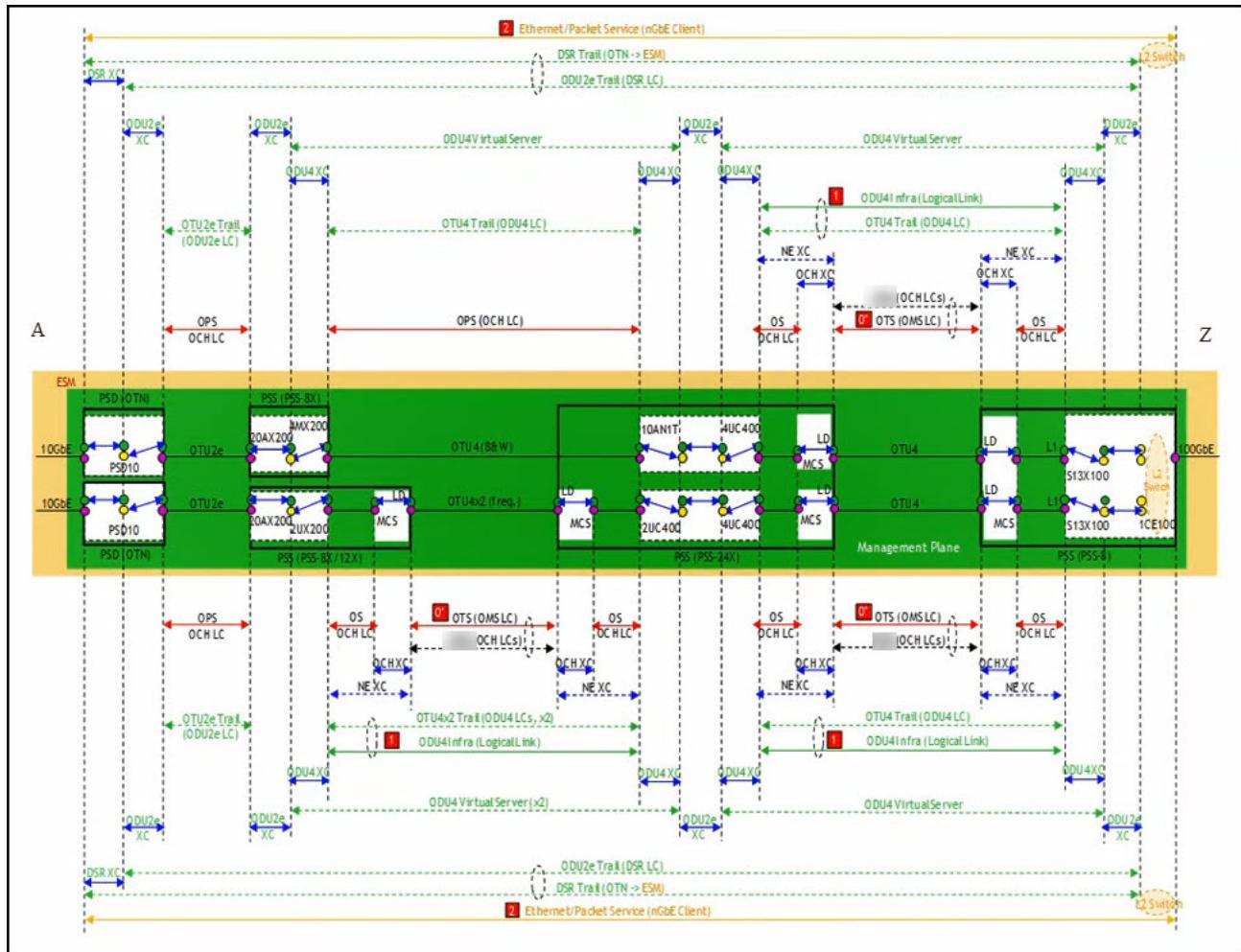
1. 11DPE12A backward compatible with 11DPE12/11DPE12E only if the following new features are not used: IEEE 1588v2, Y.1731, LAG.
2. Not possible due to differences in data plane features and service models (VTSXC EVPL versus IPD SAP/PLS service model).
3. Due to shelf power consumption limitation.
4. Without protection, since no mate interface in backplane of 1830 PSS-16.
5. Requires 16G EC, not supported in 4G EC load.
6. More than 4 supported, but only with smaller DB configuration.

Asymmetrical L2 service model, Falcon packet card on HUB side

NFM-T supports creation of Asymmetrical L2 service model, Falcon Packet card on HUB side. On the OTN side, Asymmetrical L2 ethernet connection service is created between 1830 PSD and S13X100 card on the other side.

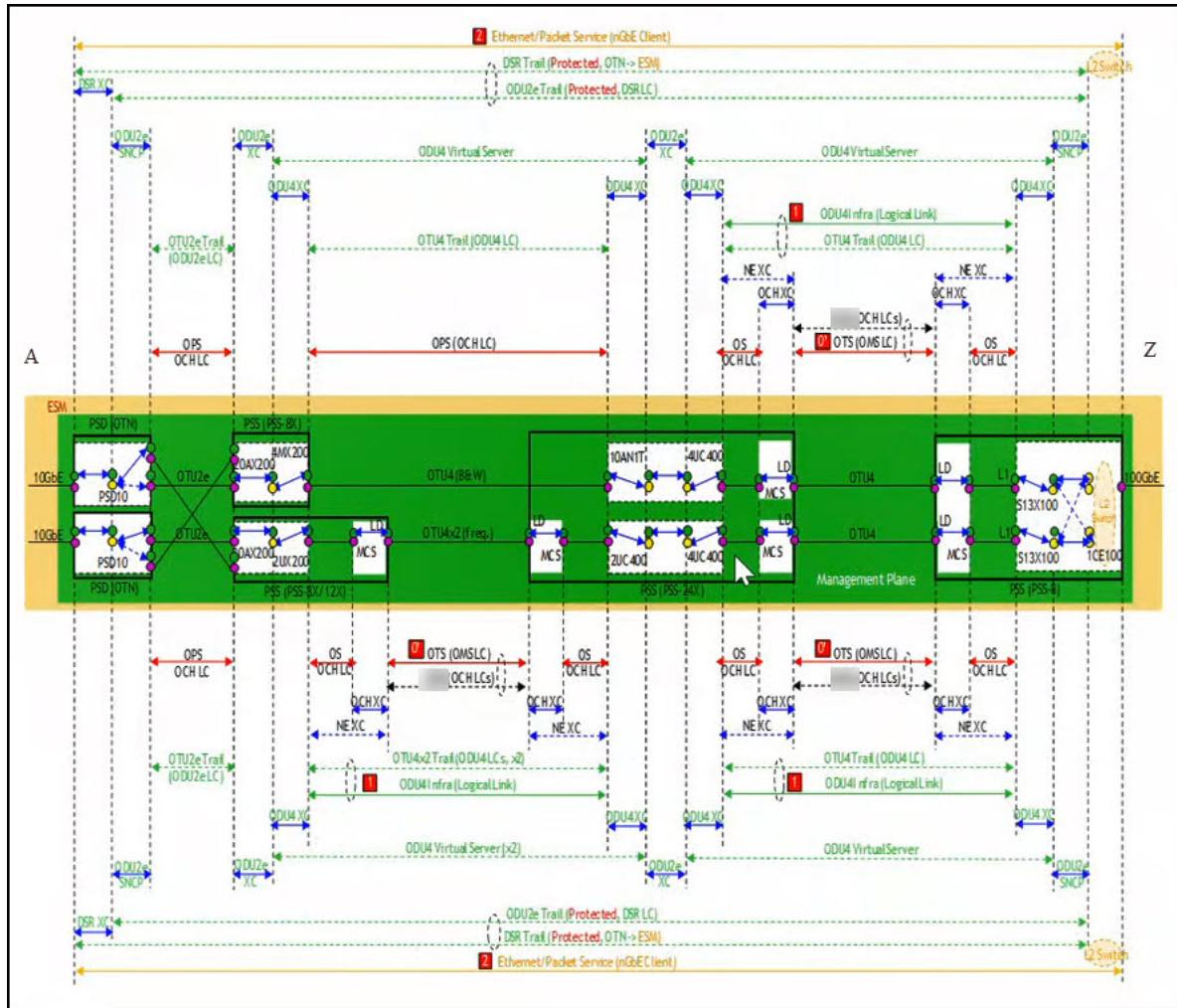
The created OTN connection is exported to ESM, L2 service is deployed from ESM by selecting the client interface at 1830 PSD in OTN Mode and 1CE100 card as end points with uplink card S13X100 for protected and unprotected scenario. For end to end service deployment, 1830 PSD OTN mode supported is **otnNid10GbeClientOtu2eNetworkMode**.

Figure B-44 Asymmetrical L2 Connections Unprotected



For the above configuration, a 10G DSR ODU2e Trail (DSR LC) is created between the 1830 PSD and the S13X100 card, so a maximum of ten services on different WANIF ports on Z end, can be created on the 1830 PSD - S13X100 link.

Figure B-45 Asymmetrical L2 Connections Protected



For the protected links scenario, one link will be used as work link and the other is used as the protected link.

i Note: When we configure a packet switch, on the Z end there are two S13X100 cards but only one S13X100 card is in L2 packet switch with the 1CE100 card.

C Troubleshooting and Maintenance

System behaviors

C.1 Overview

Purpose

This part describes the troubleshooting problems in the OTN application and the tasks that the user must perform when such scenarios are encountered.

Contents

C.1 Overview	2435
C.2 Particular system behaviors	2436
C.3 OTN application - OTS link management	2443

C.2 Particular system behaviors

Creation of 3R object needs particular sequence to be stored in OTN DB

Scenario

3R points cannot be used if internal OS are not created. The reason to create OS is to know the port pair for the 3R object and to identify the end port of each direction for connection.

Resolution

When 3R points are created, the internal OS, that is physical connectivity on the cards, needs to be created in the Equipment Manager or NFM-T GUI, then a synchronization must be run, before the cards can be used as a 3R point in connection provisioning.

Connection creation between 20P200 Packs fails as Invalid topology

Scenario

Infra Connection Creation between 20P200 (OTU2EWAMETH) Packs fails during Auto routing with an error message *Invalid topology*.

For Auto routing, in case of Photonic layer (ODU/OTU) connection; the physical fiber walking happens only on end nodes. So between given NEs, if more than one OTS/OMS exists, the routing algorithm assumes that all of them are eligible for given route and pick one of them if the user don't provide constraint as part of the auto routing. As part of core Network, there should be only one OTS/OMS link.

Resolution

To avoid this incorrect behavior, the need is to have only one OTS/OMS for the autorouting running correctly, otherwise the user needs to use the include/exclude constraints to define the route.

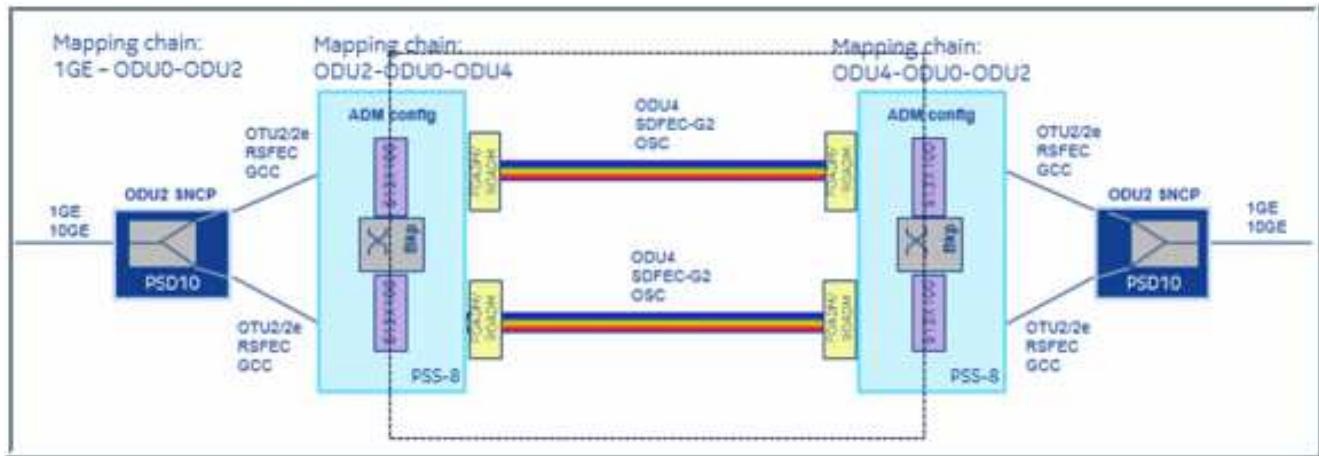
Enable/disable ASAP operation on OTU for 1830 PSD NEs

Problem statement

In the case of 1830 PSD NEs, Enable/Disable ASAP operation performed on OTUk Infrastructure connection involving one Network port is applied on the second Network port as well and vice versa.

Similarly, Enable/Disable ASAP operation performed on ODUk Infrastructure connection involving one network port is applied on the other network port as well and vice versa.

Figure C-1 Enable/Disable ASAP operation on OTU for 1830 PSD NEs - Example



Explanation

1830 PSD NE does not support setting ASAP on the two Network ports individually and hence, any Enable/Disable ASAP operation performed on one, would be applied to the other as well. Typically, the second network port is protection for the first one. This behavior is observed for both OTUk and ODUk layers on PSD NE for the two Network ports.

D5X500 cards: Enabling PM on OTU Termination Points

Scenario

Creating a connection on D5X500 Cards, an OTU connection, the Termination Points are not listed when PM is enabled during the connection creation.

Resolution

Once the service is created, select the OTU connection in the list, disable the PM and then enable the PM again to get the OTU related Termination Points listed.

D5X500 OPSA creation fails if client ports are configured after creating internal links with line ports

Scenario

STEP 1 : Provision the card on A end and Z end

STEP 2 : Provision the line port as OTU4 or OTU4x2

STEP 3 : Create internal links with the line ports and OPSA cards

STEP 4 : Set the signal type for client ports

STEP 5 : Perform OPSA creation

Resolution

If the network has a mix of directional ADD/DROP and multidirectional ADD/DROP and you are trying to create OPSA L0 CP, it is not always guaranteed to find a route by auto-routing.

In this case you have to provide OTS constraints for working and protection legs or partial constraints either for working or protection.

Service creation issues (OPS connections)

Scenario

Creating an OPS connection following the steps:

- Provisioned 11QPA4B Line port with OTU2eEth.
- Provisioned S13X100R Client port with OTU2E signal Rate.
- Created OPS connection without selecting interface type, as signal rate is provisioned, OPS connection creation is FAILED with error in Defined state.
- Later, created OPS connection selecting Interface type **NNI** and **clientsignalType** as OTU2E, the OPS connection creation is SUCCESS.

Resolution

If you create an OPS connection on a 11QPA4B circuit pack with OTU2EEth client signal type and the other end of the connection has cards which doesn't support OTU2E connection, like 130SCX10,130SNX10 cards, then you have to manually set the **ProvisionedBitRate** as 11.096 on the Network Element.

After setting the signal rates, you need to create OPS connection selecting **Interfacetype** NNI, **ClientSignaltpe** OTU2E, insert the node and port details, then **Deploy** the OPS connection.

Partial data shown when OTU Accessed through the service of a rerouted Trail in L0 CP

Scenario

Partial data are shown when OTU is accessed via the service of a rerouted Trail in L0 Control Plane in bidirectional Wave Length Tracker.

The behavior is observed in provisioning flows like this:

- Created two ODU4 trails between 24x nodes on a real hardware setup - L0
- Create a 10GbE service on top of the same

At this point the WLT of the trail displays only the first hop and does not list all hops.

Explanation/Resolution

Bidirectional classic WLT does not support ASON Routed connections except ASON OTS links. For the service/ODU4 layers of the rerouted connection, WLT displays the route component pieces that are not managed by ASON, and measured (total) power for those components, if supported. For the ASON Implicit server (OTUk) connections, classic WLT is not supported.

8P20: Restore operation SNC mismatches not working

Scenario

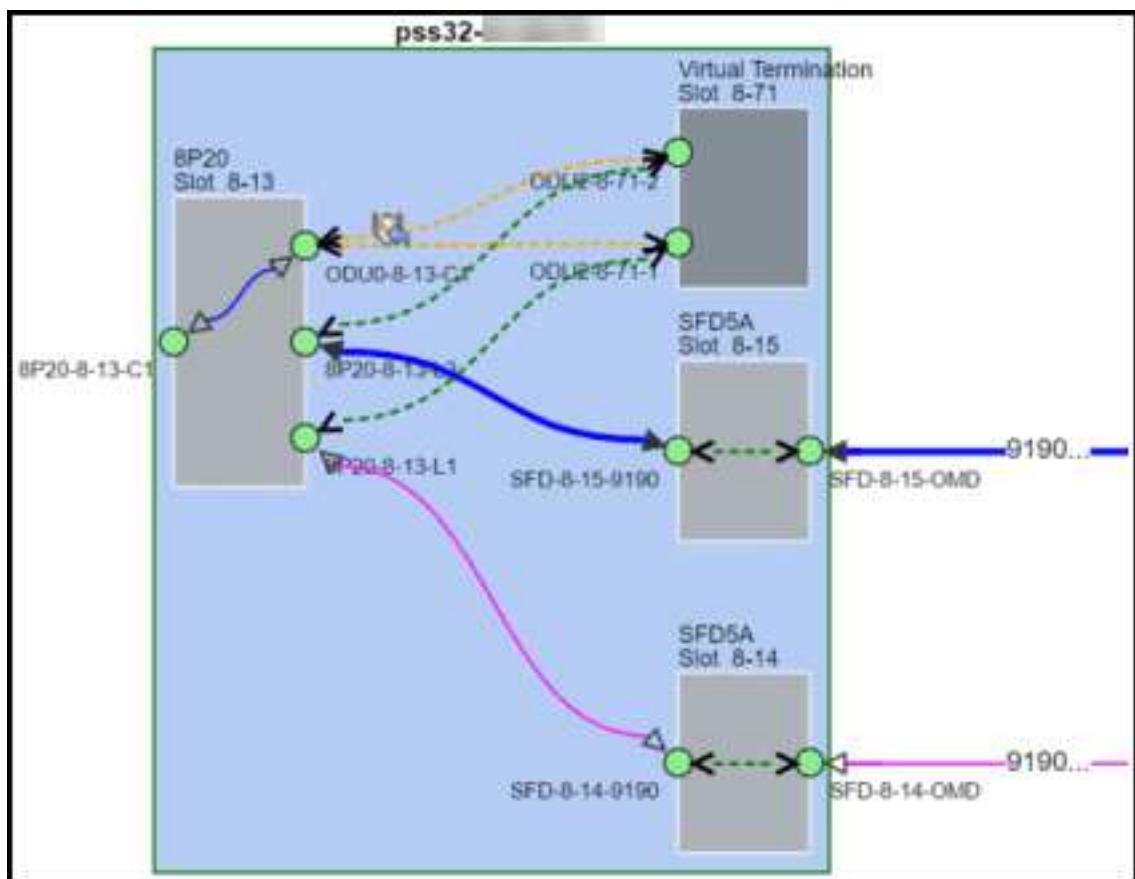
The restore operation is not working from SNC Mismatches list in the scenario explained hereafter.

The issue is raised in NFM-T after following steps:

- The protection cross-connection is deleted from NE.
- Go to Network Inconsistencies following the path **Operate > Network Inconsistencies**, the SNC Inconsistencies window is displayed.
- Synchronize the cross-connection from the SNC discrepancy, right click and select **Restore**, see [7.120 "Manage SNC Mismatches" \(p. 1179\)](#)

Following ERROR is displayed: Restore: Cannot restore SS1-8P20-NFMTSW-332264-WDM-PRO1-REG-R11-A ODU0#1. One or more ports is in use in another Connection.

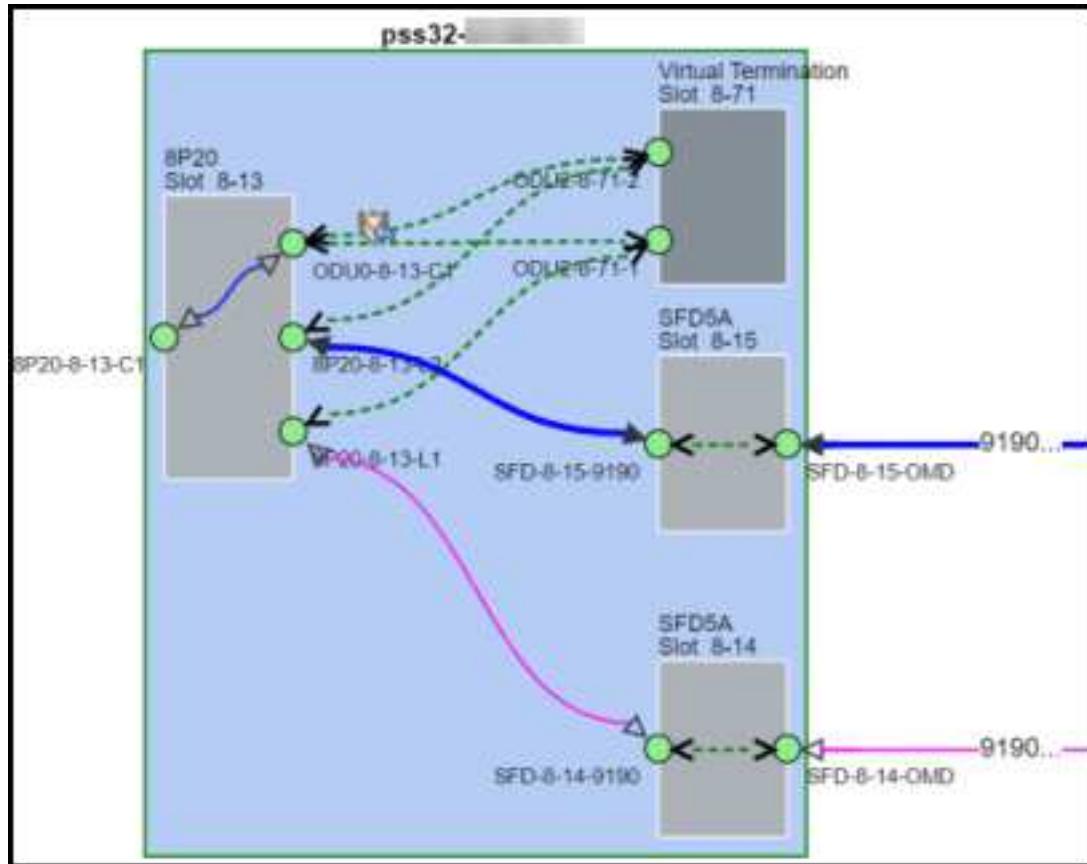
Figure C-2 Restore Operation SNC Mismatches not working



Explanation/Resolution

If the deleted cross-connection is recreated from NE, the connection is restored and if the cross-connection is synchronized from the SNC Mismatches list, the operation is correctly terminated.

Figure C-3 Restore Operation SNC Mismatches working



Wrongly auto created ODU2 connection prevents end-to-end service provisioning in ENE-43STX4P-43STX4P- ENE scenario

Explanation

When an OCH alien wavelength connection is extended to an ENE (External Network), provision the line side connectivity of MVAC variants prior to external OPS creation with the ENE.

Resolution

In such a scenario, perform the following steps:

1. Create the Line to Filter internal OS.
2. Create the OPS between ENE to client on both ends.

-
3. Create the OCH service.

Explanation

When creating an OTU2 physical connection (OPS) between the A-end of a 1830 PSS node equipped with a 43STX4P card and an ENE; an ODU2 connection is automatically created from the ENE to the Z-end line port of the 1830 PSS node.

The ODU2 connection automatically created occupies the ENE port and therefore is not able to create a service connection from the ENE client to the Z-end line port of the 1830 PSS node.

 **Note:** Following cards have the same behavior: 43SCX4, 43SCX4L, 43SCX4E, 112SCX10, 112SX10L, 112SNX10, 130SCX10, 130SNX10, 43STX4P, 43STX4

Resolution

To provision an end to end service in a ENE(1)-43STX4P-43STX4P-ENE(2) scenario, follow one of these work around:

Work around 1:

1. Create an OPS connection form from the A-end of the ENE(1) to the 43STX4P. Then create an OPS connection from the Z-end of the ENE(2) to 43STX4P.
2. Create an ODU3 infrastructure between the A-end of the 43STX4P to Z-end of the other 43STX4P card.
3. The service from A-end ENE(1) to Z-end ENE(2) is auto discovered.

Work around 2:

1. Delete the auto-discovered connection from A-end ENE to Z-end 43STX4P line port.
2. Create a Z-end OPS connection , from the Z-end of the ENE to the 43STX4P.
3. The service from A-end ENE(1) to Z-end ENE(2) is auto discovered.

NFM-T cannot manage the automatic route for nodes with two different node architecture

Scenario

NFM-T cannot manage the Automatic Routing in case of nodes with two different node architecture. If the user selects Automatic Routing while provisioning, NFM-T wrongly implements a route crossing this node and connects two degrees that are not connectable. The GMRE receives a not feasible nominal route from NFM-T and restores the connection on another route that is feasible.

Explanation/Resolution

In such scenarios, perform either of the following steps:

- If the user is aware of the nodes having two architecture, ensure to use Manual Routing during provisioning, so that NFM-T does not sends a wrong route to the GMRE.
- If the NFM-T has sent the wrong route to GMRE, ensure to perform Convert Current to Nominal operation.

Automatic routing behavior at through Nodes

Scenario

Clarification of the routing behavior at through nodes during end-to-end Automatic Routing.

Explanation/Resolution

During photonic service/infrastructure connection creation of an optical layer (OTUK channel) in the Managed Plane domain, routing builds a graph for the topology. At the connection end nodes/ports (OT pack/uplink – external/cluster/internal), it identifies the fixed connectivity in the case of a directional node/configuration (by excluding all irrelevant links from the end nodes) for the algorithm to pick the links based on the physical connectivity. However, in the middle/through nodes of the connection, routing considers all the links associated with the node as cross connectable between any line Amplifiers. Hence all links on the middle/through nodes are added to the graph for algorithm traversal. The underlying assumption is that, internal connectivity exists between Line amplifiers in the through nodes for the links that were picked by the routing.

C.3 OTN application - OTS link management

Physical link in NFM-T

The Physical Link creation and deletion process in NFM-T is used to inventory the physical links within the network.

Physical links must be provisioned or de-provisioned at the NE level since fibers need to be connected or disconnected from the NE physically. It is expected that using the NE interface the user provisions or de-provisions the ports as needed at that time. In most cases, NFM-T discovers these physical links

NFM-T also supports the ability to add and delete physical links for inventory purposes which covers cases where the physical links cannot be discovered and manual add or delete by user is required. Even in this case, the provision or de-provision of ports in the NE is expected to be performed from NE interface.

Example

When the user deletes a Physical Connection (OTS link between two PSS-32 and PSS-4), the action is correctly executed on the NFM-T and the user can see the updated list of Physical Connections.

Otherwise if the user checks inside Equipment Manager or NEs user interface, he can see that the Physical Connection has not been removed.

To remove the physical connection the user has to remove it manually from the NEs user interface, deleting the object on both NEs terminations of the physical connection.

The same situation is verified when a Physical Connection is created from NFM-T, the Physical Connection is correctly created on NFM-T, but, if the user checks on NE, from Equipment Manager or from NEs user interface, the Physical Connection is not created on the NE.

OTS link discovery

The OTS link is always created with *spanType = Dual Fiber* even if the value is set to **Single Fiber** on the NE. The user can manually change the value to **Single Fiber** using the procedure [7.37 "Modify the fiber characteristics of an OTN physical connection" \(p. 877\)](#).

GMRE migration and synchronization

C.4 Synchronized activation of GMRE

Purpose

Starting from GMRE 4.3, the activation of a new version for all the GMREs in an ASON NPA can be synchronized using tool *gmre_migration.pl*.

The *gmre_migration.pl* script sends switch version command to one or more GMRE. It must be used after upgrade of network elements to a new GMRE version.

The script performs some checks (node reachable and required version already installed) to be sure that switch command can be correctly accepted by GMRE; if all checks pass it send switch command.

The script can be used in check mode only.

Before you begin

Important: Before activating the GMRE upgrade, at least one NPA link running is needed.

Task

- 1 _____
Add exec permission to *gmre_migration.pl* if missing
- 2 _____
Source snml profile
- 3 _____
Run the *gmre_migration.pl* script

END OF STEPS _____

Command line syntax

gmre_migration.pl [-migrate] [-npa_id <value> | -controlplane_id <value>] -target_version <value>

- migrate: send switch version command to gmre (without this flag the script perform only checks)
- npa_id <value> or -controlplane_id <value> : specify which gmre must be considered by the script, use npa_id flag to take care about all gmre inside an ason npa, use controlplane_id flag to take care about a specific gmre
- target_version <value>: specify the version to activate

C.5 Migration of GMRE to 4.6

Purpose

When the GMREs of an ASON NPA are migrated to release 4.6 and the new release has been activated, the following tool should be run, in order to enable the management of restoration on SD and setting of WTR.

Task

1

As **snml** user execute following commands:

```
$ cd $NXNL_PRD/rm/databases/dbsnml/admin/conv  
sqlplus $NXNL_DATABASE @updateAsonRestorationOnSD.sql
```

END OF STEPS

D List of Abbreviations

D.1 Abbreviations

Abbreviations and Meanings

Abbreviation	Meaning
AIS	Alarm Indication Signal
ANSI	American National Standards Institute
APS	Automatic Protection Switch
APSB	Automatic Protection Switching Byte
APSB-CM	Automatic Protection Switching Byte-Channel Mismatch
APSB-MM	Automatic Protection Switching Byte-Mode Mismatch
AS	Alarm Surveillance
ASAP	Alarm Severity Assignment Profile
ASON	Automatic Switched Optical Network (Control Plane, G.7718)
BBE	Background Block Errors
BBU	Base Band Unit
BER	Bit Error Rate
BERT	Bit Error Rate Test
BI	Bidirectional
BITS	Building Integrated Timing Supply
BLSR	Bidirectional Line Switched Ring
BMUP	Band Multiplexer Unit – Passive
CFM	Compact Flash Module
CIT	Craft Interface Terminal
CLI	Command Line Interface
CO	Central Office
CORBA	Common Object Requesting Broker Architecture
CPB	Commission and Power Balance
CPM	Control Processing Module

Abbreviation	Meaning
CPRI	Common Protocol Radio Interface
CT	Craft Terminal
CTP	Connection Termination Point
CWR8	8-channel Colorless Wavelength Router, 44 channel
CWR8-88	8-channel Colorless Wavelength Router, 88 channel
DB	Database
dbsync, DBSYNC	Database Synchronization
DCN	Data Communications Network
DCM	Dispersion Compensation Module
DCSS	Dual Card Switching system
DDOA	Design, Deploy, Operate, Administer
DEG	Degraded; Degraded Signal
DS	Digital Service
DSR	Digital Service Rate
DSV	Dual Switch with eVOA
DWDM	Dense Wavelength Division Multiplexing
EDFA	Erbium-Doped Fiber Amplifier
EML	Element Management Layer
EPT	Engineering Planning Tool
EQM	Equipment Manager, Equipment
ES	Errored Seconds
ET	Elementary Topology; End Terminal
ETSI	European Telecommunications Standards Institute
FE	Far End
FEPRLF	Far End Protection Remote Line Failure
FM	Fault Management
FOADM	Fixed Optical Add Drop Multiplexer
FTP	File Transfer Protocol
FRU	Field Replaceable Unit
FTS	File Transfer Service

Abbreviation	Meaning
GENOS	Generic OS-to-OS Interface
GFP	Generic Framing Procedure
GMPLS	Generalized Multi-Protocol Label Switching
GMRE	GMPLS Routing Engine
GNE	Gateway Network Element
GUI	Graphical User Interface
HA	High Availability
HO	High Order
HTML	Hyper Text Markup Language
HTTP	Hypertext Transfer Protocol
HTTPS	Hypertext Transfer Protocol over Secure Socket Layer
IBM	In-Band Management
IES	Internet ethernet service
ID	Identification; identifier
ILA	In Line Amplifier
IOM	Input Output Module
IP	Internet Protocol
ITU-T	International Telecommunications Union - Standardization Sector
LC	Link Connection
LCSI	Layer Client/Server Infrastructure
LD	Line Driver Circuit Pack
LFI	Line Fault/Failure Indication
LH	Long Haul
L1	Level 1 (which is electrical)
LO	Low Order
L0	Level 0 (which is optical)
LOPC	Logical Optical Physical Connection
LOF	Loss of Frame
LOM	Loss of Multiframe
LOS	Loss of Signal

Abbreviation	Meaning
MIB	Management Information Base
MDI	Media Dependent Interface
MPLS	Multi Protocol Label Switching
MPLS-TP	Multi Protocol Label Switching-Transport Bridging
MRN	Multi-Region Network
MS-GUI	Multi-Service Graphical User Interface
MSP/SNCP	(Manage) Multiplex Section Protection/Subnetwork Connection Protection
MTNM	Multi-Technology Network Management
MVAC	Multiple Variable Attenuator Card
MW-INT	Middleware Interface
NE	Network Element; Near End
NFM-T	Network Function Manager - Transport
NIM	Non intrusive Monitoring
NM	Network Management
NML	Network Management Layer
NMS	Network Management System
NNI	Network-to-Network Interface; Network-to-Node Interface
NPA	Network Protection Architecture
NPR	Network Physical Resources
NPT	Network Time Protocol
NSA	Non-Service Affecting
NSAP	Network Service Access Point
NSP	Network Service Platform
OA	Optical Amplifier
OADM	Optical Add Drop Multiplex
OBSAI	Open Base Station Architecture Initiative
OCH	Optical Channel
OCI	Open Connection Indication
OCS	Optical Core Switching; Optical Cross-connect System
OD	Optical Demultiplexer

Abbreviation	Meaning
ODU	Optical Data Unit; Optical Demultiplexer Unit
ODUk	Optical Channel Data Unit (k=[1,2,3], 1=2.5G, 2=10G, 3=40G)
OI	Open Interfaces
OLC	Object Life Cycle
OM	Optical Multiplexer
OMD	Optical Multiplexer/Demultiplexer; generic term for SFDs and SFCs
OMS	Optical Multiplex Section
OMU	Optical Multiplexer Unit
OOR	Out-of-Range
OOS	Out-of-Service
OPR OPRPWR	Optical Power
OPS	Optical Physical Section Optical Protection Switch
OPSA	Bidirectional Optical Protection Switch Board
OPSB Protection	Optical Protection Switch Board Protection
OPTH	Optical Threshold-High
OPTL	Optical Threshold-Low
OPTINTDET	Optical Intrusion Detected
OS	Operation System; Optical Section (physical connection)
OSC	Optical Supervisor Channel; Optical Service Channel
OSI	Open Systems Interconnection
OSU	Optical Service Unit
OSW	Optical Switch
OT	Optical Translator
OTH	Optical Transport Hierarchy
OTL	Optical Transport Lane
OTLC.n	Group of n Optical Transport Lanes that carry one OTUC of an OTUCn
OTLk.n	Group of n Optical Transport Lanes that carry one OTUk
OTN	Optical Transport Network

Abbreviation	Meaning
OTN WebUI	OTN Web User Interface
OTS	Optical Transmission Section
OTU	Optical channel Transport Unit
OTUCn	Optical Transport Unit Cn
PAE	Protection Audit Entity
PBS	Peak Burst Size
PDF	Portable Document Format
PDH	Plesiochronous Digital Hierarchy
PDI	Payload Defect Indication
PhM	Photonic Manager
PKT	Packet
PLM	Payload Label Mismatch
PM	Performance Monitoring
PMU	Photonic Managed Unit
PRC	Protection and Restoration Combined
PSE	Protection Switching Event
PSEL	Protection Switch Entity - Linear
PSER	Protection Switch Entity - Ring
PTP	Physical Termination Point
QPSK	Quadrature Phase Shift Keying
RCF	Root Cause Failure
RFI	Remote Fault/Failure Indication
RI	Remote Inventory
ROADM	Regenerator Optical Add Drop Multiplex
RX	Receive
RS	Regeneration Section
RSTP	Rapid Spanning Tree Protocol
RU	Rack Unit
SA	Service Affecting
SAS	SERVICE ACCESS SWITCH

Abbreviation	Meaning
SBR	Sourced Based Restoration
SC	Source Code
SCSS	Single Card Switching System
SD	Signal Degrade
SDH	Synchronous Digital Hierarchy
SEC	Security; as in security database
SES	Severely Errored Seconds
SF	Signal Failure
SFC	Static Filter CWDM
SFD	Static Filter DWDM
SFM	Switch Fabric Module
SFP	Small Form-Factor Pluggable
SML	Service Management Layer
SMM	Site Monitoring Module
SNC	Subnetwork Connection
SNC-I	Subnetwork Connection protection-inherent monitoring
SNC-N	Subnetwork Connection protection-network ports
SNC-Nc	Subnetwork Connection protection-network client ports
SNCP	Subnetwork Connection Protection
SNMP	Simple Network Management Protocol
SONET	Synchronous Optical Network
SP	Service Pack
SQL	Structured Query Language
SRG	Shared Risk Group
SSF	Server Signal Failure
SSL	Security Socket Layer
STM	Synchronous Transport Module
SVAC	Single Variable Attenuator Card
sync, SYNC	Synchronize, Synchronization
TCA	Threshold Crossing Alert

Abbreviation	Meaning
TCM	Tandem Connection Monitoring
TCP	Transmission Control Protocol
TCP/IP	Transmission Control Protocol/Internet Protocol
TDM	Time Division Multiplexing
TDM MSP	Time Division Multiplexing Multiplex Section Protection
TE link	Traffic Engineering link
TID	Target Identifier
TIM	Trace Identifier Mismatch
TIM-S	Trace Identifier Mismatch - Section
3R	Reshape, Retime, Retransmit
TL1	Transaction Language 1
TLU	Translation Line Unit
T-MPLS	Transport Multi Protocol Label Switching
TMUX	Transport Multiplexer
TOADM	Tunable Optical Add Drop Multiplexer
TP	Termination Point or Terminal Point
TX	Transmit
UAL	User Activity Log
UAS	Unavailable Seconds
UNI	User to Network Interface
URL	Uniform Resource Locator
US	Upstream
UTC	Coordinated Universal Time
VC	Virtual Container
VCG	Virtual Concatenation Group
VNE	Virtual Network Element
VPN	Virtual Private Network
VWM	Versatile WDM Module
WDM	Wavelength Division Multiplexing
WLA	Wavelength Adapter

Abbreviation	Meaning
WLT/WT	Wavelength Tracker
WTD	Wavelength Tracker Decoder
WTOCM	Wavelength Tracker Optical Channel Monitoring card
WTR	Wait-Time-to-Restore
WXC	Wavelength Cross-Connect
XC	Cross Connect; Cross Connection
XML	Extensible Markup Language
XoS	XML-over-Socket
ZIC	Zero Install Craft

E NFM-T Feature History

E.1 Features in previous releases

Features in Release 21.12

The following table shows the document changes.

Table E-1 Release 21.12 Document changes in Issue 1, December 2021

Features/Enhancements	Description
CPB support for PSS 14.0	<p>CPB R14.0 supports Backward Compatibility of four (4) previous 1830 PSS NE Releases. Supports some of cards and configuration supported in NFM-T R21.12.</p> <p>See the following topics in <i>OTN Guide</i>:</p> <ol style="list-style-type: none">1. 11.3 “Network planning using EPT” (p. 1599)2. 11.5 “Configurations and stages supported on CPB” (p. 1605)3. 14.2 “Provision a system” (p. 1634)
GUI improvements (from UI/UX survey)	<p>NFM-T supports the following GUI improvements:</p> <ul style="list-style-type: none">Properties menu is enhanced to add sub-panes to categorize fieldsOverlay sliding window in Routing display has additional menusComponent Template includes Transmission Parameters and Routing Constraints <p>See the following topics in <i>OTN Guide</i>:</p> <ol style="list-style-type: none">1. 26.2 “Data table description” (p. 2182)2. 7.78 “View the Routing Display of a selected connection” (p. 1042)3. 7.81 “Infrastructure Connections list further actions” (p. 1063)4. 24.4 “Quick Help – The Routing Display Window” (p. 1977)5. 7.17 “Manage Routing Constraints” (p. 772)6. 7.18 “Manage Transmission Parameters” (p. 777)

Table E-1 Release 21.12 Document changes in Issue 1, December 2021 (continued)

Features/Enhancements	Description
Wavelength saturation report	<p>Improvement of Link Utilization dashboard with introduction of the following features:</p> <ul style="list-style-type: none"> • New saturation profile management • Saturation level and display in Physical Link Graphical reports • Saturation level in Physical Link list • Link utilization dashboard enabled to all user profiles <p>See Chapter 22, "Link Utilization".</p>
Special characters not allowed with new wizards.	<p>Note on supported and not supported special characters has been added for Node name, Connection Alias, and Connection Name.</p> <p>See "CONNECTION CHARACTERISTICS tab" (p. 1223)</p>
S5AD400H OTU4	<p>NFM-T supports OTU4 clients introduced by 1830 PSS R14.0 on S5AD400H.</p> <p>See</p> <ul style="list-style-type: none"> • 8.11 "Manage an OTSig Tunnel" (p. 1314) • 8.8 "Deploy a Service" (p. 1294)
Disjoint Services in MP	<p>NFM-T introduces a new type of 4-ended service made by 2 separated paths, which does not overlap (two leg routes are totally disjoint). This is valid for service and related LO-ODUj. Diversity criteria, for not overlapping, is based on physical link, SRG and node (default value). The user can relax diversity criteria allowing SRG or node overlap.</p> <p>Characteristics and limitations:</p> <ul style="list-style-type: none"> • The service is <i>unprotected</i> being no SNCP switch. • In case of failure on one leg, a degraded alarm is raised against the service. • Reroute is supported (for a single leg, with constraints), but not the possibility to add or remove a leg. • Latency is supported, but not PRBS. <p>See 8.12 "Deploy a Disjoint Service" (p. 1344)</p>
ODUflex Switching and Resizing for 20P200/S13X100R Mated with L2 Cards	<p>NFM-T supports unprotected and SNC-P protected configurations with ODUflex mapping and resizing on 20P200 mated with 12CE121 and S13X100R mated with 1CE1000(Q) or 12CE121.</p> <p>See 7.83 "Resize ODUFlex Bandwidth" (p. 1071).</p>

Table E-1 Release 21.12 Document changes in Issue 1, December 2021 (continued)

Features/Enhancements	Description
ODUFlex bandwidth adjustment - Managed plane	<p>NFM-T supports, in managed-plane configuration, the possibility to perform ODUflex container re-sizing to allow increase or decrease of the bandwidth for the related service. Reroute is not supported. Resize for managed-plane configuration must be executed on ODU connection (not on DSR service). In some cases, there will be 2 ODUjs and user needs to perform resizing at individual ODU.</p> <p>ODUflex resize for Managed Plane is supported for ODUk protected services.</p> <p>ODUflex resize is not supported for:</p> <ul style="list-style-type: none"> • Y-cable, OPSB(5) protected services (either UNI and NNI). • Note: ODUflex container cannot be provisioned for OPSB and Y-cable protected services. • ODUflex modification in NE, as it will generate an inconsistency and it must be managed as per NFM-T existing behavior (inconsistency connection). <p>See 7.83 "Resize ODUFlex Bandwidth" (p. 1071).</p>
ODUFlex bandwidth resizing - Control plane	<p>NFM-T supports, in Control Plane configuration, the possibility to perform ODUflex container re-sizing to allow increase or decrease of the bandwidth for the related service. Reroute is not supported.</p> <p>Resize for Control Plane configuration must be executed on services. It works on ODUk protected services and for OTUk services (not-terminated) ending on VNE/BBOX.</p> <p>ODUflex resize is not supported for:</p> <ul style="list-style-type: none"> • Y-cable, OPSB(5) protected services (either UNI and NNI). • Note: ODUflex container can not be provisioned for OPSB/Y-cable protected services. • 3/4 ended ASON SNC (OpenSNC) • PRC/SNCP services. In this case, the user has to first move PRC to unprotected/SBR/GR and then perform the ODUflex resize. • mixed-plane configuration with 2 ASON SNCs (disjoined). • L2 OTN packs (6SE300, 30SE300). <p>TCM must be manually removed before ODUflex resize and recreated later.</p> <p>See 7.83 "Resize ODUFlex Bandwidth" (p. 1071).</p>

Table E-1 Release 21.12 Document changes in Issue 1, December 2021 (continued)

Features/Enhancements	Description
Multi-layer TCM and TCM-based ODU-K Latency measurements	<p>NFM-T extends TCM management introducing latency on-demand get (this can be performed by the user command of at TCM creation) and the management of intermediate points. Latency is inventory on TCM connection with the following values: Actual Latency, Latency Support Status, Last Measurement Timestamp.</p> <p>See “TCM on Infrastructure Connections and Services” (p. 1117)</p>
Add/Remove protection in case of Mixed Plane	<p>NFM-T supports add/remove SNCP protection for end-to-end service in mixed-plane scenarios in L1 GMPLS/MRN.</p> <p>The main supported scenarios are:</p> <ul style="list-style-type: none"> • MP to MP service crossing CP domain: This is a symmetric with both end points in Managed Plane. • MP to CP: This is asymmetric with one end point in Managed Plane and the other in Control Plane. <p>This is not applicable for OpenSNCP configuration.</p> <p>This new command is supported on the following:</p> <ul style="list-style-type: none"> • 1830 PSS-24x/12x/8x and 1830 PSS-36/64 for L1 GMPLS/MRN • 1830 PSS-32/16 II/8/4, 1830 PSD, 1830 ONE for managed-plane part <p>In case of Add protection, the new route is automatically detected by the system. In case of specific route necessary or protecting path, or in case the SNCP protection is not the desired one (2 ASON SNCs vs back-to-back protection); It is up to the user to perform Modify Connection adding constraints to change the working path/type of SNCP.</p> <p>See 7.59 “Manage protection for a Mixed Plane service ” (p. 968)</p>
Single-node Hairpin service	<p>NFM-T introduces hair pinning services on 1830 PSS-x. These are services between two clients/ports on the same 1830 PSS-x nodes (service starts and ends on the same node without crossing any other node). All clients, such as FE, GE, 10GE and OTU2 are supported; but services are symmetric only (no asymmetric OTU2-10Gbe service possible).</p> <p>Hair pinning services can be provisioned or discovered from NE except for OTU2, which can be only provisioned (discovery not supported).</p> <p>See 2.44 “Single node Hairpin service ” (p. 317)</p>

Table E-1 Release 21.12 Document changes in Issue 1, December 2021 (continued)

Features/Enhancements	Description
Bulk Move of Traffic in MP	<p>NFM-T supports move traffic command, on OTS, to reroute services in case of maintenance or Add/remove node.</p> <p>The limitations are:</p> <ul style="list-style-type: none"> not supported in case of 3R on the nodes or at the nodes at the edge of OTS link. not supported in case of add/drop traffic at the nodes at the edge of OTS link. not supported in case of frequency change. <p>See 7.34 "Move Traffic from a link for Managed Plane" (p. 845)</p>
S6AD600H 400G client	<p>NFM-T supports S6AD600H in Managed Plane (MP) and Control Plane (CP) configurations with and without cluster configuration for 400G service:</p> <ul style="list-style-type: none"> Support of NxOTUTC4 + MxOTUTC1 (with N & M being positive integers greater than 0) on a single carrier OTSiG of Nx400GE + Mx100GE. Managed-plane only. Support of 400GbE client with ODUFlex mapping (80x5G) (MP and CP) with compatible pluggables. Support of 100G/400G with ODUTCx mapping for TcGENOTUFlex. <p>See the following topics:</p> <ul style="list-style-type: none"> 8.4 "New service/infrastructure connection" (p. 1219) 8.8 "Deploy a Service" (p. 1294) 8.11 "Manage an OTSig Tunnel" (p. 1314)
S6AD600H 100G/OTU4 clients	<p>NFM-T supports S6AD600H for Managed Plane (MP) and Control Plane (CP) configurations, w/ and w/o cluster, with Line structures:</p> <ul style="list-style-type: none"> NxOTUC4 +MxOTUC1 (Managed Plane only) NxOTU4 NxOTUTC1 NxOTUTC4 Clients: 100GE and OTU4 client mapping into ODU4 with compatible pluggables <p>See the following topics:</p> <ul style="list-style-type: none"> 8.4 "New service/infrastructure connection" (p. 1219) 8.8 "Deploy a Service" (p. 1294) 8.11 "Manage an OTSig Tunnel" (p. 1314)

Table E-1 Release 21.12 Document changes in Issue 1, December 2021 (continued)

Features/Enhancements	Description
S6AD600H - Carrier Profiles	<p>NFM-T supports new carrier profiles for 400G and 600G.</p> <p>Flex Carrier Profiles</p> <ul style="list-style-type: none"> • 4400G SQAM16, 86.20GBaud, SD-FEC-G3, abs coding, Flex with supported channel width @ 112.5 GHz and 100GHz for MP , 100GHz for CP only. The default value is 100Ghz. <p>TcGEEnOTUFlex</p> <ul style="list-style-type: none"> • 600G QAM16, 90.22GBaud, SD-FEC-G3, abs coding, TcGEEnOTUFlex with supported channel width @ 112.5 GHz and 100GHz for MP and CP. The default value is 112.5Ghz • 400G QAM16, 86.04GBaud, SD-FEC-G3, abs coding, TcGEEnOTUFlex with supported channel width @ 112.5 GHz and 100 GHz for MP instead only 100GHz for CP only. The default value is 100GHz <p>See the following topics:</p> <ul style="list-style-type: none"> • 8.4 “New service/infrastructure connection” (p. 1219) • 8.11 “Manage an OTSig Tunnel ” (p. 1314)

Table E-1 Release 21.12 Document changes in Issue 1, December 2021 (continued)

Features/Enhancements	Description
2UX500 Basic Introduction for Managed Plane (GA) and GMPLS (Demo only)	<p>NFM-T introduces new uplink 2UX500 (with 2 multi-rate ports) in 1830 PSS-8x and 1830 PSS-12x with the carrier profiles listed below for Managed Plane and Control Plane (for Demo Only) application. Both line ports can be configured @100G or @200G. Only one line port can be configured @300G or @400G.</p> <p>Supported functionalities:</p> <ul style="list-style-type: none"> • support of NxOTU4 line structure • carrier profiles <ul style="list-style-type: none"> - 200G QPSK, 64Gbaud, SD-FEC-G2, abs coding, Flex - 300G QAM08, 64Gbaud, SD-FEC-G2, abs coding, Flex - 400G QAM16, 62Gbaud, SD-FEC-CE, abs coding, Flex - 400G via 67Gbaud 16QAM, SDFEC-G2 for FLEX OTU @87.5GHz (profile #5) • support of multiplexing, switching, and protection for ODUflex (GFP-F) and ODUflex (CBR) in Managed Plane applications • The following rates are supported for CBR mapping: <ul style="list-style-type: none"> - FC-400 - FC-800 - FC-1600 - 3G-SDI • support of TCM and Delay Measurement based on TCM for HO TCM connection • manual frequency setup for extended C-band in Dangling OT configuration <p>See</p> <ul style="list-style-type: none"> • Chapter 2, “OTN Network Provisioning” • Chapter 7, “Design, deploy and operate connections” • “Deploy a new service or infrastructure connection with template” (p. 1216) • Appendix B, “Provisioning Related Information”

Table E-1 Release 21.12 Document changes in Issue 1, December 2021 (continued)

Features/Enhancements	Description
TCM-based Fault Localization	<p>NFM-T introduces the flexible configuration of TCM points via Routing Display to use the TCM for fault localization, basically like the loopback configuration. To facilitate the TP selection, a new Routing Display parameter (TCM termination points) is in the Routing Display options list. If it is enabled, the Routing Display visualizes only the packs where a potential TCM TP can be selected by the user. The NEs or packs not involved in the TCM TP selection are not visualized. A TCM creation command is available to activate the TCM on NE using the selected TCM TPs and the default values for the other TCM parameters.</p> <p>Limitations:</p> <ul style="list-style-type: none"> • TCM discovery is not available. • The alarm are correlated against to network connection, but TCMTrail and TCMTPL List reports the alarms raised on TCM termination points. <p>See “TCM on Infrastructure Connections and Services” (p. 1117).</p>
Channel widths at 100GHz, 112.5GHz, 125GHz (flex grid) - alien wavelength services in MP	<p>NFM-T extends XC management for 100 GHz, 112.5GHz, and 125 GHz to alien wavelength service. This is applicable to flex-grid photonic architectures based on IRDM20/32/32L. FOADM node is not supported.</p> <p>NFM-T introduces automatic set up of technology type according to the selected channel width.</p> <p>See 5.16 “Additional features” (p. 582)</p>
Security Query before Line Terminal Loopback activation	<p>NFM-T introduces a check on ports with GCC enabled before to execute loopback. A pop-up appears indicating that loopback action may impact DCN/NE reachability interruption GCC.</p> <p>See 7.104 “Initiate Terminal Loopback testing on an NE” (p. 1146) and 7.104 “Initiate Terminal Loopback testing on an NE” (p. 1146)</p>

Table E-1 Release 21.12 Document changes in Issue 1, December 2021 (continued)

Features/Enhancements	Description
C+L 2.0 configuration	<p>NFM-T introduces C+L R2.0 configuration with the following features and nodal configurations:</p> <ul style="list-style-type: none"> • seamless upgrade from IRDM32+OMDCL to IRDM32+IRDM32L+OMDCL • all C-band add/drop support (MCS1615/MCS816 based, MXN824 based with and without ASC4, C-F) • all L-band add/drop block support (C-F) ready for MXN824L with and without ASC4L • line amplification: RA5PB or RA5P • mixed degree of IRDM32, IRDM32L, IRDM32+OMDCL C-L, IRDM32+IRDM32L+OMDCL C+L • OTS interworking with CDC-F 2.0 or DGE/ILA • ILA/DGE: with AWBILA or with conventional WR20TFM/WR20TFML • single blade DGE <p>No OLP/OMSP protection is supported. See 5.3 "C+L band" (p. 519)</p>
OPSUM Protection (C-band Single Carrier)	<p>NFM-T introduces OCH protection using the new OPSUM (Optical Protection Switch Universal Multi-Carriers) pack at the same feature level of OPSA/OPSflex for Managed Plane and Control Plane application in C-band.</p> <p>Supported configurations:</p> <ul style="list-style-type: none"> • 2UX500 for Managed Plane (MP) only • 4UC1T for MP only S5AD400H for MP • Control Plane (GMPLS network) S6AD600H for MP only <p>See 4.10 "OPS protection" (p. 507)</p>

Table E-1 Release 21.12 Document changes in Issue 1, December 2021 (continued)

Features/Enhancements	Description
SFM6	<p>NFM-T supports new 1830 PSI-M R6.0 card, SFM6, for Managed-Plane and Control-Plane configurations. SFM6 is aligned to OTSiG Model features set.</p> <p>See</p> <ul style="list-style-type: none">• 2.8 “Determine the Infrastructure to be created” (p. 168)• 2.31 “Provisioning connections for ADD4 cards” (p. 286)• 8.4 “New service/infrastructure connection” (p. 1219)• 8.7 “Deploy a Connection with Routing Constraints” (p. 1286)• 8.11 “Manage an OTSig Tunnel ” (p. 1314)• 7.4 “Service definition field descriptions for deploy Best Practices templates” (p. 688)• 11.5 “Configurations and stages supported on CPB” (p. 1605)• 8.8 “Deploy a Service” (p. 1294)

Table E-1 Release 21.12 Document changes in Issue 1, December 2021 (continued)

Features/Enhancements	Description
SFM6- Carrier Profiles	<p>NFM-T introduces new carrier profiles for SFM6 in Managed plane and Control plane.</p> <p>New carrier profiles supported in SFM6 for Managed plane and Control plane.</p> <ul style="list-style-type: none"> • 400G SQAM16, 86.20GBaud, SD-FEC-G3, abs coding, Flex. Supported 100GHz (default value) and 112.5GHz as channel width for Managed Plane application and only 100GHz for GMPLS application TcGEOTUFlex related. • 400G, SQAM16, 86.04GBaud, SD-FEC-G3, abs coding, TcGEOTUFlex. Supported 100GHz(default value) and 112.5GHz as channel width for Managed Plane application and only 100GHz for GMPLS application. • 600G, QAM16, 90.22GBaud, SD-FEC-G3, abs coding, TcGEOTUFlex. Supported 112.5GHz(default value) and 100GHz as channel width for Managed Plane and GMPLS (Control Plane) application. <p>See</p> <ul style="list-style-type: none"> • 2.8 “Determine the Infrastructure to be created” (p. 168) • 2.31 “Provisioning connections for ADD4 cards” (p. 286) • 8.4 “New service/infrastructure connection” (p. 1219) • 8.7 “Deploy a Connection with Routing Constraints” (p. 1286) • 8.11 “Manage an OTSig Tunnel ” (p. 1314) • 7.4 “Service definition field descriptions for deploy Best Practices templates” (p. 688) • 11.5 “Configurations and stages supported on CPB” (p. 1605) • 8.8 “Deploy a Service” (p. 1294)

Table E-1 Release 21.12 Document changes in Issue 1, December 2021 (continued)

Features/Enhancements	Description
SFM6 - OTU4 Client	<p>NFM-T extends SFM6 management adding the support of OTU4 on clients.</p> <p>See</p> <ul style="list-style-type: none"> • 2.8 “Determine the Infrastructure to be created” (p. 168) • 2.31 “Provisioning connections for ADD4 cards” (p. 286) • 8.4 “New service/infrastructure connection” (p. 1219) • 8.7 “Deploy a Connection with Routing Constraints” (p. 1286) • 8.11 “Manage an OTSig Tunnel ” (p. 1314) • 7.4 “Service definition field descriptions for deploy Best Practices templates” (p. 688) • 11.5 “Configurations and stages supported on CPB” (p. 1605) • 8.8 “Deploy a Service” (p. 1294)
Channel widths at 100GHz, 112.5GHz, 125GHz (flex grid) - Nokia OT	<p>NFM-T extends XC management introducing the support of 100 Ghz, 112.5 Ghz and 125 Ghz. This is applicable to SFM6 and S6AD600H (NOKIA OTs) only for 100 GHz and 112.5 GHz for Managed Plane and Control Plane.</p> <p>See 5.16 “Additional features” (p. 582).</p>
Switch MTNM interface from Corba to Netconf	<p>NFM-T supports replacement of CORBA with NetConf for GMPLS management.</p> <p>See 25.6 “ALARMS Tab” (p. 2066)</p>
DD2M4 Global Introduction (General Availability)	<p>NFM-T supports DD2M4 global introduction for general availability aligned to NFM-T R21.8 feature set and with new carrier profiles:</p> <ul style="list-style-type: none"> • 200G QPSK, 62Gbaud, SD-FEC-G2, abs coding, Flex • 300G 8QAM, 64Gbaud, SD-FEC-G2, abs coding, Flex • 400G via 67Gbaud 16QAM, SDFEC-G2 for FLEX OTU @87.5GHz (profile #5) <p>See:</p> <ul style="list-style-type: none"> • 8.11 “Manage an OTSig Tunnel ” (p. 1314) • 8.8 “Deploy a Service” (p. 1294)

Table E-1 Release 21.12 Document changes in Issue 1, December 2021 (continued)

Features/Enhancements	Description
GMPLS support for OpenSNCP	<p>NFM-T and GMRE introduces 3-ended connection in L1 GMPLS for 1830 PSS-Nx (PSS-24x/12x/8x) network.</p> <p>Limitations</p> <ul style="list-style-type: none"> • Addition of spare leg of OPEN SNCP is not supported in case A end (main leg) and B end (spare leg) are on the same sub-node • If it is necessary to remove protection keeping spare, it is necessary to first remove protection keeping main, and then reroute the service <p>See</p> <ul style="list-style-type: none"> • 8.4 “New service/infrastructure connection” (p. 1219) • 25.50 “SNCP Tab” (p. 2162) • 7.59 “Manage protection for a Mixed Plane service ” (p. 968)
400G via 67Gbaud 16QAM, SDFEC-G2 for FLEX OTU @87.5 GHz with 4UC1T and S5AD400H	<p>Support of 400G via 67Gbaud 16QAM, SDFEC-G2 for FLEX OTU @87.5GHz with 4UC1T and S5AD400H</p> <p>See 8.4 “New service/infrastructure connection” (p. 1219)</p>
[INTERNAL] GUI Screen conversion to REACT	<p>GUI evolution program: migration of views from Dojo to REACT.</p> <p>See</p> <ul style="list-style-type: none"> • 25.42 “Routes Tab” (p. 2145) • 7.20 “Manage the inventory view of Physical Connections” (p. 806) • 7.35 “Manage repeaters for an OTN OTS physical connection” (p. 850) • 14.5 “View and export CPB log files” (p. 1657) • 25.10 “Backup Route” (p. 2076) • 7.37 “Modify the fiber characteristics of an OTN physical connection ” (p. 877)
OS connection report generation from NFM-T	<p>It is possible to generate a report from the UI with the same contents that are currently returned using the API: /data/otn/networkinventory/alltopologicallinks.</p> <p>See 23.1 “Physical Connections Report Description” (p. 1965)</p>

Features in Release 21.4

The following table shows the document changes.

Table E-2 Release 21.4 Document changes in Issue 1, May 2021

Features/Enhancements	Description
iROADM9R/IRDM32 - ASE Loading	<p>NFM-T supports ASE noise loading configuration on iROADM9R (ASWG connected to ADT port) and on iROADM32 (embedded noise generator).</p> <ul style="list-style-type: none"> - ASE noise loading is a symmetric configuration on a single OTS (both end points must have ASE noise loading) - ASE noise loading is implemented in NFM-T as a set of contiguous alien lambdas (to be created manually by user) or automatically filled by NE (according ASE noise disabled/enabled). <p>See 17.17 "Manage optical power for an OTUk infrastructure connection" (p. 1868) for more details.</p>
NFM-T - PSD Test Signal Injection / BER Monitor	<p>NFM-T introduces a test tool for 1830 PSD services, which can be automatically or manually triggered at service creation and check the service status (alarms/PRBS) in service "commissioning" phase. Tool report is stored in NFM-T..</p> <p>Feature characteristics:</p> <ul style="list-style-type: none"> • Manual service test tool is triggered from NFM-T UI only. • Maximum of 10 parallel service tests per the whole NFM-T (all users). • Report export in PDF format is limited to 10 tests. • Reports storage can be configured. Default value is 10 tests per service. <p>See the following for more details:</p> <ul style="list-style-type: none"> • 7.75 "1830 PSD Service Testing and BER Monitor" (p. 1025) • 25.48 "Service Testing Result Tab" (p. 2158)
1830 PSD R3.0 support	<p>NFM-T support PSD R3.0 and related features:</p> <ul style="list-style-type: none"> • New PSD R3.0 release • Extend ODUflex support to PSD (and related symmetric and asymmetric scenarios) <p>See 2.25 "Connection rates and layers" (p. 251)</p>

Table E-2 Release 21.4 Document changes in Issue 1, May 2021 (continued)

Features/Enhancements	Description
OTDR: Embedded Graphical Viewer	<p>NFM-T introduces embedded OTDR graphical viewer in NFM-T to render the OTDR scan data (.sor files) graphically, the same graph was available via external tool in the previous releases.</p> <p>The embedded OTDR viewer provides:</p> <ul style="list-style-type: none"> • A single graphical view of the reflectometric curve. No overlap of more than one curve is supported in this release • Table view of fiber events (attenuation, reflection, fiber end, and so on) <p>The OTDR viewer is available in OTS Link commands and in 360 Degree View.</p> <p>See 24.8 "OTDR trace viewer" (p. 1999)</p>
Separate CPB into a separate standalone Tomcat instance	<p>CPB application is moved out of the otntomcat instance and works as a separate standalone tomcat instance named mnc-cpb.</p> <p>See</p> <ul style="list-style-type: none"> • 12.2 "System Administration functionality for CPB application" (p. 1614) • 12.3 "Start or stop mnc-cpb container" (p. 1615)
1830 PSS - Alignment Upload File Support	No documentation impact for this release.
NFM-T - Update on Inclusive Terminology	<p>NFM-T 21.4 removes all not-inclusive terms replacing them with inclusive terminology. The replacement is applied to the GUI, tools, scripts and all applications where not-inclusive terminology is used.</p> <p>The scope of this change is</p> <ul style="list-style-type: none"> • Domain PSS/PSI-M • Domain NFM-T <p>The terminologies are updated throughout the document.</p>
CPB Support for 13.1	<p>NFM-T-T 21.4 CPB supports Backward Compatibility of four (4) previous PSS NE Releases.</p> <p>See</p> <ul style="list-style-type: none"> • 11.3 "Network planning using EPT" (p. 1599) • 11.5 "Configurations and stages supported on CPB" (p. 1605) • 14.2 "Provision a system" (p. 1634) • 14.3 "Channel power adjustment" (p. 1649)

Table E-2 Release 21.4 Document changes in Issue 1, May 2021 (continued)

Features/Enhancements	Description
PSS R13.1 Interoperability scenarios (BP)	<p>NFM-T supports interworking between 1830 PSS 13.1 NEs. The feature describes the discovering of the DSR in OPSB Cascaded scenario when OPSB is present in the middle nodes in a configuration.</p> <p>See 16.5 “Provision an OPSB protection with a PSS-OCS and PSS-24x shelf ” (p. 1680)</p>
400G - OTUC4 and ODUFlex 5G TS networking model w/ S5AD400H	<p>NFM-T Release 21.4 introduces the OTUCn model with n=4 to support the 400GbE service and extends the supported payload-type introducing the new payload type (PT22) based on a timeslot (ts) of 5 G as granularity managing two types of ODUFlex containers with different payload type.</p> <p>If the two payload types are not compatible, then an ODUFlex @5G/ts container cannot interwork with an ODUFlex @1.25G/ts container.</p> <p>New OTUCn container and ODUFlex @ 5G are visualized in Infrastructure Connection list in alignment to the other containers already supported. No ODUFlex resize for ODUFlex @5G container is supported in NFM-T R21.4 release.</p> <p>See the following</p> <ul style="list-style-type: none"> • 2.8 “Determine the Infrastructure to be created” (p. 168) • 2.31 “Provisioning connections for ADD4 cards” (p. 286) • 7.79 “Infrastructure Connections columns” (p. 1054) • 8.4 “New service/infrastructure connection” (p. 1219) • 8.8 “Deploy a Service” (p. 1294) • 8.11 “Manage an OTSig Tunnel ” (p. 1314)

Table E-2 Release 21.4 Document changes in Issue 1, May 2021 (continued)

Features/Enhancements	Description
S5AD400H - 4x100G/1x400G 4:1 MUXPONDER	<p>NFM-T introduces S5AD400H (Muxponder 4x100GbE or 1x400GbE) and related feature set:</p> <ul style="list-style-type: none"> • 100GbE, 400GbE clients to be supported • OTU4/OTUCn, OTSig (tunnel) model • OMSP/OLP protection <p>Network scenarios supported:</p> <ul style="list-style-type: none"> • Managed-plane and L0 GMPLS (MRN tunnel model) • Homogeneous S5AD500H scenarios • High sensitivity configuration (unamplified link) <p>See the following</p> <ul style="list-style-type: none"> • 2.8 “Determine the Infrastructure to be created” (p. 168) • 2.31 “Provisioning connections for ADD4 cards” (p. 286) • 7.79 “Infrastructure Connections columns” (p. 1054) • 8.4 “New service/infrastructure connection” (p. 1219) • 8.8 “Deploy a Service” (p. 1294) • 8.11 “Manage an OTSig Tunnel ” (p. 1314)
S5AD400H: Carrier Profiles S5AD400H	<p>NFM-T introduces the following Carrier Profiles:</p> <ul style="list-style-type: none"> • 300G QAM08, 62Gbaud, SD-FEC-G2, abs coding, Flex as carrier profile • 200G QPSK, 62Gbaud, SD-FEC-G2, abs coding, Flex as carrier profile. • 400G QAM16, 62Gbaud, SD-FEC-G2, abs coding, Flex as carrier profile <p>See 8.11 “Manage an OTSig Tunnel ” (p. 1314)</p>
1.25GHz Central Frequency Granularity w/ S4X400H	<p>NFM-T introduces 1.25 Ghz tuning for S4X400 in order to have a channel width of 70GHz. The 1.25GHz tuning is applied mainly for submarine application. No break from provisioning and OAM flow perspective respect to NFM-T 19.2 when 1.25GHz tuning has been introduced for D5X500.</p> <p>See 5.7 “33.75 GHz and 70 GHz central frequency granularity for subsea application” (p. 537)</p>

Table E-2 Release 21.4 Document changes in Issue 1, May 2021 (continued)

Features/Enhancements	Description
GMPLS L0 - NPA scale up to 1500 NEs	<p>From Release 21.4, NFM-T extends L0 GMPLS management up to 1500 nodes in single GMPLS domain.</p> <p>See the following</p> <ul style="list-style-type: none"> • 10.6 “ASON NPA” (p. 1438) • 10.27 “Set the ASON administrative state of links” (p. 1504)
8UC1T: New Carrier Profiles	<p>NFM-T introduces Carrier Profiles (based on 33Gbaud modulation)</p> <ul style="list-style-type: none"> • 200G QAM16, 33Gbaud, SD-FEC-G2, diff coding, OTU4 line structure for MP configurations • 100G QPSK, 33Gbaud, SD-FEC-G2, diff coding, OTU4 line structure for MP configurations <p>See “OPTICAL LINE CHARACTERISTICS” (p. 1234)</p>
NFM-T - Line protection (OMSP) for IROADM cards	<p>NFM-T introduces OMSP protection for IRDM nodal configuration (low power version: 20LP/32LP/9LP) and applicable to:</p> <ul style="list-style-type: none"> • keyed/unkeyed Optical Transponder • compatible with OT with OTSiG model and OT with ODU model • alien service (according the supported alien configurations) • homogeneous degrees (all degrees are configured with OMSP) <p>See Chapter 4, “Protections”</p>

Table E-2 Release 21.4 Document changes in Issue 1, May 2021 (continued)

Features/Enhancements	Description
L1 Protected Service Deployment relaxing Strict Diversity criteria	<p>NFM-T introduces user preference option to relax the strict diversity criteria for L1 service in Managed Plane configuration with and without L0 GMPLS in photonic layer. The option allows allocating a protected service (SNCP) having the main and spare legs in overlap on the same OTS maximizing the diversity, as it is possible from Enforce Physical Link Diversity menu. The scenario is supported only when Manual Routing is specified with the shared resource between the working and protected legs.</p> <p>See:</p> <ul style="list-style-type: none"> • “Physical Connections” (p. 784) • “Infrastructure Connections and Services” (p. 913) • “Deploy a new service or infrastructure connection with template” (p. 1216) • “Physical, Logical, and Link Connections” (p. 219)
NFM-T Search Enhancements	<p>From Release 21.4, NFM-T introduces the support for search for SNCs and Service/Connections.</p> <p>See 24.11 “System Wide Search” (p. 2017)</p>
Support for OPSFlex plus 3R with S4X400H	<p>NFM-T 21.4 recovers the limitation about the OPSFlex protection and 3R with S4X400 configuration declared in the previous releases.</p> <p>OPSFlex +3R configuration is certified for Managed Plane and Control Plane applications for the following network configurations:</p> <ul style="list-style-type: none"> • S4X400 -OPSFlex - 3R (one or more either with main or spare leg) - OPSFlex-S4X400 • OTN pack - S4X400 -OPSFlex - 3R (one or more than one in main in/or spare) - OPSFlex-S4X400 - OTN pack • 20P200 + S4X400H - OPSFlex – 3R — OPSFlex-S4X400H 20P200 <p>See “OPSFlex protection for coherent optimized ROADM with S4X400H” (p. 513)</p>

Table E-2 Release 21.4 Document changes in Issue 1, May 2021 (continued)

Features/Enhancements	Description
PSS-Nx/OTN Interworking with DFC12/S4X400 card	<p>NFM-T supports cascade configuration of OTN packs (10AN1T, 4AN400, 4MX200) with ADD4 packs (S4X400H, DFC12, DFC12E) through an OTU4 black and white link with and without 3R for Managed Plane, L1 GMPLS, and L0 GMPLS configurations:</p> <ul style="list-style-type: none">• 10AN1T - DFC12/DFC12E (MP, L1 CP) with and without 3R in photonic layer or "regen" from OTN Node• 10AN1T - S4X400H (MP, L1 CP) with and without 3R in photonic layer or "regen" from OTN Node• 4AN400 - DFC12/E (MP, L1 CP) with and without 3R in photonic layer or "regen" from OTN Node• 4MX200 - S4X400H (MP, L1 CP) with and without 3R in photonic layer or "regen" from OTN Node <p>The OTU4 interconnect can be different at the ends of the Tunnel; for example, 10AN1T - DFC12 on one side and S4X400H - 4MX200 on the other side.</p> <p>See 8.14 “Interworking configuration in OTN for ADD4 cards” (p. 1355)</p>

Table E-2 Release 21.4 Document changes in Issue 1, May 2021 (continued)

Features/Enhancements	Description
Payload Structure reporting on connection layers	<p>NFM-T Release 21.4 replaces the old payload structure of physical connection link, OMS, OTU, and ODU infrastructure with a new payload structure based on the new UX layout. The main objective of the New Payload Structure is to facilitate the perception of resources allocated in a physical connection/ infrastructure connection versus the global availability of the resource. The new payload displays the C-band and L-band, the free and busy slices with the frequencies or time slots, the optical channel or ODU according to the layer used as starting point.</p> <p>According to the type of selected object (optical channel or ODU infrastructure), the system provides the following major characteristics.</p> <ul style="list-style-type: none"> • Name • Type • Central frequency • Object profile • Protection rule • Control Plane rule (Nominal vs current) • Widget with some KPI per layer (free vs allocated resources, alarm status and so on). Not available as summary for the entire connection. • A navigation to 360 Degree View is enabled on the individual object. <p>See 24.12 "View and Manage Structure" (p. 2022)</p>
GUI Screen conversion to REACT	<p>Improvements to the user interface for lists and pages for better usability</p> <p>See:</p> <ul style="list-style-type: none"> • "Physical Connections" (p. 784) • Chapter 2, "OTN Network Provisioning" • Chapter 10, "Working in ASON" • "Infrastructure Connections and Services" (p. 913) • "Component Templates" (p. 771)

Table E-2 Release 21.4 Document changes in Issue 1, May 2021 (continued)

Features/Enhancements	Description
[UX] Enhanced Inventory Views	<p>NFM-T 21.4 introduces an enhancement on inventory view in order to facilitate the filtering of the list. A new wrapper UI screen (TabList) is available on top of existing List screen with predefined filters and with radio button for user selection. The system provides a design screen to initialize the filters to apply to the Tab List area and customizing the layout as columns etc.</p> <p>See:</p> <ul style="list-style-type: none"> • 7.20 “Manage the inventory view of Physical Connections” (p. 806) • 7.65 “Manage the inventory view of Infrastructure Connections” (p. 1000) • 7.67 “Manage the inventory view of Services” (p. 1006)
8UC1T/10AN1T R13.0 - Pool handling of FF3	<p>NFM-T introduces a more flexible handling of ODU0/1 and ODUflex switching for 8UC1T/10AN1T removing the limit of 38 containers introduced in NFM-T R20.11. For more info about the ODU0/1 & ODUFlex switching for new generation uplink please refer to 1830 PSS Handbook</p> <p>See: “Flex Framer 3 (FF3) pool handling” (p. 1208)</p>
Support container type selection in OPS creation	<p>From Release 21.4 onwards NFM-T supports container type selection in OPS creation</p> <p>See: 7.19.4 “Task: Create a 4-ended OTS or OPS physical connection” (p. 788)</p>
Support Client Signal rate for creation of 2 ended Split bi OPS	<p>From Release 21.4 onwards NFM-T supports Client Signal rate for creation of 2 ended Split bi OPS</p> <p>See: 7.19.4 “Task: Create a 4-ended OTS or OPS physical connection” (p. 788)</p>

Table E-2 Release 21.4 Document changes in Issue 1, May 2021 (continued)

Features/Enhancements	Description
iROADM9R/IRDM32 - Alien Wavelength Bank and Spectrum sharing	<p>NFM-T supports "Wavelength Bank" on iROADM9R and iROADM20/32 for C-band.</p> <p>For iROADM9R, the Alien Wavelength Bank must be connected to the ADT port.</p> <p>For iROADM20/32 it must be connected to MLFSB or MSH4FSB +MLFSB. With alien "Wavelength Bank," the user can implement Spectrum sharing feature connecting an SLTE to a ADT/MLFSB port. SLTE to ADT/MLFSB port link is not modeled in NE and NFM-T.</p> <p>From user point of view, the spectrum sharing is just a creation of a multiple aliens on the same port without any constraint about the spectrum management (the frequencies can be not contiguous).</p> <p>Alien "Wavelength Bank" is not supported with ENE. Alien services are created without ENE on the same port.</p> <p>See 1.5 "Understanding the OTN" (p. 133)</p>
4UC1T: Carrier Profiles	<p>4UC1T is delivered with the following certified Carrier Profiles for both Managed and Control Plane applications.</p> <ul style="list-style-type: none"> • 200G QPSK, 62Gbaud, SD-FEC-G2, abs coding, Flex • 300G 8QAM, 62Gbaud, SD-FEC-G2, abs coding, Flex • 400G 16QAM, 62Gbaud, SD-FEC-G2, abs coding, Flex <p>See "OPTICAL LINE CHARACTERISTICS" (p. 1234)</p>
S4X400L: Carrier Profiles	<p>NFM-T Release 21.4 supports the following Carrier profiles for S4X400L (L-band version):</p> <ul style="list-style-type: none"> • 100G QPSK, 45Gbaud, SD-FEC-G2, abs coding, Flex • 200G QPSK, 62Gbaud, SD-FEC-G2, abs coding, Flex • 200G QPSK, 67Gbaud, SD-FEC-G2, abs coding, Flex • 300G SQAM16, 62Gbaud, SD-FEC-G2, abs coding, Flex • 300G SQAM16, 67Gbaud, SD-FEC-G2, abs coding, Flex • 400G QAM16, 62Gbaud, SD-FEC-G2, abs coding, Flex • 400G QAM16, 67Gbaud, SD-FEC-G2, abs coding, Flex and the additional channel spacing • 50GHz for 45GBaud in addition to 62.5GHz, 75.0GHz, 87.5GHz • 75GHz for 67Gbaud in addition to 87.5GHz <p>See "OPTICAL LINE CHARACTERISTICS" (p. 1234)</p>

Table E-2 Release 21.4 Document changes in Issue 1, May 2021 (continued)

Features/Enhancements	Description
NDT report: Include only objects matching the domain the user belongs to	When using the domain partitioning feature of NFM-T, the domain of the user creating the Network Data File is now used to filter the data included in the Network Data File. Each json file generated within the Network Data File includes only data belonging to the user's domain. The user's domain can be determined by the Access Domain field in the User Management List. See the <i>NFM-T NE Management Guide</i> .

Features in Release 20.11

The following table shows the document changes.

Table E-3 Release 20.11 Document changes in Issue 1, November 2020

Features/Enhancements	Description
8UC1T/10AN1T R13.0 Mngt restrictions (20.7 Gap)	NFM-T extends 8UC1T and 10AN1T supported configuration adding the following: - ODU0/1/ODUflex switching - TCM at ODUk layer - Latency service management on 10AN1T - NNI/OTU channelized configurations in 10AN1T. See " Link Connections tab and data table " (p. 245).
NFM-T - Carrier Profile: 67Gbaud (200G, 400G),, SD-FEC-G2, abs coding, Flex - DFM6/DFM6E	NFM-T introduces 67Gbaud (200G, 400G),, SD-FEC-G2, abs coding, Flex as carrier profile for DFM6/DFM6E card for Managed Plane configuration. See " OPTICAL LINE CHARACTERISTICS " (p. 1234).
NFM-T - Carrier Profile: 400G QAM16, 62Gbaud, SD-FEC-G2, abs coding, Flex - DFM6/DFM6E	NFM-T introduces 400G QAM16, 62Gbaud, SD-FEC-G2, abs coding, Flex as carrier profile for DFM6/DFM6E card for Managed Plane configuration. See " OPTICAL LINE CHARACTERISTICS " (p. 1234).
Multi selection for protection switch for Y-cable protected services	NFM-T Improves the service list and the protected connection list in order to allow the protection switch commands, available in Manage MSP/SNCP command, for multiple y-cable protected services. The y-cable service can be of normal y-cable service or 1:N y-cable service. See " Task: Multiple selection of Y-Cable protected service connections for protection switching " (p. 1108).

Table E-3 Release 20.11 Document changes in Issue 1, November 2020 (continued)

Features/Enhancements	Description
OPSFLEX for Coherent Optimized ROADM with S4X400H in L0 CP	<p>NFM-T supports OPSFlex for S4X400H with and without mate configuration with 20P200. No 3R supported in OPSflex protection.</p> <p>See</p> <ul style="list-style-type: none"> • 8.11.5 “Task: To create a protected ASON OTSig trail” (p. 1328) • 8.11.6 “Task: To delete a protected ASON OTSig trail” (p. 1329) • 7.90 “Perform protection switching” (p. 1106)
[AMX] Reversion Control Group - Parity with NRC-T 19.2	<p>The Reversion Control Group feature is to help maintain the automatic switch of IP traffic upon reversion of Control Plane optics services to the Nominal Route from the Backup Route. This feature is applicable for a scenario where two or more diverse path optics LSPs are carrying primary and secondary paths of the IP/MPLS tunnel.</p> <p>See “Manage Reversion Control Group” (p. 1577)</p>
ODUflex restoration (1.25G slices)	<p>NFM-T supports 1830 PSS R13.0.4 ODUFlex L1 GMPLS restoration in OTN boxes (1830 PSS-OCS, 1830 PSS-8x, 1830 PSS-12x, 1830 PSS-24x) for terminated and not-terminated service (channelized service). The ODUFlex is covered for the following packs in 1830 PSS-Nx (2UC400, 4UC400, 30AN300, 4AN400, 20UC200, 1UX100, 20AX200, 20MX80, 20AN80, 4MX200, 10AN1T, 8UC1T) and for the following in 1830 PSS-OCS (130SCUPC, 130SCUPH, 1AN100G, 10AN10GC, 103SCEC, 11OCEC).</p> <p>See 8.10 “Create an end to end ODUFlex service” (p. 1310)</p>
1830 LX Multispan support (GMPLS L0 and MP)	<p>NFM-T extends 1830LX supported network scenarios adding the following ROADM standard degree (without the need of an extra FOADM): - iROADM9R - C-F configuration - iROADM20 - CDC-F 2.0 configuration - a mix of them or CDC-F 1.0 (already supported) and ILA on such photonic architecture, 1830 LX is managed as per NFM-T already supported feature set.</p> <p>See “1830 LX nodes” (p. 209)</p>
NFM-T - 1830LX: Flexgrid support	<p>NFM-T support flex-grid channels allocation on OTS links with 1830 LX for managed-plane and control-plane configurations. For control-plane, ADD4 transponders are not supported.</p> <p>See “1830 LX nodes” (p. 209)</p>

Table E-3 Release 20.11 Document changes in Issue 1, November 2020 (continued)

Features/Enhancements	Description
RA3P NE Type - FM APP integration	<p>NFM-T recovers the RA3P management that was stopped in R19.2 with the following characteristics:</p> <ul style="list-style-type: none"> • new "RA3P" NE Type • feature parity with respect NFM-T R19.2 management for link handling, alarms association etc. • RA3P alarms integration with FM APP <p>See 7.35 "Manage repeaters for an OTN OTS physical connection" (p. 850)</p>
Support of DWDM T-SFP+ w/o WT on all 20 ports - 20AX200/20MX80	<p>NFM-T supports DWDM T-SFP+ pluggable on ports from 1 to 12 (from 13 to 20 it was already supported) for 20AX200 and 20MX80 (10G only). This is a PSS R13.0.4 feature. such colored ports must be configured as clients only and they can be used as drop port in L1 GMPLS.</p> <p>See</p> <ul style="list-style-type: none"> • 2.11 "Nodes" (p. 190) • 4.4 "Y-Cable protection" (p. 430)
CPB support for PSS 13.0.4	<p>CPB is enhanced to support 3-digit release for 1830 PSS R13.0.4/ 1830 PSI R5.0.4 and supports backward compatibility.</p> <p>See</p> <ul style="list-style-type: none"> • 11.3 "Network planning using EPT" (p. 1599) • 14.5 "View and export CPB log files" (p. 1657) • 14.2 "Provision a system" (p. 1634)
Support of DFM6	<p>NFM-T introduces DFM6, ADD4-based 1830 PSI-M sled with the following characteristics:</p> <ul style="list-style-type: none"> • Only 400GbE clients available • NFM-T management workflows aligned to DFC12 or DFC12E • 1830 PSI-M with DFM6 is compatible with photonic architectures already supported for DFC12 or DFC12E (including cluster and dangling configurations) • Managed Plane only <p>See the following topics:</p> <ul style="list-style-type: none"> • 2.31 "Provisioning connections for ADD4 cards" (p. 286) • 8.4 "New service/infrastructure connection" (p. 1219) • 8.11 "Manage an OTSig Tunnel" (p. 1314)

Table E-3 Release 20.11 Document changes in Issue 1, November 2020 (continued)

Features/Enhancements	Description
Power Monitoring view for unkeyed service	<p>NFM-T extends the support of power graph to unkeyed connections (in previous releases only keyed connections were displayed in power graph).</p> <p>See 17.13 “Optical power visualization” (p. 1818).</p>
Additional Text Attribute (Alias) on Nodes/Connections/Services	<p>NFM-T extends text attribute on the following objects:</p> <ul style="list-style-type: none"> • Nodes: “Comment3” (“Comment 1” and “Comment 2” already available in the Inventory) • Infrastructure Connections: “Connection Alias 2” (“Connection Alias” already available in the Inventory) • Services: “Connection Alias 2” (“Connection Alias” already available in the Inventory) Text attribute characteristics: • support UTF-8 and standard localization capabilities as the other text attributes • can be normally sorted, displayed, exported to CSV, PDF print, as well as modified with a new value etc. • support REST API methods • Data already populated in the today available “Comment x” and “Connection Alias” are not expected to change in the course of NFM-T upgrade or migration process. The new required text attributes are initialized as empty. <p>See 7.55 “Manage additional text attribute (Alias) - Infrastructure Connections and Services” (p. 947)</p>
Y-cable protection on switching shelves - I/O card PSS8x/12x/24x - sub-10G	<p>NFM-T introduces the management of Y-cable protection on switching shelves - I/O card PSS8x/12x/24x for sub-10G rate.</p> <p>See “Y-Cable protection for 1830 PSS-nx with Input/Output Cards” (p. 439)</p>
DFM6/DFM6E - Carrier Profile: 200G QPSK, 62Gbaud, SD-FEC-G2, abs coding, Flex	<p>Support of 200G QPSK, 62Gbaud, SD-FEC-G2, abs coding, Flex as carrier profile in Managed Plane configurations</p> <p>See “OTUCn” (p. 143)</p>
Single Fiber support on S4X400	<p>NFM-T supports a single fiber configuration for S4X400H</p> <p>See 5.14 “Single Fiber on S4X400” (p. 574)</p>
ODUflex (GFP-F) mapping	<p>ODUflex (GFP-F) mapping - Extended to 6SE300 and 30SE300 cards.</p> <p>See “ODUflex” (p. 256)</p>

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