



Manage Passive Devices

This chapter describes the passive devices used in Cisco NCS 2000 SVO and its related tasks.

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Overview

Table 1: Feature History

Feature Name	Release Information	Description
NCS2K-MF-8x10G-FO	Cisco NCS 2000 Release 12.3	The MPO-12 to 8-LC fan-out module is a double slot module with two MPO-12 connector (COM) and eight LC duplex connectors (Port-i-TX/RX). It contains 16 photodiodes to monitor the power of the channel input ports.
_15216-PP-4-SMR	Cisco NCS 2000 Release 12.3	The _15216-PP-4-SMR patch panel connects up to four 40-SMR2-C cards in a four-degree mesh node. The optical splitters inside the patch panel forward the output signal (EXP-TX port) of the 40-SMR2-C card on each side of the mesh node to the input port of the 40-SMR2-C cards on the other three sides of the mesh node.

Feature Name	Release Information	Description
NCS2K-MF-CL-SC	Cisco NCS 2000 Release 12.2	<p>A new passive module, the C and L-band combiner and splitter, is introduced.</p> <p>The L-band addition for non-Raman assisted optical links requires a C and L optical combiner for expansion. The NCS2K-MF-CL-SC module allows Cisco to introduce any future L-band transmission system onto the existing NCS 2000 deployments.</p>

Passive devices are used to build the optical network system. You can install them on:

- 19 inch (482.6 mm) or 23 inch (584.2 mm) EIA standard racks
- 19 inch (482.6 mm) IEC rack
- 600 mm x 600 mm or 600 mm x 300-mm ETSI rack

The following table lists the supported passive chassis and passive devices:

Passive Chassis and Passive Devices	Description	SSON Package (12.xx-xxxx-xx.xx-S-SPA)	MSTP Package (12.xx-xxxx-xx.xx-L-SPA)
NCS2K-MF-6RU	You can install a combination of 14 single-slot passive devices in this chassis.	✓	
NCS2K-MF10-6RU	You can install a combination of 10 double-slot passive devices in this chassis.	✓	
NCS2K-MF-DEG-5	5-degree mesh module.	✓	
NCS2K-MF-UPG-4	4-degree upgrade module.	✓	
NCS2K-MF-MPO-16LC	MPO-16 to 16-LC fan-out module.	✓	
NCS2K-MF-2MPO-ADP	Double MPO-16 to two MPO-8 adapter module.	✓	
15216-MD-48-EVEN	Multiplexer/demultiplexer patch panels of 48-channels on the even ITU grid.	✓	✓ (only as inventory)

Passive Chassis and Passive Devices	Description	SSON Package (12.xx-xxxx-xx.xx-S-SPA)	MSTP Package (12.xx-xxxx-xx.xx-L-SPA)
15216-MD-48-ODD	Multiplexer/demultiplexer patch panels of 48-channels on the odd ITU grid.	✓	✓ (only as inventory)
15216-MD-48-CM	Interleaver and deinterleaver pluggable that operates inside ONS 15216-MD-48 odd/even patch panels and 15216-MD-40 odd/even patch panels.	✓	✓ (only as inventory)
NCS2K-PPMESH8-5AD	8-degree mesh patch panel module with 16 MPO-16 connectors and 10 MPO-8 connectors.	✓	
NCS2K-MF-6AD-CFS	Six ports add/drop single slot module. It contains a 6x1 combiner and a 1x6 splitter.	✓	
NCS2K-MF-DEG-5-CV	5-degree mesh connection verification module with MPO-8 loopback caps.	✓	
NCS2K-MF-UPG-4-CV	4-degree upgrade connection verification module with MPO-8 loopback caps.	✓	
NCS2K-MF-MPO-8LC	MPO-APC to eight LC-PC fan-out module.	✓	
NCS2K-MF-M16LC-CV	MPO-16 to 16-LC fan-out connection verification double slot module based on the NCS2K-MF-MPO-16LC. It has eight LC loopback caps (NCS2K-LC-LBK=) on all LC dual ports.	✓	
NCS2K-MF-10AD-CFS	10 port add/drop double slot module. It contains a 10x1 combiner and a 1x10 splitter.	✓	

Passive Chassis and Passive Devices	Description	SSON Package (12.xx-xxxx-xx.xx-S-SPA)	MSTP Package (12.xx-xxxx-xx.xx-L-SPA)
NCS2K-MF-16AD-CFS	16-channel colorless omnidirectional add/drop passive module.	✓	
NCS2K-MF-4X4-COFS	4-channel colorless omnidirectional add/drop passive module.	✓	

The 15216-MD-48-ODD and 15216-MD-48-EVEN patch panels can be installed directly in the rack and require two Rack Units (RU). You can connect the patch panels to the NCS 2006 ECU or NCS 2015 ECU.

The NCS2K-MF passive devices can be installed in a one-Rack Unit (RU) high mechanical frame (NCS2K-MF-1RU) and can be directly connected to the NCS 2006 ECU or NCS 2015 ECU. You can also install the NCS2K-MF passive devices in the passive chassis. There are two types of passive chassis—NCS2K-MF-6RU and NCS2K-MF10-6RU. You can connect the passive chassis to the USB 3.0 port in the NCS 2006 ECU-S or NCS 2015 ECU.

Laser Radiation Emission Restrictions

The Class 1M Laser safety and warning label affixed to the passive optical modules indicate that the product should never be used or installed in an optical network with emissions higher than Class 1M.



Warning Class 1M laser radiation when open. Do not view directly with optical instruments. Statement 281

Laser Safety During Operation



Warning Invisible laser radiation may be emitted from disconnected fibers or connectors. Do not stare into beams or view directly with optical instruments. Statement 1051

Electrical Safety

The passive optical modules are optically and electrically passive and require no electrical connections. No electrostatic discharge (ESD) or other electrical safety considerations apply.

Manage Passive Devices

Use this task to add or delete a passive device.

Before you begin

[Log into the SVO Web Interface](#)

Procedure

Perform these tasks, as needed:

- a) [Add a Passive Device to a Rack, on page 5.](#)
 - b) [Add a Passive Device to a Passive Chassis, on page 6.](#)
 - c) [Delete a Passive Device, on page 7.](#)
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Add a Passive Device to a Rack

Use this task to add a passive device to a rack.



Note The NCS2K-MF-1RU chassis is a four -slot one rack unit mechanical frame that is auto-provisioned when a NCS2K-MF passive device is provisioned in the rack.

Before you begin

[Log into the SVO Web Interface](#)

Procedure

Step 1 Click the hamburger icon at the top-left of the page, and select **SVO Topology**.

The SVO Topology page appears.

Step 2 Click the Rack in the left panel.

The Rack view appears.

Step 3 Click an empty slot in the Rack.

Step 4 Click **Add Passive Device**.

Step 5 Select the node from the **Select Device** drop-down list.

Step 6 Select the passive device from the **Select Passive** drop-down list.

Step 7 Select the passive ID from **Enter Passive ID** drop-down list.

Note The 15216-MD-48-EVEN and 15216-MD-48-ODD devices are prefixed with a "_" in the SVO web interface.

Step 8 Select the slot number from **Select Slot** drop-down list.

Step 9 (Optional) Enter a device name in the **Display Name** field.

Step 10 Click **Provision**.

The passive device is provisioned and is listed in the Provisioning > Passives tab in the Rack view.

Add a Passive Device to a Passive Chassis

Use this task to add a passive device to a passive chassis. The following devices can be added to a passive chassis.

The following devices can be added to a NCS2K-MF-6RU chassis.

- NCS2K-MF-UPG-4
- NCS2K-MF-UPG-4-CV
- NCSK-MF-4x4-COFS
- NCS2K-MF-MPO-ADP
- NCS2K-MF-6AD-CFS
- NCS2K-MF-DEG-5
- NCS2K-MF-DEG-5-CV
- NCS2K-MF-MPO-8LC

The following device can be added to a NCS2K-MF10-6RU chassis.

- NCS2K-MF-MPO-16LC
- NCS2K-MF-M16LC-CV
- NCS2K-MF-10AD-CFS
- NCS2K-MF-16AD-CFS



Note To provision a CV passive device you must provision the respective non-CV passive device and associate it to a USB port. The PID of the CV passive device is then visible in the Provisioning > Passives tab in the chassis view.

Before you begin

- [Log into the SVO Web Interface](#)
- [Add a Chassis](#)

Procedure

- Step 1** Click the hamburger icon at the top-left of the page, and select **SVO Topology**.
The SVO Topology page appears.
- Step 2** Click the rack in the left panel.
The rack view appears.
- Step 3** Left-click an empty slot in the passive chassis.

Step 4 Select the passive device from the **Select** drop-down list.

Step 5 Enter a passive ID in the **Passive ID** field.

Step 6 Click **Provision**.

The passive device is provisioned and is listed in the Provisioning > Passives tab in the chassis view.

Delete a Passive Device

Use this task to delete a passive device from a rack or a passive chassis.

Before you begin

[Log into the SVO Web Interface](#)

Procedure

Step 1 Click the hamburger icon at the top-left of the page, and select **SVO Topology**.

The SVO Topology page appears.

Step 2 Click the Rack in the left panel.

The Rack view appears.

Step 3 Left-click the passive device to be deleted in the rack or in the passive chassis, and select **Delete**.

Associate a Passive Chassis or a Passive Device to a USB Port

Use this task to associate a passive chassis or a passive device to a USB port.

Before you begin

[Log into the SVO Web Interface](#)

Procedure

Step 1 Click the hamburger icon at the top-left of the page, and select **SVO Topology**.

The SVO Topology page appears.

Step 2 Click the Rack in the left panel.

The Rack view appears.

Step 3 Perform these steps, as needed:

a) For a passive chassis or a passive device provisioned on the rack, perform these steps:

1. Click the **Provisioning > Passives** tabs.
 2. Check the check box of the passive chassis or passive device you want to associate.
- b) For a passive device provisioned in the passive chassis, perform these steps:
1. Left-click the passive chassis in the rack, and select **Open**.
 2. Click the **Provisioning > Passives** tabs.
 3. Check the check box of the passive device you want to associate.

Step 4 Click **Edit**.

The **Associate USB Port** dialog box appears.

Step 5 Select the **USB port** from the drop-down list.

Step 6 Click **Apply**.

Note When a passive chassis is associated to a USB port, all the passive devices that are provisioned on that passive chassis are automatically associated to the USB port.

View the Passive Device LED Status

Use this task to identify a specific passive device that is associated to a USB port by using the LED blink function.



Note This task does not apply to the 15216-MD-48-EVEN and 15216-MD-48-ODD devices.

Before you begin

- [Log into the SVO Web Interface](#)
- [Associate a Passive Chassis or a Passive Device to a USB Port, on page 7](#)

Procedure

Step 1 Click the hamburger icon at the top-left of the page, and select **SVO Topology**.

The SVO Topology page appears.

Step 2 Click the Rack in the left panel.

The Rack view appears.

Step 3 Perform these steps, as needed:

- a) For a passive device provisioned on the rack, perform these steps:

1. Click the **Provisioning > Passives** tabs.
 - b) For a passive device provisioned in the passive chassis, perform these steps:
 1. Click the passive chassis in the rack, and select **Open**.
 2. Click the **Provisioning > Passives** tabs.
- Step 4** Check the checkbox of the passive device.
- Step 5** Click **LED Status** to know the LED status of the associated device.
The message, **LED Status of the device connected to selected USB port is solid-green** is displayed.
- Step 6** Click **LED Blink** to start blinking the LED of the passive device.
The message, **Blink-LED action succeed** is displayed. The LED blinks in blue color helping the operator to identify a specific passive device.
- Step 7** Click **LED Status** again.
The message, **LED Status of device connected to selected USB port is blinking-blue** is displayed.
- Step 8** Click **LED Blink** again to stop the blinking.
The message, **Blink LED action succeed** is displayed.
- Step 9** Click **LED Status** again.
The message, **LED Status of device connected to selected USB port is solid-green** is displayed.
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View Passive Device Port Settings

Use this task to view the details of the passive device ports. You can modify the attenuator value, if needed.



Note This task does not apply to NSC2K-MF-8x10G-FO modules.

Before you begin

[Log into the SVO Web Interface](#)

Procedure

- Step 1** Click the hamburger icon at the top-left of the page, and select **SVO Topology**.
The SVO Topology page appears.
- Step 2** Click the Rack in the left panel.
The Rack view appears.

- a) For a passive device provisioned on the rack, perform these steps:
 1. Left-click the passive device, and click **Open**.
 2. Click the **Maintenance >OTS Passives** tab.
- b) For a passive device provisioned in the passive chassis, perform these steps:
 1. Left-click the passive device in the passive chassis, and select **Open**.
 2. Click the **Maintenance > OTS Passives** tabs.

The following information is displayed:

Note You can specify an attenuator value if an attenuator is connected to the related port.

- **Port Label**—Displays the port name of the connector.
- **Port Type**—Displays the passive port type. Values can be OCH-PORT or OTS-PORT.
- **MPO ID**—Displays the MPO index as seen on the front panel if the port is related to an MPO connector, such as MPO-8 (8 fibers) or MPO-24 (24 fibers)
- **MPO Port Position**—Displays the position according to the pinout scheme of the MPO connectors if the port is related to an MPO connector, such as MPO-8 (8 fibers) or MPO-24 (24 fibers)
- **Attenuator Value (dB)**—Displays the attenuator value.
- **Optical Power (dBm)**—Displays measured power if the port has an associated photodiode and the passive device is associated to a USB port.
- **Optical Threshold Low (dBm)**—Displays the threshold for minimum optical power. When the Optical Power value is lower than the Optical Threshold Low value, the node raises an alarm.

Note If an attenuator is added on the related port, specify value in the **Attenuator Value** field, and click **Apply**.

View Insertion Loss

Use this task to view the insertion loss on the passive device.



Note This task does not apply to NSC2K-MF-8x10G-FO modules.

Before you begin

[Log into the SVO Web Interface](#)

Procedure

Step 1 Click the hamburger icon at the top-left of the page, and select **SVO Topology**.

The SVO Topology page appears.

Step 2 Click the Rack in the left panel.

The Rack view appears.

Step 3 Perform these steps, as needed:

a) For a passive device provisioned on the rack, perform these steps:

1. Left-click the passive device, and click **Open**.
2. Click the **Insertion Loss** tab.

b) For a passive device provisioned in the passive chassis, perform these steps:

1. Click the passive device in the passive chassis, and select **Open**.
2. Click the **Maintenance > Insertion Loss** tabs.

The following information is displayed:

- **Insertion Loss Path**—Displays the path between two passive ports.
- **IL Value (dB)**—Displays the insertion loss that is related to the path specified in the Insertion Loss Path field.

Note When the passive device is disassociated, the last retrieved Insertion Loss values are displayed in the SVO web UI. When the the passive device is replaced, the Insertion Loss values are updated in the SVO web UI.
