



# Configuring Optical Devices by Using the Chassis View

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Cisco EPN Manager 2.1.3

Job Aid

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*Configuring Optical Devices by Using the Chassis View Job Aid*

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# Basics

## Overview

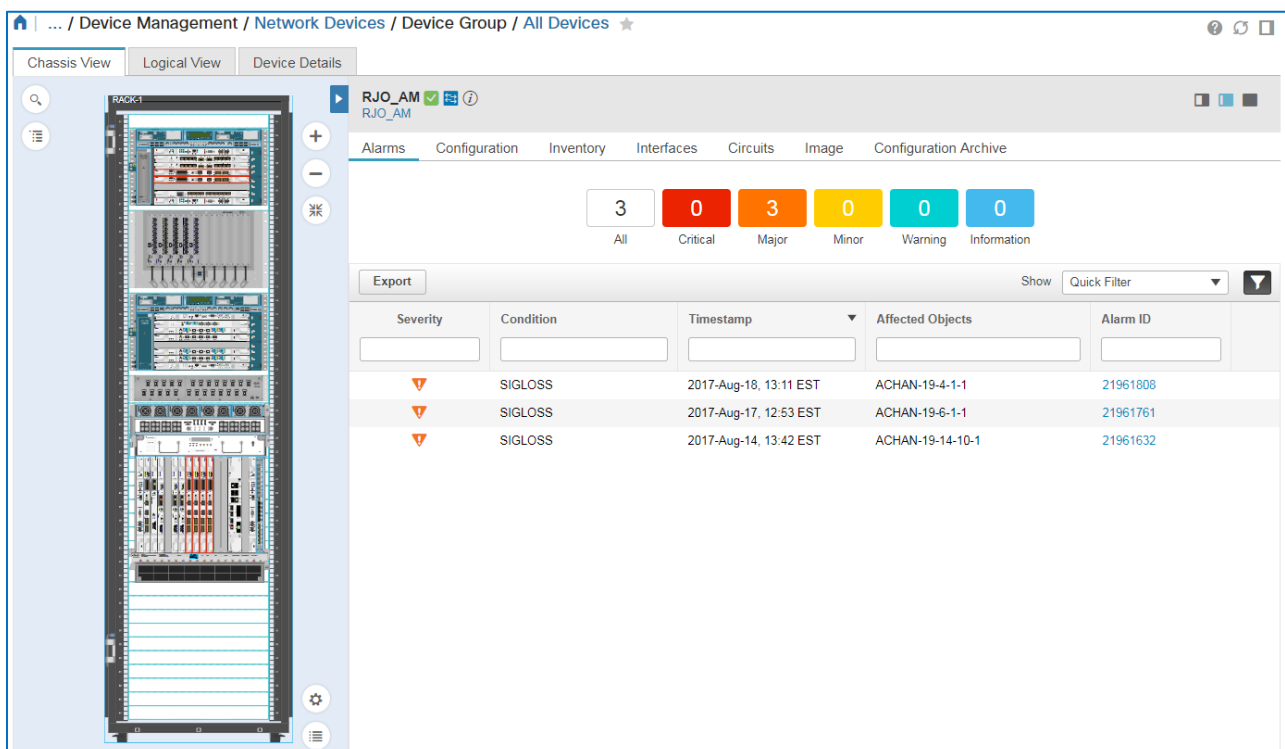
The Chassis View feature in Cisco® EPN Manager provides an interactive, visual representation of optical devices, their internal components, and their physical connections, reducing the need to use additional management tools for device integration into the optical network.

By using the chassis view, you can:

- ❖ Evaluate and manage alarms at a device or component level.
- ❖ Add or change configuration settings, and see and manage internal patch cords.
- ❖ See and manage the component inventory.
- ❖ Evaluate interface alarms and states.
- ❖ Review the circuits that the device supports.
- ❖ See the current running device image, review image recommendations, and manage configuration archive files.
- ❖ Pre-provision line cards.



**Note:** The tasks that you can perform in the system depend on your user permissions.



Severity	Condition	Timestamp	Affected Objects	Alarm ID
Warning	SIGLOSS	2017-Aug-18, 13:11 EST	ACHAN-19-4-1-1	21961808
Warning	SIGLOSS	2017-Aug-17, 12:53 EST	ACHAN-19-6-1-1	21961761
Warning	SIGLOSS	2017-Aug-14, 13:42 EST	ACHAN-19-14-10-1	21961632

To populate the optical device chassis view, the system maps the device representation with its components and connectivity during device discovery.



**Important Note:** To use the chassis view to see or manage an optical device, device discovery in EPN Manager must be complete, and the system must be managing the device.

On the **Network Devices** page, you can access the chassis view by clicking the device name link.

/ Network Devices ★

Device Groups / User Defined

Optical LH

Selected 0 / Total 16

Admin State Sync Groups & Sites Export Device Show Quick Filter

	Reacha...	Admin Status	Device Name	IP Address	DNS Name	Device Type	Last Inventory Coll...	Last Success
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Managed	ADA_BR	10.89.204.239	rcdn5-tme-sit...	Cisco NCS 2006	Completed	August 20, 21
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Managed	CHP_AS	10.89.204.240	rcdn5-tme-sit...	Cisco NCS 2006	Completed	August 20, 21
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Managed	GJA_2AA	10.89.204.32	rcdn5-tme-sit...	Cisco NCS 2006	Completed	August 20, 21
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Managed	IZA_BR	10.89.204.241	rcdn5-tme30-...	Cisco NCS 2006	Completed	August 20, 21

The system opens a detailed device page with the **Chassis View** tab active by default. The **Chassis Explorer** opens automatically to provide navigation to device components.

Chassis View Logical View Device Details

RJO\_AM

Alarms Configuration Inventory Interfaces Circuits Image

3 0 3 0 0 0

All Critical Major Minor Warning Information

Export Show Quick Filter

Severity	Condition	Timestamp	Affected Objects	Alarm ID
Warning	SIGLOSS	2017-Aug-18, 13...	ACHAN-19-4-1-1	21961808
Warning	SIGLOSS	2017-Aug-17, 12...	ACHAN-19-6-1-1	21961761
Warning	SIGLOSS	2017-Aug-14, 13...	ACHAN-19-14-10-1	21961632

Chassis Explorer

- RACK-1
  - MECH-UNIT
  - MF-PPMESH8-5AD
  - SHELF-1
    - 0: TNC
    - 1: SMR20-FS
    - 2: SMR20-FS-CV
    - 3: Line Card Slot
    - 4: AD-16-FS
    - 5: SMR20-FS-CV
    - 6: OPT-RAMP-CTP
    - 7: TNC
    - 8: M6-DC
    - 9: M6-DC
    - 10: M6-FTA2
    - 11: NCS2006-ECU-S
    - 12: M6-LCD
  - SHELF-2
    - 0: TNC

This job aid addresses the tasks that you can perform by using the **Chassis View** to configure a Cisco NCS 2000 series optical device after its initial installation, which provides a good overview of one type of device management task that you can perform.



**Note:** When available, the chassis view layout varies based on the optical device type. Some devices that EPN Manager supports do not provide a **Chassis View**.

For more information on chassis view layouts, the types of information that you can see, the tasks that you can perform, and the devices that offer chassis views, refer to the [Cisco EPN Manager User and Administrator Guide](#).

## Pre-Requisites for Using the Chassis View

### **EPN Manager Device Management**

To use the chassis view to configure, manage, and monitor optical devices, EPN Manager must complete device discovery and be managing those devices.

### **Network Topology Design**

A system user needs to plan and produce the optical network design by using the Cisco Transport Planner (CTP) optical network design tool, and then deploy the design to the optical device.

You then follow the design specifications, including the devices that require connections and configuration attributes, such as wavelength specifications.

## Skills

To configure new optical devices by using the chassis view, you need the following experience.

### **Proficient**

- ❖ EPN Manager layout and navigation

### **Expert**

- ❖ The topology of the optical network in which you are working
- ❖ Optical device hardware configuration and interaction on the optical network
- ❖ Cisco Transport Planner (CTP) optical network design tool configuration and parameter output
- ❖ Optical device configuration settings, including wavelengths, their correlation with the topology design that the CTP tool produces, and how the settings affect the device and its network interaction

## Terms

### **Shared Risk Link Group (SRLG) and Shared Risk Resource Group (SRRG)**

Cisco uses these terms to refer to situations in which links or devices in a network share a common fiber or common physical attribute. In this situation, when one link fails, other links in the group can fail, too, which means all links in the group have a shared risk.

The application uses these terms and their acronyms interchangeably. In the chassis view, the system uses the acronym SRLG.

## Endpoint and Port

---

These terms refer to a device interface. The application uses these terms interchangeably.

## A (Source) Endpoint

---

These terms refer to the port on a device that supports communication. The application uses these terms interchangeably.

## Z (Destination) Endpoint

---

These terms refer to the port on a device that supports communication. The application uses these terms interchangeably.

# The Optical Device Configuration Process

## Process Overview

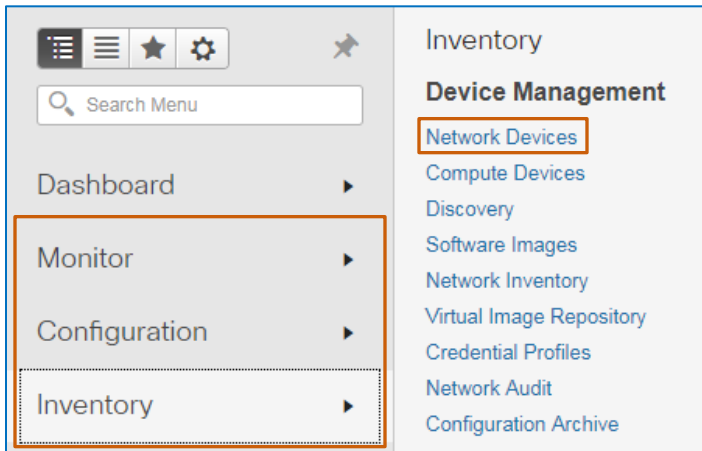
To configure optical device initially after installation and device discovery:

1. On the **Network Devices** page, click the name link of the device that requires configuration.
2. On the **Chassis View** tab | **Configuration** subtab, in the **General** section, identify the name, physical location, and the server that manages the device date and time.
3. To enable or manage device protocols, in the **Network** section, configure the protocol settings.
4. To add or manage system user access to optical devices, in the **Security** section, configure system users' access to and ability to make configuration changes on the optical device directly.
5. To visualize physical trunk or client interfaces, in the **Internal Patchcords** section, indicate the internal patch cords that are installed in the device.
6. To define optical fiber cable attributes and alien wavelength parameters, in the **GMPLS/WSN** section, follow the network design to configure the settings.



## Process Steps

To configure an optical device, open the **Network Devices** page, which is accessible on the **Monitor**, **Configuration**, and **Inventory** menus.

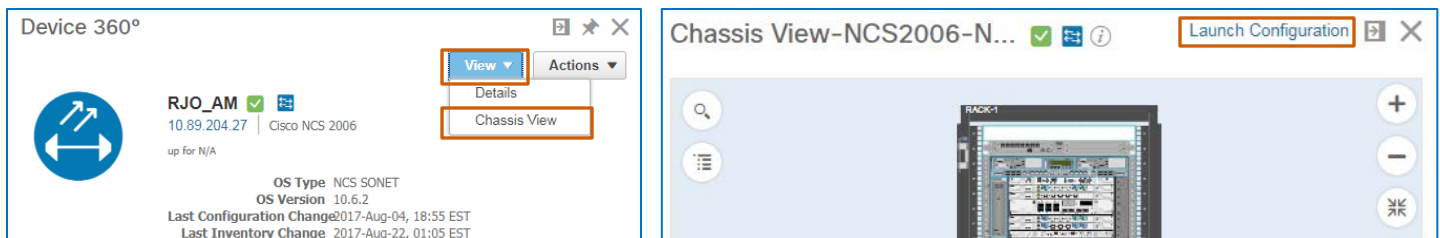


The **Network Devices** page lists the devices. To configure an optical device, the state in the **Last Inventory Collection Status** column must indicate **Completed**.

Inventory / Device Management / Network Devices

Recha...	Admin Status	Device Name	IP Address	DNS Name	Device Type	Last Inventory Coll...	Last Suc...
<input type="checkbox"/>	Managed	10.89.204.202	10.89.204.202	rcdn5-ncs1k-1...	Cisco NCS 1002	SNMP Connectivit...	August 21
<input type="checkbox"/>	Managed	6.2.1-Comcast	10.89.205.154	rcdn5-30b-ncs...	Cisco NCS 1002	Completed	August 21
<input type="checkbox"/>	Managed	6.3.1-EFT	10.89.204.233	rcdn5-29-ncs1...	Cisco NCS 1002	Completed	August 21
<input type="checkbox"/>	Managed	ADA_BR	10.89.204.239	rcdn5-tme-site...	Cisco NCS 2006	Completed	August 21
<input type="checkbox"/>	Managed	ASR9001	172.27.153.55	aabeer-Inx3.ci...	Cisco ASR 9001 Ro...	Partial Collection F...	August 14
<input type="checkbox"/>	Managed	ASR901-CSG-2...	10.56.23.17	asr901-csg-2...	Cisco ASR 901-E R...	Completed	August 21
<input type="checkbox"/>	Managed	ASR903-1	172.27.153.148	172.27.153.148	Cisco ASR 903 Rou...	Completed	August 21

You also can open the **Chassis View** feature by using the **View** menu in a **Device 360°** pop-up window, and then, in the view, click **Launch Configuration**.



## Task 1: Identify the Device Name, Physical Location, and Time Server

To identify the name, physical location, and time server, follow these steps:

1. On the **Network Devices** page, click the name link of the optical device that you need to configure.

Optical LH

	Reacha...	Admin Status	Device Name	IP Address	DNS Name
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Managed	<a href="#">ADA_BR</a>	10.89.204.239	rcdn5-tme-site...
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Managed	<a href="#">CHP_AS</a>	10.89.204.240	rcdn5-tme-site...
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Managed	<a href="#">GJA_2AA</a>	10.89.204.32	rcdn5-tme-site...
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Managed	<a href="#">IZA_BR</a>	10.89.204.241	rcdn5-tme30-...
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Managed	<a href="#">MRES_FL</a>	10.89.204.30	rcdn5-tme-site...
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Managed	<a href="#">PAT_PT</a>	10.89.204.29	rcdn5-tme-site...
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Managed	<a href="#">RJO_AC</a>	10.89.204.67	rcdn5-30-7c-...
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Managed	<a href="#">RJO_AM</a>	10.89.204.27	rcdn5-tme30-...
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Managed	<a href="#">RJO_EN</a>	10.89.204.121	rcdn5-30-6-nc...

The system opens a detailed device page with the **Chassis View** tab active. The **Chassis Explorer** and **Alarms** subtab are open by default.

... / Device Groups / \$Inventory\_User\_Defined\$ / \$Inventory\_Optical\_LH\$ / RJO\_AM

Chassis View Logical View Device Details

RJO\_AM

Alarms Configuration Inventory Interfaces Circuits Image

3 0 3 0 0 0

All Critical Major Minor Warning Information

Export Show Quick Filter

Severity	Condition	Timestamp	Affected Objects	Alarm ID
	SIGLOSS	2017-Aug-18, 13...	ACHAN-19-4-1-1	21961808
	SIGLOSS	2017-Aug-17, 12...	ACHAN-19-6-1-1	21961761
	SIGLOSS	2017-Aug-14, 13...	ACHAN-19-14-10-1	21961632

Chassis Explorer

RJO\_AM

RACK-1

MECH-UNIT

MF-PPMESH8-5AD

SHELF-1

0: TNC

1: SMR20-FS

2: SMR20-FS-CV

3: Line Card Slot

4: AD-16-FS

5: SMR20-FS-CV

6: OPT-RAMP-CTP

7: TNC

8: M6-DC

9: M6-DC

10: M6-FTA2

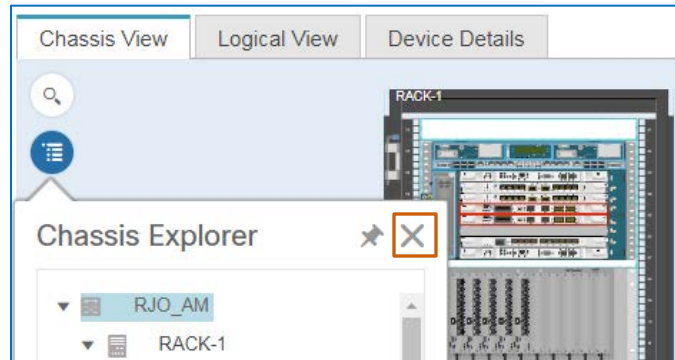
11: NCS2006-ECU-S

12: M6-LCD

SHELF-2

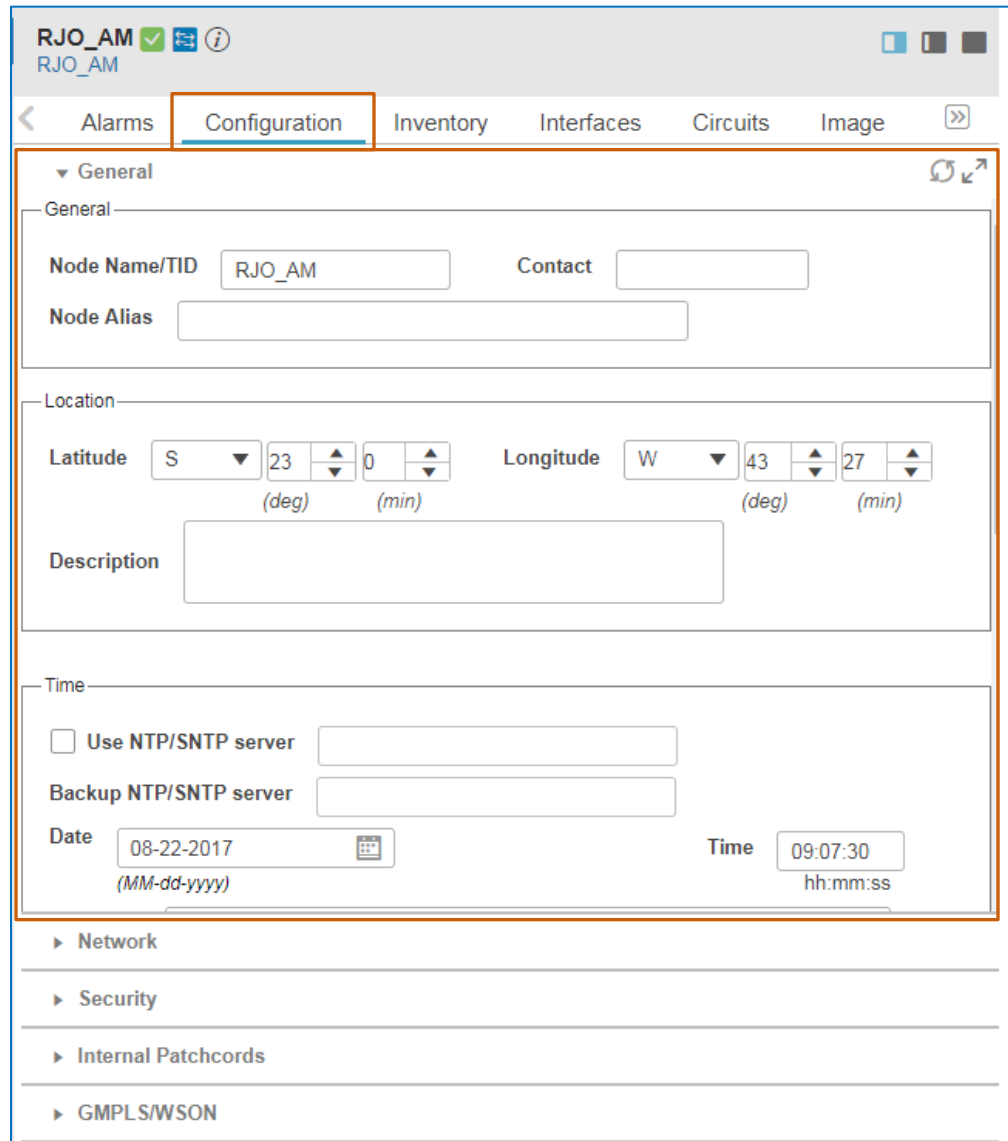
0: TNC

- To see the device representation and connections, close the **Chassis Explorer**.



- To the right of the device image, click the **Configuration** subtab.

The subtab organizes configuration tasks in a series of sections. The **General** section is open by default.



**RJO\_AM** ✓ ⓘ

**RJO\_AM**

Alarms **Configuration** Inventory Interfaces Circuits Image

▼ General

General

Node Name/TID: RJO\_AM Contact:

Node Alias:

Location

Latitude: S 23 0 Longitude: W 43 27

(deg) (min) (deg) (min)

Description:

Time

☐ Use NTP/SNTP server

Backup NTP/SNTP server:

Date: 08-22-2017 Time: 09:07:30

(MM-dd-yyyy) hh:mm:ss

► Network

► Security

► Internal Patchcords

► GMPLS/WSO

4. Under the **General** heading:

- ❖ To identify the device, in the **Node Name/TID** field, follow business requirements to indicate the name of the device.



**Note:** When the device has been named before the system discovers it, the system populates this field automatically with the name.

- ❖ To provide information on the person who is supporting the hardware, in the **Contact** field, type the name or e-mail address.
- ❖ To provide an additional device description, in the **Node Alias** field, type the information.

5. Under the **Location** heading:

- ❖ To indicate the physical location of the device, type the latitude and longitude in direction, degrees, and minutes.



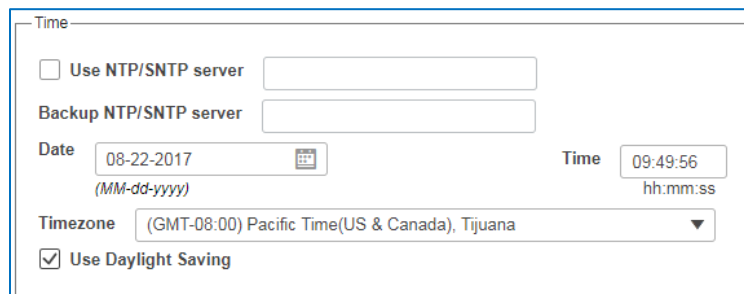
**Note:** Adding the latitude and longitude enables EPN Manager to position the device on topology maps automatically.

- ❖ To describe the physical location of the device, in the **Description** field, type the information.



**Note:** The system also writes the description to the device, which the device displays in its Cisco Transport Controller (CTC) tool.

6. Under the **Time** heading, to configure the system time to which the device will synchronize:



- ❖ To synchronize the device time with a **Network Time Protocol** (NTP) server:
  - ◆ Select the **Use NTP/SNTP server** check box, and then, in the field, type the server IP address.
  - ◆ To indicate a secondary NTP server in case the NTP server fails, in the **Backup NTP/SNTP server** field, type the server IP address.



**Note:** Because NTP servers use Coordinated Universal Time (UTC), you also indicate the server Greenwich Mean Time (GMT) time zone in which the device is located in the **Timezone** drop-down list.

You also can configure the system to adjust the time zone automatically when applicable, by selecting the **Use Daylight Saving** check box.

- ❖ To configure the device date and time manually, in the **Date** and **Time** fields, select the date and time.
- ❖ To indicate the time zone of the physical location of the server, in the **Timezone** drop-down list, select the time zone.
  - ◆ Based on the time zone selected in the **Timezone** drop-down list, to allow the device time to update when daylight saving time applies, accept the default selection of the **Use Daylight Saving** check box.

When you are using an NTP server, the system calculates the time relationship among these settings to reflect accurate device time.

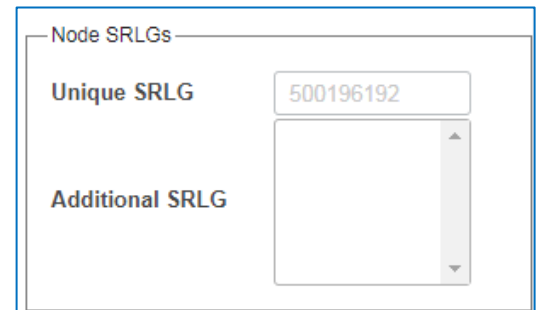
**Note:** The **Node SRLGs** ([shared risk link group](#)) section is read-only and lists:

- ❖ In the **Unique SRLG** field, a sequence of distinct numbers that are assigned to different resources supporting a device that shares resources with other devices. When these numbers are sequenced to form the SRLG tag, the tag uniquely identifies the device in the system.

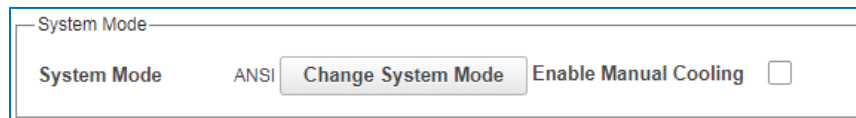
When users configure network paths for the device's traffic, the system references the SRLG tag to ensure that it configures primary or secondary network paths using different resources to minimize failure risk.

The device populates the information in this field.

- ❖ In the **Additional SRLG** field, any subsequent unique identifiers that system users have provisioned on devices that share physical resources. This way, the system will not use duplicate resources when configuring primary or secondary network paths.



#### 7. Under the **System Mode** heading:



- ❖ Beside the current ANSI (SONET) or ETSI (SDH) system mode indicator, to toggle to the alternate mode, click **Change System Mode**.
- ❖ To turn rack shelf fans to their maximum speeds, select the **Enable Manual Cooling** check box.

**Note:** Most commonly, system users apply this setting to test that fans are working as expected.

8. Under the **Reset NE To Factory Defaults** heading:

- ❖ To return the device configuration to its original, default settings, click **Reset NE to Factory Defaults**.



**Caution:** This action returns the device's running configuration to its factory default state. You take this step in those situations in which the complete device configuration needs to be erased due to a catastrophic failure.

Before taking this action, we recommend that you back up and archive the device's current running configuration.

Reset NE To Factory Defaults

Reset NE To Factory Defaults
Reset NE to Factory Defaults



**Note:** The read-only **System Description** field indicates the operating system and software image on the device.

<b>System Description</b>	Cisco NCS2006 FLEX 10.6.2 (10.62-017C-31.17-F-SPA)
---------------------------	--

9. To manage the settings that you have configured:

- ❖ To save the settings, at the end of the section, click **Apply**, and then, to configure device protocols, [go to task 2](#).

The system downloads the configuration to the device and then synchronizes the EPN Manager inventory automatically.

- ❖ To return the settings to those that were configured before you made changes, click **Reset**.

Reset NE To Factory Defaults

Reset NE To Factory Defaults
Reset NE to Factory Defaults

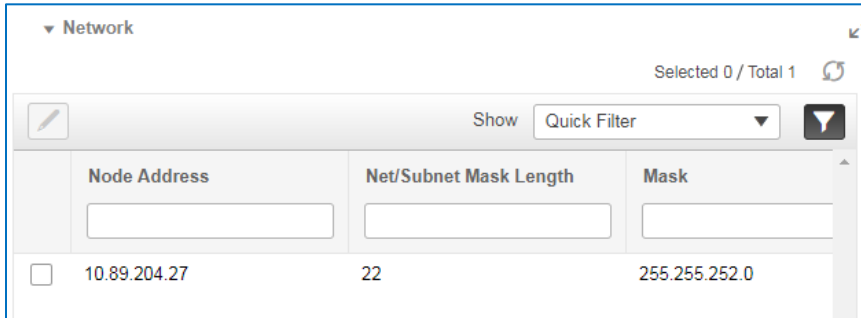
**System Description**      Cisco NCS2006 FLEX 10.6.2 (10.62-017C-31.17-F-SPA)

Apply
Reset

## Task 2: Configure Device Protocols

You can configure device protocol settings in the **Network** section on the **Configuration** subtab.

The section lists the IP management address for the device.



▼ Network

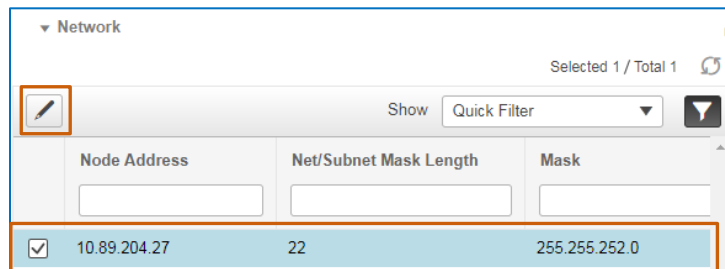
Selected 0 / Total 1

Show Quick Filter

	Node Address	Net/Subnet Mask Length	Mask
<input type="checkbox"/>	10.89.204.27	22	255.255.252.0

To configure device protocol settings, follow these steps:

1. Expand the **Network** section.
2. In the list, select the check box beside the device's IP address, and then click **Edit**.



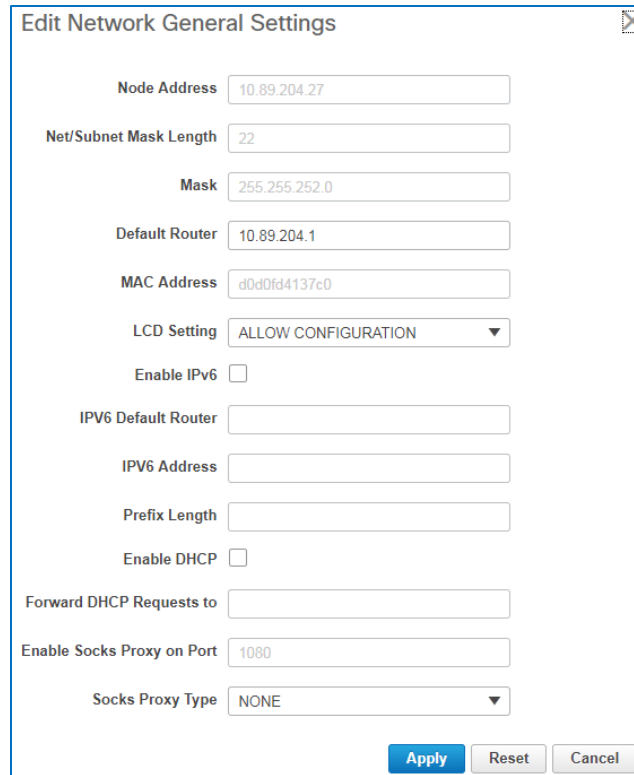
▼ Network

Selected 1 / Total 1

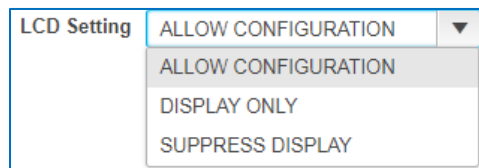
Show Quick Filter

	Node Address	Net/Subnet Mask Length	Mask
<input checked="" type="checkbox"/>	10.89.204.27	22	255.255.252.0

The **Edit Network General Settings** dialog box opens. The IP address, subnet mask length, mask, and MAC address are read-only fields populated with the device information that the system captures during device discovery.

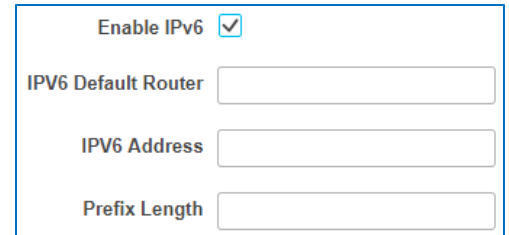


3. To indicate the default gateway, in the **Default Router** field, type the router IP address.
4. To control the actions that a user can take by using the liquid crystal display (LCD) on the device, in the **LCD Setting** drop-down list:
  - ❖ To enable the display of the backplane IP address on the device's LCD and accept changes by using the LCD, select **ALLOW CONFIGURATION**.
  - ❖ To enable the display of the backplane IP address on the device's LCD and disable the ability to make changes by using the LCD, select **DISPLAY ONLY**.
  - ❖ To disable the display of the backplane IP address and any actions by using the LCD, select **SUPPRESS DISPLAY**.





5. To enable IPv6 addresses to communicate to the device, select the **Enable IPv6** check box. This action enables the IPv6 default router, IP address, and prefix length fields.
6. To configure support for IPv6 addresses:
  - a. Optionally, when the device needs to support both IPv4 and IPv6 connectivity, in the **IPv6 Default Router** field, type the IP address of the IPv6 router that you want the device to use by default.
  - b. To assign the IP address to the device, in the **IPv6 Address** field, type the IP address.
  - c. To define the number of bits set in the subnet mask, in the **Prefix Length** field, type the value.



Enable IPv6 ☒

IPv6 Default Router

IPv6 Address

Prefix Length

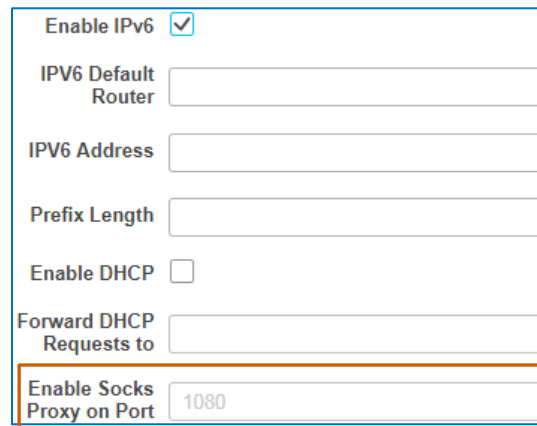


**Note:** When you enable support for IPv6:

Connectivity to a Socket Secure (SOCKS) Internet protocol proxy server is enabled automatically.

The **Enable Socks Proxy on Port** field indicates the port that the device is using to connect to the server.

The port is assigned by default and the field is read-only.



Enable IPv6 ☒

IPv6 Default Router

IPv6 Address

Prefix Length

Enable DHCP ☐

Forward DHCP Requests to

Enable Socks Proxy on Port

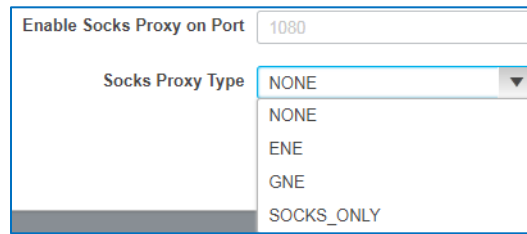
7. To allow the device to forward the dynamic host configuration protocol (DHCP) requests that it receives, which allows the requesting device to obtain a temporary IP address from an external DHCP server:
  - a. Select the **Enable DHCP** check box. This action makes the **Forward DHCP Requests to** field available.
  - b. In the **Forward DHCP Requests to** field, type the DHCP server's IP address.



Enable DHCP ☐

Forward DHCP Requests to

8. To provision the device's proxy server, in the **Socks Proxy Type** drop-down list, select the proxy type.




**Important Note:** The SOCKS proxy type affects the way clients and the optical device communicate with each other on the TCP/IP set of protocol layers (stack).

This feature enables a SOCKS proxy server on the device's controller card. The server can support implementation of a private LAN with IP addresses that cannot be routed.

It also can restrict traffic bi-directionally on a specific port, which is port 1080 by default, when a firewall exists between clients and the optical device.



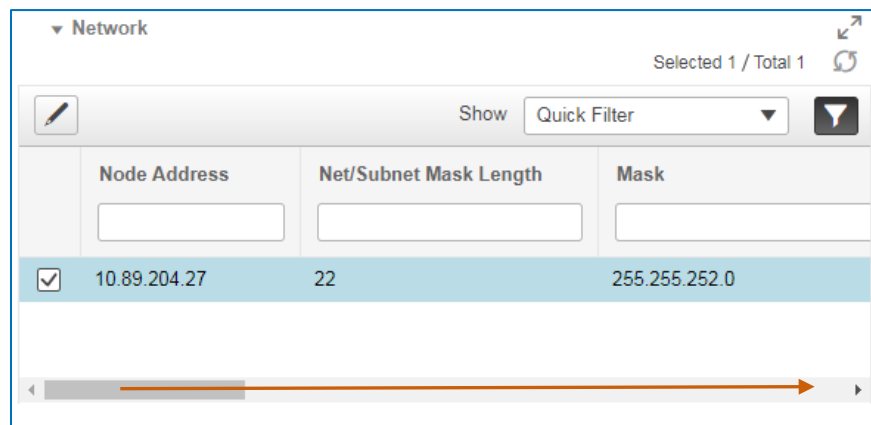
**Caution:** Changing the proxy type might prevent a client from communicating properly with the optical device.

For more information on SOCKS proxy types on NCS 2000 series optical devices, [refer to the Cisco NCS 2000 Series Control Card and Node Configuration Guide](#).

9. To save your changes, click **Apply**.

The system downloads the configuration to the device and then synchronizes the EPN Manager inventory automatically.

You can scroll to see the current settings.

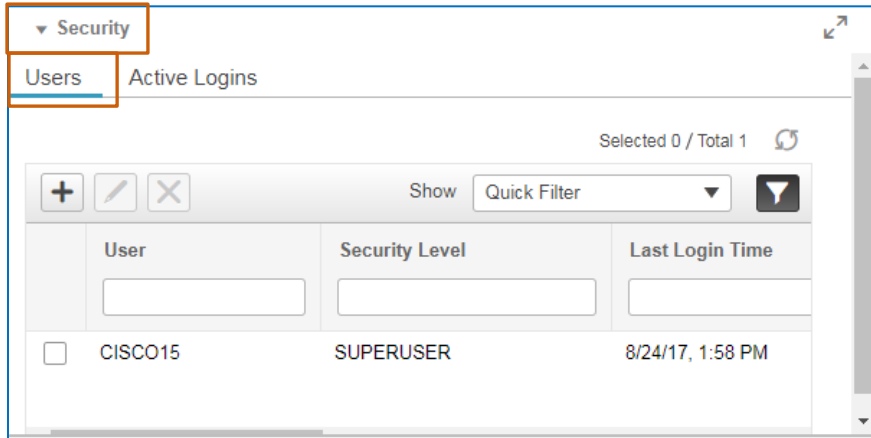


	Node Address	Net/Subnet Mask Length	Mask
<input checked="" type="checkbox"/>	10.89.204.27	22	255.255.252.0

10. To configure system users' device access permissions, [go to task 3](#).

### Task 3: Configure Optical Device Users' Device Access Permissions

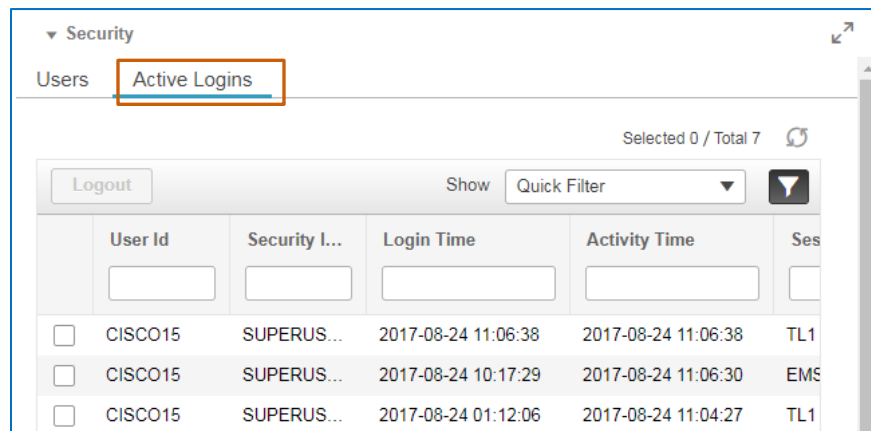
You can configure optical device users' ability to access, or make configuration changes, to the device in the **Security** section on the **Configuration** subtab.



User	Security Level	Last Login Time
<input type="checkbox"/> CISCO15	SUPERUSER	8/24/17, 1:58 PM



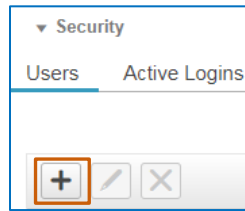
**Note:** You also can review an audit trail of users who have logged onto the device on the **Active Logins** tab.



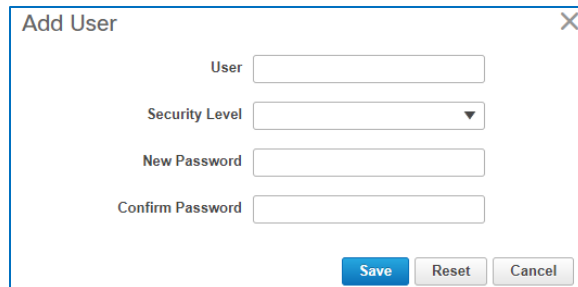
User Id	Security L...	Login Time	Activity Time	Ses
<input type="checkbox"/> CISCO15	SUPERUS...	2017-08-24 11:06:38	2017-08-24 11:06:38	TL1
<input type="checkbox"/> CISCO15	SUPERUS...	2017-08-24 10:17:29	2017-08-24 11:06:30	EMS
<input type="checkbox"/> CISCO15	SUPERUS...	2017-08-24 01:12:06	2017-08-24 11:04:27	TL1

To add an optical device user, follow these steps:

1. To add a user and configure the user permissions, on the toolbar, click **Add**.



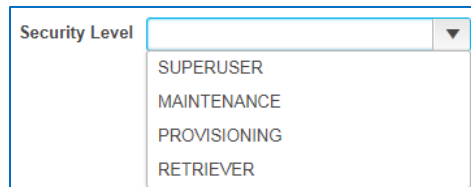
The **Add User** dialog box opens.



2. To identify the user, in the **User** field, type the user ID.
3. To define the user's access and tasks that they can perform, in the **Security Level** drop-down list, select the permission setting.

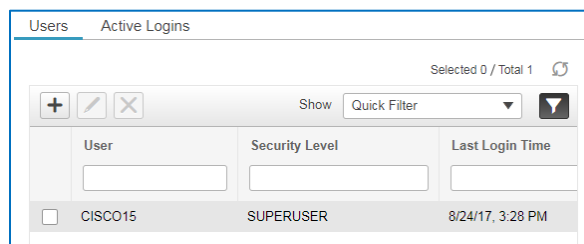


**Note:** To review the tasks that each permission level can perform, [refer to the Create and Manage Users and User Logins for a Device topic in the Cisco EPN Manager User and Administrator Guide.](#)



4. To assign the user's password for device access, in the password fields, type the password.
5. To add the user, click **Save**.

The dialog box closes and the user appears in the list. The user now has access to the device directly on the hardware based on the security level.



User	Security Level	Last Login Time
<input type="checkbox"/> CISCO15	SUPERUSER	8/24/17, 3:28 PM

6. To configure internal patch cords, [go to task 4.](#)

## Task 4: Configure Internal Optical Patch Cord Representations

Patch cords are physical connections using short optical cables or logical connections that connect ports on cards. Patch cords can connect ports in the same single shelf or multi-shelf chassis (internal patch cords) or in different chassis (external patch cords).

Transponders client ports and DWDM filter ports can be located in different devices or in the same single-shelf or multi-shelf device. ITU-T line card trunk ports and the corresponding DWDM filter ports are usually located in different devices.

External patch cords are required when the transponders or ITU-T line cards are installed in a different device than the device that houses the OCH filter ports. You only can configure external patch cords by using the NCS 2000 Cisco Transport Controller. These patch cords then appear in EPN Manager as OTS links.

OCH CC provisioning requires patch cords between the client card trunk ports and the DWDM filter ports. Depending on the physical layout, the patch cords can be an internal or external and are bidirectional. As noted below, each direction is managed as a separate patch cord.



**Important Note:** To provision OCH CC services successfully, the related patch cords must be provisioned and available in EPN Manager before provisioning begins. Without this configuration, the optical channel service provisioning will fail.

Internal patch cords provide logical links between the two sides of a DWDM shelf, either in single-shelf or multi-shelf mode. Each patch cord item represents a unidirectional link between ports.



**Important Note:** To represent bidirectional links, you need to indicate a patch cord for each direction.

You complete this task in the **Internal Patchcords** section of the **Configuration** tab.



**Note:** When the network design file produced by the CPT is imported on the device, the system populates the **Internal Patchcords** section automatically.

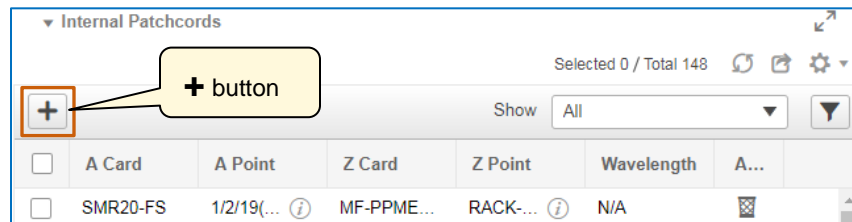
When the system performs device discovery, it collects the patch cords that were configured during initial device installation in order for the device to work properly and lists them in **Internal Patchcords**.

When users have previously configured patch cords, they appear in the list, also.

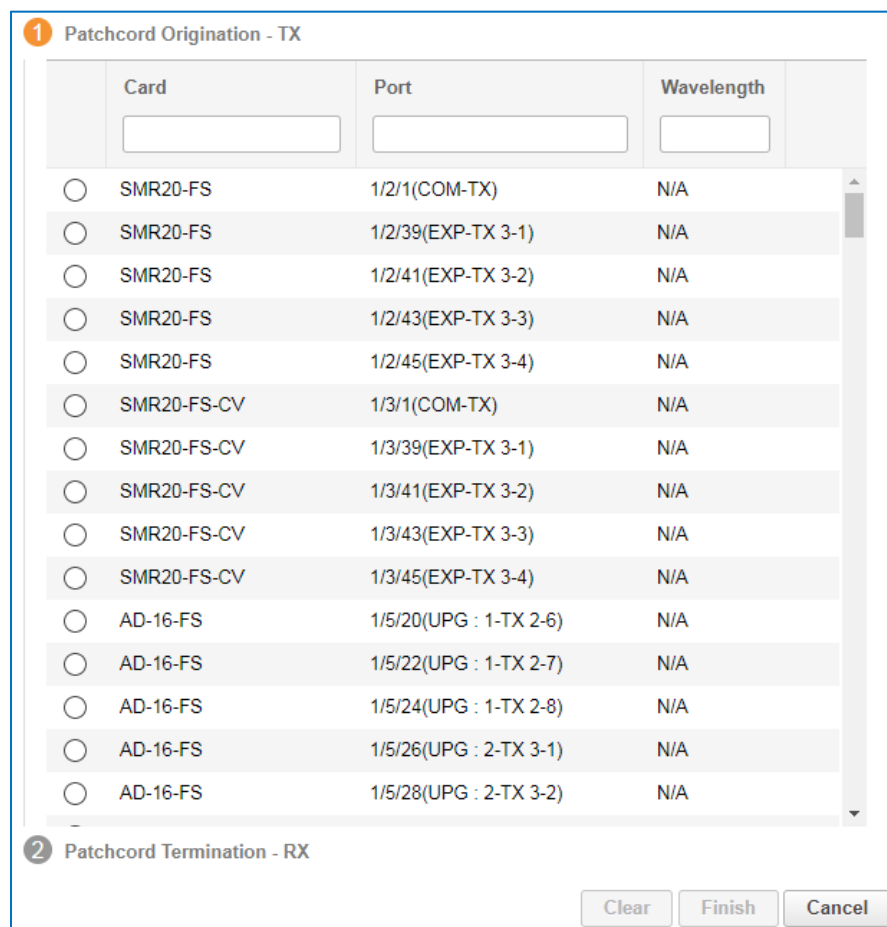
Internal Patchcords						
Selected 0 / Total 148						
Show All						
<input type="checkbox"/>	A Card	A Point	Z Card	Z Point	Wavelength	A...
<input type="checkbox"/>	SMR20-FS	1/2/19(...)	MF-PPME...	RACK-...	N/A	
<input type="checkbox"/>	AD-16-FS	1/5/44(...)	MF-MPO...	PSHEL...	N/A	
<input type="checkbox"/>	SMR20-FS	1/2/11(...)	MF-PPME...	RACK-...	N/A	
<input type="checkbox"/>	MF-PPME...	RACK-...	SMR20-FS	1/2/12(...)	N/A	
<input type="checkbox"/>	MF-PPME...	RACK-...	AD-16-FS	1/5/3(D...	N/A	
<input type="checkbox"/>	MF-PPME...	RACK-...	SMR20-F...	1/6/18(...)	N/A	
<input type="checkbox"/>	MF-MPO...	PSHEL...	AD-16-FS	1/5/57(...)	N/A	
<input type="checkbox"/>	SMR20-F...	1/6/29(...)	MF-MPO...	PSHEL...	N/A	
<input type="checkbox"/>	MF-MPO...	PSHEL...	SMR20-F...	1/6/36(...)	N/A	
<input type="checkbox"/>	MF-MPO...	PSHEL...	SMR20-FS	1/2/36(...)	N/A	

To configure new internal patch cords, follow these steps:

1. On the toolbar, click the + button.



The panel toggles to display the **Patchcord Origination – TX** list of cards and associated ports that you can select as the A endpoint.



2. To indicate the port initiating the traffic, in the **Patchcord Origination - TX** list, select the row of the card and port identifier, which is the A endpoint.

The panel toggles to display the **Patchcord Termination - RX** list of cards and associated ports that you can select as the Z (terminating) endpoint.

1 Patchcord Origination - TX - 1/2/1(COM-TX)

2 Patchcord Termination - RX

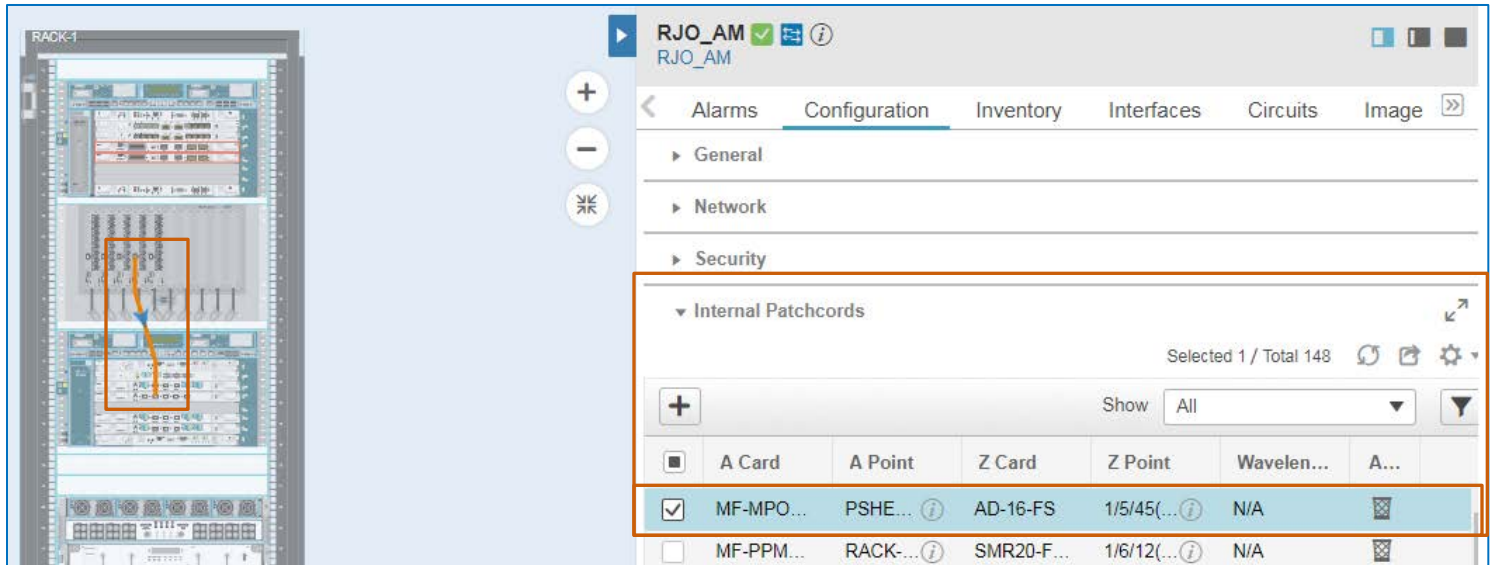
	Card	Port	Wavelength
<input type="radio"/>	SMR20-FS	1/2/2(COM-RX)	N/A
<input type="radio"/>	SMR20-FS	1/2/40(EXP-RX 3-9)	N/A
<input type="radio"/>	SMR20-FS	1/2/42(EXP-RX 3-10)	N/A
<input type="radio"/>	SMR20-FS	1/2/44(EXP-RX 3-11)	N/A
<input type="radio"/>	SMR20-FS	1/2/46(EXP-RX 3-12)	N/A
<input type="radio"/>	SMR20-FS-CV	1/3/2(COM-RX)	N/A
<input type="radio"/>	SMR20-FS-CV	1/3/40(EXP-RX 3-9)	N/A
<input type="radio"/>	SMR20-FS-CV	1/3/42(EXP-RX 3-10)	N/A
<input type="radio"/>	SMR20-FS-CV	1/3/44(EXP-RX 3-11)	N/A
<input type="radio"/>	SMR20-FS-CV	1/3/46(EXP-RX 3-12)	N/A
<input type="radio"/>	AD-16-FS	1/5/19(UPG : 1-RX 2-14)	N/A
<input type="radio"/>	AD-16-FS	1/5/21(UPG : 1-RX2-15)	N/A
<input type="radio"/>	AD-16-FS	1/5/23(UPG : 1-RX 2-16)	N/A
<input type="radio"/>	AD-16-FS	1/5/25(UPG : 2-RX 3-9)	N/A
<input type="radio"/>	AD-16-FS	1/5/27(UPG : 2-RX 3-10)	N/A

Clear
Finish
Cancel

3. To indicate the port receiving the traffic from the originating port, in the **Patchcord Origination - RX** list, select the row of the card and port identifier, which is the Z endpoint.
4. To add the patch cord, click **Finish**.

The panel toggles to display the list of patch cords, including the patch cord that you added.

5. To validate the patch cord connection and direction, in the **Internal Patchcords** list, select the patch cord that you configured.
6. On the diagram of the chassis view, validate that the visual representation of connectivity accurately indicates the connected ports and traffic direction.
7. To configure a bidirectional connection between ports, return to step 1, and indicate the opposite ports for the A and Z endpoints.



8. To review optical fiber attribute and alien wavelength configuration concepts, [refer to the Optical Fiber Attributes and Alien Wavelengths Configuration Overview topic.](#)



## Optical Transmission Characteristics Configuration Overview

### Introduction

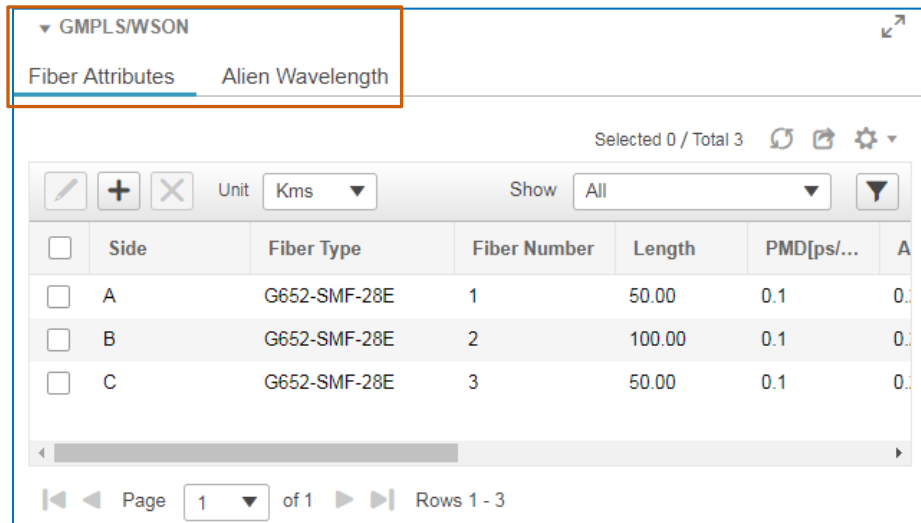
You can indicate the physical characteristics of fiber optic cables and transmission transponders on the optical device by using the **Fiber Attributes** and **Alien Wavelength** functions. When you add physical characteristics, the system stores the information on the optical device. Then, the device can adapt to incoming transmissions based on those characteristics.



**Note:** When a system user imports a CTP network design file to the optical device, the system populates the fiber attributes and alien wavelength characteristics from the file automatically.

You can make changes to them, as needed.

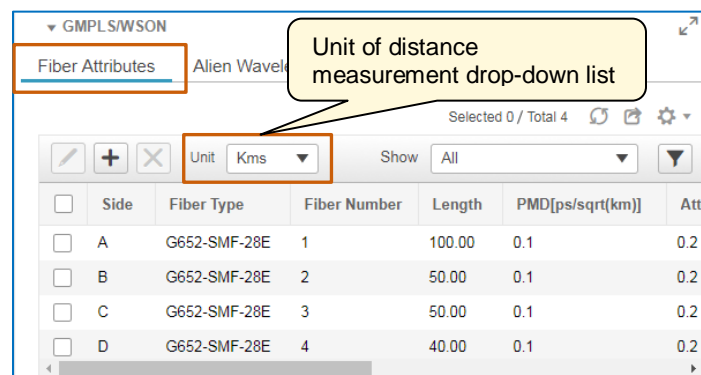
You enter the optical device characteristics in the **GMPLS/WSN** section of the **Configuration** subtab.



Side	Fiber Type	Fiber Number	Length	PMD[ps/...
A	G652-SMF-28E	1	50.00	0.1
B	G652-SMF-28E	2	100.00	0.1
C	G652-SMF-28E	3	50.00	0.1

### Fiber Optic Cable Attributes Configuration Overview

On the **Fiber Attributes** tab, you can indicate the physical characteristics of the device's fiber optical cables. You can apply a distance measurement of kilometers or miles to the table based on your preference.



Side	Fiber Type	Fiber Number	Length	PMD[ps/sqrt(km)]	Att
A	G652-SMF-28E	1	100.00	0.1	0.2
B	G652-SMF-28E	2	50.00	0.1	0.2
C	G652-SMF-28E	3	50.00	0.1	0.2
D	G652-SMF-28E	4	40.00	0.1	0.2

Characteristics that you can indicate for fiber optic cables include:

- ❖ **Side**  
The direction in which the fiber is transmitting
- ❖ **Fiber Type**  
The manufacturer's code for the cable, which indicates the transmission distance and bandwidth capacity that the cable supports
- ❖ **Length**  
The physical length of the cable
- ❖ **Polarization Mode Dispersion (PMD)**  
Indicates in picoseconds the amount of distortion that the optical path experiences during transmission through the cable
- ❖ **Attenuator In**  
The rate at which the signal light decreases in intensity per kilometer or mile, based on the active measurement type, between the device output port and the input port of the fiber span, which can include patch cords, attenuators, and patch panels, between two devices
- ❖ **Attenuator Out**  
The rate at which the signal light decreases in intensity per kilometer or mile, based on the active measurement type, between the device input port and the output port of the fiber span, which can include patch cords, attenuators, and patch panels
- ❖ **Span Validation**  
Whether GMPLS algorithm can use the fiber span in the device for channel routing and validation
- ❖ **Channel Spacing**  
The minimum proximity between adjacent channels in the wavelength domain
- ❖ **Channel Number**  
The total number of channels that you need the cable to support
- ❖ **Domain**  
Indicates the automatic power control (APC) domain that the system needs to apply at a network level to the fiber span based on the type of line cards that the span connects  
This setting allows the APC algorithm to adjust calculations based on the hardware.

Create Fiber Attribute
✕

Side

▼

Fiber Type

Dispersion-Shifted ▼

Length

100

PMD[ps/sqrt(km)]

0

Attenuator In[dB]

0

Attenuator Out[dB]

0

Span Validation

FALSE ▼

Channel Spacing

100 ▼

Channel Number

48

Domain

LEGACY ▼

Save

Reset

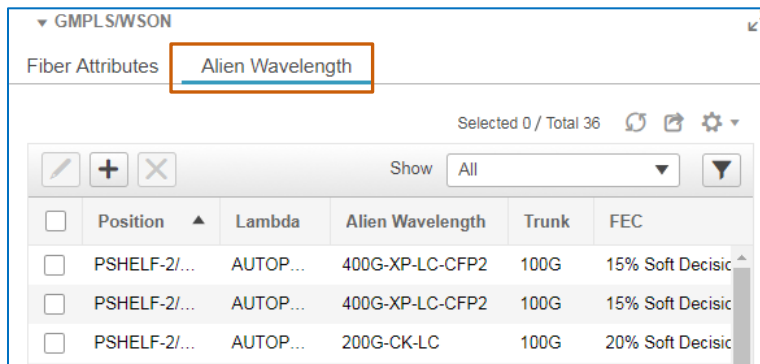
Cancel

## External Transponder (Alien Wavelength) Attributes Configuration Overview

On the **Alien Wavelength** tab, you can indicate the transmitter characteristics of external transponders that are connecting to the device's source (transmitting) and destination (receiving) ports.



**Important Note:** So that the optical device can recognize the information or signal that the third-party device is sending, the source and destination ports on both the optical device and the connected device must be configured manually.



	Position	Lambda	Alien Wavelength	Trunk	FEC
<input type="checkbox"/>	PSHELF-2/...	AUTOP...	400G-XP-LC-CFP2	100G	15% Soft Decisic
<input type="checkbox"/>	PSHELF-2/...	AUTOP...	400G-XP-LC-CFP2	100G	15% Soft Decisic
<input type="checkbox"/>	PSHELF-2/...	AUTOP...	200G-CK-LC	100G	20% Soft Decisic

Characteristics that you can indicate for fiber optic cables include:

### ❖ Position

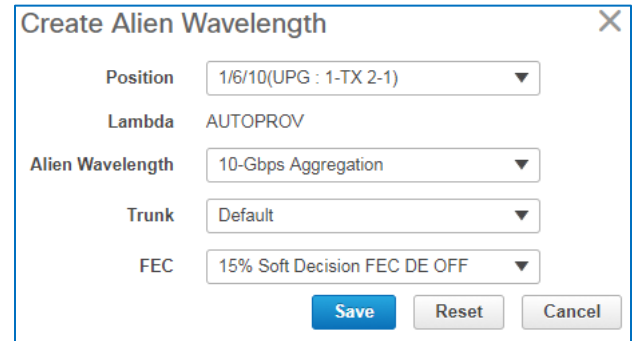
The shelf, slot, and port to which the external transponder will connect

### ❖ Lambda

The wavelength of the incoming signal that the control plane of the optical device automatically detects from the transponder on the other device



**Note:** If a user configures the incoming wavelength manually, it must match the one configured on the transponder.



**Create Alien Wavelength**

Position: 1/6/10(UPG : 1-TX 2-1)  
Lambda: AUTOPROV  
Alien Wavelength: 10-Gbps Aggregation  
Trunk: Default  
FEC: 15% Soft Decision FEC DE OFF

Save Reset Cancel

### ❖ Alien Wavelength

The type and characteristics of the pluggable transceiver on the external transponder



**Note:** You need to select this information manually because the system does not discover it automatically.

### ❖ Trunk

The speed of the laser

### ❖ Forward Error Correction (FEC)

A setting that the transmission channel uses to recover errors at the destination, which provides system redundancy



**Important Note:** The amount of redundancy that you apply here affects the amount of information you can send based on the overhead that the FEC mode requires for the correction process.

# Video Demonstrations

## *Watching Demonstrations*

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### To watch a demonstration:

- ❖ Click a demonstration link below, which opens an MP4 file.

Based on your system and configuration, you might need to start the video manually.



**Notes:** Video download and streaming times can vary.

## Optical Device Configuration Settings Overview

### Watch the Demonstration



To review the optical settings available for configuration in EPN Manager, [watch the \*\*Optical Device Configuration Settings Overview\*\* video](#).

Approximate runtime: 12:00

## Provisioning an ODU Service

### Watch the Demonstration



To review ODU service provisioning, [watch the \*\*Provisioning an ODU Service\*\* video](#).

Approximate runtime: 8:00

# Links

## To Product Information

[Visit the Cisco Web site to learn more about EPN Manager.](#)

[Visit the Cisco Web site to review or download technical documentation.](#)

## To Training

[Visit the Cisco Web site to access other EPN Manager learning opportunities.](#)

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**Note:** Please send messages that address the content of this job aid or other training questions only.

Follow your regular business process to request technical support or address technical or application-related questions.