



# CHAPTER 18

## Configuring Dense Wavelength Division Multiplexing

---

This chapter includes the following topics:

- [Information About DWDM section, page 18-1](#)
- [Configuring X2 DWDM Transceiver Frequency section, page 18-1](#)
- [Monitoring DWDM Links section, page 18-2](#)
- [Field Descriptions for DPVM section, page 18-3](#)
- [Additional References section, page 18-4](#)

### Information About DWDM

Dense Wavelength-Division Multiplexing (DWDM) multiplexes multiple optical carrier signals on a single optical fiber. DWDM uses different wavelengths to carry various signals.

To establish a DWDM link, both ends of an Inter Switch Link (ISL) need to be connected with DWDM SFPs (small form-factor pluggable) at each end of the link. To identify a DWDM link, DCNM-SAN discovers the connector type on the Fiber Channel (FC) ports. If the ISL link is associated with the FC ports at each end, then the FC port uses DWDM SFP to connect the links.

Cisco DCNM for SAN discovers FC ports with DWDM SFPs and the ISLs associated with the FC ports. The DCNM-SAN Client displays ISL with DWDM attribute on the topology map.



#### Note

---

The Fabric Shortest Path First (FSPF) database only displays an ISL link, which is connected with DWDM SFPs at both ends.

---

### Configuring X2 DWDM Transceiver Frequency

#### Restrictions

This feature is supported only in MDS 9134 modules. With MDS 9134 modules, the 10-Gigabit Ethernet ports must be in a down state when you configure the X2 transceiver frequency.

To configure X2 DWDM transceiver frequency for a module, follow these steps:

	Command	Purpose
Step 1	<code>switch# config t</code>	Enters configuration mode.
Step 2	<code>switch(config)# module 1 transceiver-frequency x2-eth</code>	Configures the link to function as X2 Ethernet.
	<code>switch(config)# module 1 transceiver-frequency x2-fc</code>	Configures (default) the link to function as X2 FC.

To configure the X2 DWDM transceiver frequency using Device Manager, follow these steps:

- 
- Step 1** From the Device Manager menu bar, select **Physical > Modules**.  
The module configuration window is displayed.
  - Step 2** Choose an **XcvrFrequencyConfig** option button.
  - Step 3** Click **Apply**.
- 

To configure the X2 DWDM transceiver frequency, follow these steps:

- 
- Step 1** From the Physical Attributes pane, select **Hardware**.  
The module configuration window is displayed.
  - Step 2** Click the **Card Module Config** tab.
  - Step 3** In the X2 XcvrFrequencyConfig column, choose an option.
  - Step 4** Click **Apply**.
- 

## Monitoring DWDM Links

The DCNM-SAN Client displays DWDM links with a “dash-dash” pattern. The tooltip for the link displays “DWDM” to indicate its link type.

To view the DWDM link, follow these steps:

- 
- Step 1** Select the switch in the Logical Domain region.
  - Step 2** Select ISL in the Physical Attributes region.  
The Information pane displays the ISL’s information.
  - Step 3** Click the **Physical** tab.  
You see the ISL in the Information pane.  
The ISL’s Physical table displays the connector type as sfpDwdm.  
Move the mouse over the link to see the tooltip as DWDM indicating the link type.

**Step 4** Perform a Dump Discovery of ISL to list all ISLs. DWDM links are listed with [DWDM].

## Field Descriptions for DPVM

This section displays the following field descriptions for this feature.

### DPVM Actions

Field	Description
Action	Helps in activating the set of bindings.
Result	Indicates the outcome of the activation.
Status	Indicates the state of activation. If true, then activation has been attempted as the most recent operation. If false, then an activation has not been attempted as the most recent operation.
CopyActive to Config	When set to copy(1), results in the active (enforced) binding database to be copied on to the configuration binding database. The learned entries are also copied.
Auto Learn Enable	Helps to learn the configuration of devices logged into the local device on all its ports and the VSANs to which they are associated.
Auto Learn Clear	Assists in clearing the auto-learned entries.
Clear WWN	Represents the port WWN (pWWN) to be used for clearing its corresponding auto-learned entry.

### DPVM Config Database

Field	Description
Type	Specifies the type of the corresponding instance of cdpvmLoginDev object.
WWN or Name	Represents the logging in device.
VSAN Id	Represents the VSAN to be associated to the port on the local device on which the device represented by cdpvmLoginDev logs in.
Switch Interface	Represents the device alias.

## DPVM Active Database

Field	Description
Type	Specifies the type of the corresponding instance of cdpvmEnfLoginDev.
WWN or Name	Represents the logging in device address.
VSAN Id	Represents the VSAN of the port on the local device through which the device represented by cdpvmEnfLoginDev logs in.
Interface	Represents the device alias.
IsLearnt	Indicates whether this is a learned entry or not. If true, then it is a learned entry. If false, then it is not.

## Additional References

For additional information related to implementing VSANs, see the following section:

- [Related Document section, page 18-4](#)
- [Standards section, page 18-4](#)
- [RFCs section, page 18-5](#)
- [MIBs section, page 18-5](#)

## Related Document

Related Topic	Document Title
Cisco MDS 9000 Family Command Reference	<i>Cisco MDS 9000 Family Command Reference</i>

## Standards

Standard	Title
No new or modified standards are supported by this feature, and support for existing standards has not been modified by this feature.	–

## RFCs

RFC	Title
No new or modified RFCs are supported by this feature, and support for existing RFCs has not been modified.	–

## MIBs

MIBs	MIBs Link
No new or modified MIBs are supported by this feature, and support for existing MIBs has not been modified by this feature.	To locate and download MIBs, go to the following URL: <a href="http://www.cisco.com/dc-os/mibs">http://www.cisco.com/dc-os/mibs</a>

■ Additional References