



## Topology Neighbor Commands

---

Use the following commands to configure and monitor network topology neighbors.

# show topology

To display information about the global physical network topology configuration, use the **show topology** command.

## show topology

**Syntax Description** This command has no other arguments or keywords.

**Defaults** None

**Command Modes** EXEC and privileged EXEC

**Command History** This table includes the following release-specific history entries:

- EV-Release
- SV-Release
- S-Release

EV-Release	Modification
12.1(10)EV2	This command was introduced.
SV-Release	Modification
12.2(18)SV	This command was integrated in this release.
S-Release	Modification
12.2(22)S	This command was integrated in this release from release 12.2(22)SV.

**Usage Guidelines** Use this command to display the global physical network topology configuration information.

**Examples** The following example shows how to display the topology hold-time interval. (See [Table 11-1](#) for field descriptions.)

```
Switch# show topology
Global Physical Topology configuration:
  Maximum Hold Time = 300 secs
  Trap interval = 60 secs
```

*Table 11-1 show topology hold-time Field Descriptions*

Field	Description
Maximum Hold Time	Shows the maximum number of seconds a dynamically generated topology entry will remain before it times out.
Trap interval	Shows the number of seconds for the topology SNMP trap notification throttle interval.

**Related Commands**

Command	Description
<a href="#">show topology neighbor</a>	Displays network topology information.
<a href="#">snmp-server enable traps topology</a>	Configures the network topology SNMP trap notification throttle interval.
<a href="#">topology hold-time</a>	Modifies the interval to hold a nonstatic topology node entry.

# show topology neighbor

To display the network topology neighbors for the shelf, use the **show topology neighbor** command.

## show topology neighbor [detail]

<b>Syntax Description</b>	<b>detail</b>	Shows the agent IP address and how the topology entry was created.
---------------------------	---------------	--

<b>Defaults</b>	Displays summary information.
-----------------	-------------------------------

<b>Command Modes</b>	Privileged EXEC
----------------------	-----------------

**Command History** This table includes the following release-specific history entries:

- EV-Release
- SV-Release
- S-Release

EV-Release	Modification
12.1(10)EV2	This command was introduced.
SV-Release	Modification
12.2(18)SV	This command was integrated in this release.
S-Release	Modification
12.2(22)S	This command was integrated in this release from release 12.2(22)SV.

**Usage Guidelines** Use this command to display the network topology neighbors for the shelf.

**Examples** The following example shows how to display network topology neighbor information for the shelf. (See [Table 11-2](#) for field descriptions.)

```
Switch# show topology neighbor
Physical Topology:
```

Local Port	Neighbor Node	Neighbor Port	Link Dirn
-----	-----	-----	-----
Wdm0/0	ham2	Wdm0/1	Both
Wdm0/1	ham2	Wdm0/0	Both

**Table 11-2** *show topology neighbor Field Descriptions*

Field	Description
Local Port	Identifies the local port.
Neighbor Node	Identifies the neighbor node.
Neighbor Port	Identifies the port or wdm interface on the neighbor node.

The following example shows how to display detailed network topology neighbor information for the shelf. (See [Table 11-3](#) for field descriptions.)

```
Switch# show topology neighbor detail
Physical Topology:

Local Port: Wdm0/0
Neighbor Node      : ham2
Neighbor Port      : Wdm0/1
Neighbor Agent Address: 1.1.1.10
Neighbor Discovery  : Via CDP (Proxy Port: Wave2/1)
Link Direction     : Both

Local Port: Wdm0/1
Neighbor Node      : ham2
Neighbor Port      : Wdm0/0
Neighbor Agent Address: 172.20.42.27
Neighbor Discovery  : Via CDP (Proxy Port: Wave2/0)
Link Direction     : Both
```

**Table 11-3** *show topology neighbor detail Field Descriptions*

Field	Description
Local Port	Identifies the local port.
Neighbor Node	Identifies the neighbor node.
Neighbor Port	Identifies the port on the neighbor node.
Neighbor Agent Address	Identifies the IP address of the topology agent on the neighbor node.
Neighbor Discovery	Indicates how the topology neighbor was discovered, either automatically via CDP or manually via the CLI.

**Related Commands**

Command	Description
<a href="#">show topology</a>	Displays global physical topology configuration.
<a href="#">snmp-server enable traps topology</a>	Configures the network topology SNMP trap notification throttle interval.
<a href="#">topology neighbor</a>	Adds a static entry for an interface to the network topology.
<a href="#">topology neighbor agent ip-address</a>	Specifies the network management agent address on a remote node.
<a href="#">topology neighbor cdp</a>	Enables CDP on wdm interfaces.
<a href="#">topology neighbor disable</a>	Removes an interface from the network topology.
<a href="#">topology hold-time</a>	Modifies the interval to hold a nonstatic topology node entry.

# topology hold-time

To modify the interval to hold nonstatic topology node entries, use the **topology hold-time** command. To return the hold-time interval to its default value, use the **no** form of the command.

**topology hold-time** *seconds*

**no topology hold-time**

<b>Syntax Description</b>	<i>seconds</i>	Specifies the number of seconds. The range is 1 to 2147483647 seconds.
---------------------------	----------------	--

<b>Defaults</b>	300 seconds
-----------------	-------------

<b>Command Modes</b>	Global configuration
----------------------	----------------------

<b>Command History</b>	This table includes the following release-specific history entries:
------------------------	---

- EV-Release
- SV-Release
- S-Release

EV-Release	Modification
12.1(10)EV2	This command was introduced.
SV-Release	Modification
12.2(18)SV	This command was integrated in this release.
S-Release	Modification
12.2(22)S	This command was integrated in this release from release 12.2(22)SV.

<b>Usage Guidelines</b>	Use this command to modify the network topology hold-time timer interval. This timer helps avoid reconstructing a nonstatic topology entry when a node leaves the network for only a brief time.
-------------------------	--

<b>Examples</b>	The following example shows how to modify the network topology hold time.
-----------------	---

```
Switch# configure terminal
Switch(config)# topology hold-time 60
```

<b>Related Commands</b>	<b>Command</b>	<b>Description</b>
	<a href="#">show topology</a>	Displays global physical topology configuration.

Command	Description
<a href="#">snmp-server enable traps topology</a>	Configures the network topology SNMP trap notification throttle interval.
<a href="#">topology neighbor cdp</a>	Enables CDP on wdm interfaces.

# topology neighbor

To manually add a static entry for an esconphy, gigabitphy, multirate, OSC wave, oscfilter, transparent, twogigabitphy, voain, wdm, or wdmsplit interface to the network topology, use the **topology neighbor** command. To remove the interface from the network topology, use the **no** form of the command or the **topology neighbor disable** command.

```
topology neighbor { name node-name | ip-address ip-address |
  mac-address mac-address } { port name port-name | port ip-address port-ip-address |
  port mac-address port-mac-address } [transmit | receive]
```

```
no topology neighbor
```

Syntax Description		
<b>name</b> <i>node-name</i>		Specifies the name of the neighbor node.
<b>ip-address</b> <i>ip-address</i>		Specifies the IP address of the neighbor node.
<b>mac-address</b> <i>mac-address</i>		Specifies the MAC address of the neighbor node.
<b>port name</b> <i>port-name</i>		Specifies the name of the port on the neighbor node.
<b>port ip-address</b> <i>port-ip-address</i>		Specifies the IP address of the port on the neighbor node.
<b>port mac-address</b> <i>port-mac-address</i>		Specifies the MAC address of the port on the neighbor node.
transmit		Indicates that the link to the neighbor is transmit only.
receive		Indicates that the link to the neighbor is receive only.

**Defaults**

CDP (Cisco Discovery Protocol) is enabled on wdm interfaces.  
 Both directions.  
 No topology is configured on transparent or wdmsplit interfaces.

**Command Modes** Interface configuration

**Command History** This table includes the following release-specific history entries:

- EV-Release
- SV-Release
- S-Release

EV-Release	Modification
12.1(10)EV2	This command was introduced.
12.1(12c)EV	Added support for multirate and wdmsplit interfaces.
SV-Release	Modification
12.2(18)SV	This command was integrated in this release.
12.2(23)SV	Added support for twogigabitphy interfaces.
12.2(25)SV	Added support for multirate interfaces.



S-Release	Modification
12.2(22)S	This command was integrated in this release from release 12.2(22)SV.

### Usage Guidelines

Use this command to manually add esconphy, gigabitphy, multirate, wdm, thru, oscfilter, OSC wave, twogigabitphy, wdmsplit, and transparent interfaces to the network topology. You must also configure the network management agent IP address with the **topology neighbor agent ip-address** command. By default, CDP is enabled on all these interface types.

For esconphy, gigabitphy, multirate, twogigabitphy, and transparent interfaces, you must use the **topology neighbor** command to add the interface to the network topology because the transparent interfaces do not support CDP. For wdm interfaces, use either the **topology neighbor** command or the **topology neighbor cdp** command to populate the network topology.

For wdmsplit interfaces, you must use the **topology neighbor** command to add both the west and east interfaces on the PSM to the network topology.

For y-cable protected configurations, add both associated transparent, gigabitphy, or twogigabitphy interfaces to the network topology.

You can also use the **topology neighbor disable** command to remove an interface from the network topology.

Use the direction option to distinguish between bidirectional link neighbors and unidirectional (transmit or receive) link neighbors.

### Examples

The following example shows a configuration example of network topology neighbor for the shelf. This allows either 1 bidirectional neighbor or 2 unidirectional neighbors on 1 interface. (See [Table 11-2](#) for field descriptions.)

```
Switch(config)# interface transparent 8/0/0
Switch(config-if)# topology neighbor name edfa1 port name inport transmit
Switch(config-if)# topology neighbor name edfa2 port name outport receive
Switch(config-if)# topology neighbor agent ip-address 10.0.0.31 transmit
Switch(config-if)# topology neighbor agent ip-address 10.0.0.32 receive
Switch(config-if)# exit
Switch(config)# interface transparent 8/0/0
Switch(config-if)# topology neighbor name 15530-box2 port name wdm0/0
Switch(config-if)# topology neighbor agent ip-address 10.0.0.20
Switch(config-if)# end
Switch#
```

The following example shows how to connect an OADM module to an OADM module in another node.

```
Switch# configure terminal
Switch(config)# interface wdm 0/0
Switch(config-if)# topology neighbor name NodeA port name wdm0/0
Switch(config-if)# topology neighbor agent ip-address 10.1.1.1
```

The following example shows how to connect a transponder line card to an interface on client equipment.

```
Switch# configure terminal
Switch(config)# interface transparent 2/0/0
Switch(config-if)# topology neighbor name Router1 port name gigabitethernet2/1
Switch(config-if)# topology neighbor agent ip-address 10.2.2.2
```

The following example shows how to connect a PSM to the PSM on another node.

```
Switch# configure terminal
```

## ■ topology neighbor

```
Switch(config)# interface wdmsplit 0/1/0
Switch(config-if)# topology neighbor name NodeB port name wdmsplit0/1/0
Switch(config-if)# topology neighbor agent ip-address 10.3.3.3
```

Related Commands	Command	Description
	<a href="#">show topology neighbor</a>	Displays network topology information.
	<a href="#">snmp-server enable traps topology</a>	Enables SNMP trap notifications for the network topology.
	<a href="#">topology neighbor agent ip-address</a>	Specifies the network management agent IP address.
	<a href="#">topology neighbor cdp</a>	Enables CDP on wdm interfaces.
	<a href="#">topology neighbor disable</a>	Removes the interface from the network topology.

# topology neighbor agent ip-address

To specify the network management agent address on a remote node, use the **topology neighbor agent ip-address** command. To remove the network management agent address from an interface, use the **no** form of the command.

**topology neighbor agent ip-address** *ip-address* [**transmit** | **receive**]

**no topology neighbor agent ip-address** *ip-address* [**transmit** | **receive**]

## Syntax Description

ip-address	Specifies the IP address of the network management agent on the neighbor node or remote node. This address is usually the IP address configured on the NME interface on the neighbor node.
transmit	Indicates that the link to the neighbor is transmit only.
receive	Indicates that the link to the neighbor is receive only.

## Defaults

Both directions

## Command Modes

Interface configuration

## Command History

This table includes the following release-specific history entries:

- EV-Release
- SV-Release
- S-Release

EV-Release	Modification
12.1(10)EV2	This command was introduced.
SV-Release	Modification
12.2(18)SV	This command was integrated in this release.
S-Release	Modification
12.2(22)S	This command was integrated in this release from release 12.2(22)SV.

## Usage Guidelines

Use this command if you have configured a network topology manually with the **topology neighbor** command. Use this command on both wdm and transparent interfaces.

The network management agent IP address is usually the IP address of the NME on the node.



### Note

Do not use this command if you have enabled CDP on the interface with the **topology neighbor cdp** command.

**Examples**

The following example shows how to configure a network management agent on a wdm interface.

```
Switch# configure terminal
Switch(config)# interface wdm 0/2
Switch(config-if)# topology neighbor name NodeA port name wdm0/0
Switch(config-if)# topology neighbor agent ip-address 209.165.202.129
```

The following example shows how to configure a network management agent on a transparent interface.

```
Switch# configure terminal
Switch(config)# interface transparent 2/0/0
Switch(config-if)# topology neighbor name Router2 port name gigabitethernet 2/2
Switch(config-if)# topology neighbor agent ip-address 209.165.202.130
```

The following example shows how to configure directional parameters for a network management agent.

```
Switch(config)# interface transparent 8/0/0
Switch(config-if)# topology neighbor name edfa1 port name inport transmit
Switch(config-if)# topology neighbor name edfa2 port name outport receive
Switch(config-if)# topology neighbor agent ip-address 10.0.0.31 transmit
Switch(config-if)# topology neighbor agent ip-address 10.0.0.32 receive
Switch(config-if)# exit
```

**Related Commands**

Command	Description
<a href="#">show topology neighbor</a>	Displays the topology configuration.
<a href="#">topology neighbor</a>	Adds a static entry for an interface to the network topology.

# topology neighbor cdp

To enable physical topology discovery through CDP on wdm and tengigethernetphy interfaces, use the **topology neighbor cdp** command. To disable CDP topology discovery on the interface, use the **no** form of the command or the **topology neighbor disable** command.

**topology neighbor cdp** [*proxy interface*]

**no topology neighbor cdp** [*proxy interface*]

## Syntax Description

<b>proxy interface</b>	Specifies the interface capable of learning the topology to use as a proxy for CDP. Only OSC wave interfaces and ethernetccc interfaces can be used as proxy interfaces.
------------------------	--

## Defaults

Topology discovery enabled when a valid proxy interface is available.

For wdm interfaces, the OSC wave interface patched to the oscfilter interface on an OADM module is the default proxy interface.

For tengigethernetphy interfaces, the ethernetccc interface on the same 10-Gbps uplink card is the default proxy interface.

## Command Modes

Interface configuration

## Command History

This table includes the following release-specific history entries:

- EV-Release
- SV-Release
- S-Release

EV-Release	Modification
12.1(10)EV2	This command was introduced.
12.1(12c)EV	Updated to support 10-Gbps uplink card.
SV-Release	Modification
12.2(18)SV	This command was integrated in this release.
S-Release	Modification
12.2(22)S	<b>This command was integrated in this release from release 12.2(22)SV.</b>

## Usage Guidelines

CDP learns about the neighboring nodes in the network topology. For CDP discovery to function properly the OSC or the in-band message channel, and CDP must be present and configured on the system. For wdm interfaces, use the **proxy** option to specify either an OSC wave interface or an ethernetccc interface on a 10-Gbps ITU trunk card. These types of interfaces are capable of learning the topology using CDP.

**Note**

The tengigethernetphy interfaces can only use the ethernetccc interface on the same 10-Gbps uplink card as its proxy interface.

**Note**

To use the default proxy interface for wdm interfaces, you must correctly configure the patch connections between the OADM modules and the OSC modules using the **patch** command.

You can use the **topology neighbor** command to statically add a wdm or tengigethernetphy interface to the network topology, but you must first disable CDP on the interface. To configure a client side interface as part of the network topology, use the **topology neighbor** command.

**Note**

When a patch connection between a wdm interface on an OADM module and a wdmrelay interface on a PSM is configured, topology learning on the wdm interface is disabled.

**Examples**

The following example shows how to enable CDP on a wdm interface.

```
Switch# configure terminal
Switch(config)# interface wdm 0/0
Switch(config-if)# topology neighbor cdp proxy wave 2/0
```

**Related Commands**

Command	Description
<b>patch</b>	Configures the patch connections between the OADM modules.
<b>show topology neighbor</b>	Displays the topology configuration.
<b>snmp-server enable traps topology</b>	Enables SNMP trap notifications for the network topology.
<b>topology neighbor</b>	Adds a static entry for an interface to the network topology.
<b>topology neighbor disable</b>	Removes the interface from the network topology.

# topology neighbor disable

To remove an interface from the network topology, use the **topology neighbor disable** command.

## topology neighbor disable

**Syntax Description** This command has no other arguments or keywords.

**Defaults** None

**Command Modes** Interface configuration

**Command History** This table includes the following release-specific history entries:

- EV-Release
- SV-Release
- S-Release

EV-Release	Modification
12.1(10)EV2	This command was introduced.
SV-Release	Modification
12.2(18)SV	This command was integrated in this release.
S-Release	Modification
12.2(22)S	This command was integrated in this release from release 12.2(22)SV.

**Usage Guidelines** Use this command to remove an interface from the network topology, whether it was added with the **topology neighbor** command or the **topology neighbor cdp** command.

**Examples** The following example shows how to remove an interface from the network topology.

```
Switch# configure terminal
Switch(config)# interface wdm 0/2
Switch(config-if)# topology neighbor disable
```

Related Commands	Command	Description
	<b>show topology neighbor</b>	Displays the system connections.
	<b>topology neighbor</b>	Adds a static entry for an interface to the network topology.
	<b>topology neighbor cdp</b>	Enables CDP on the interface.

■ topology neighbor disable