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)EV	This command was first 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.

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 10-1 for field descriptions.)

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

Table 10-1   *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
show topology neighbor	Displays network topology information.
snmp-server enable traps topology	Configures the network topology SNMP trap notification throttle interval.
topology hold-time	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**]

Syntax Description	detail	Shows the agent IP address and how the topology entry was created.

Defaults   Displays summary information.

Command Modes   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)EV	This command was first 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.

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 10-2 for field descriptions.)

```
Switch# show topology neighbor
Physical Topology:

Local Port    Neighbor Node     Neighbor Port
----------    -------------     -------------
Wd0/3         Switch2           Wd0/0
```

Table 10-2   show topology neighbor Field Descriptions

Field	Description
Local Port	Identifies the local port.

Table 10-2   show topology neighbor Field Descriptions (continued)

Field	Description
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 10-3 for field descriptions.)

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

Local Port: Wdm0/3
Neighbor Node        : Switch2
Neighbor Port        :
Neighbor Agent Address: 172.20.54.159
Neighbor Discovery    : Via CDP (Proxy Port: Wave0)
```

Table 10-3   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 through CDP or manually through the CLI.

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

Syntax Description

seconds	Specifies the number of seconds. The range is 1 to 2147483647 seconds.

Defaults

300 seconds

Command Modes

Global configuration

Command History

This table includes the following release-specific history entries:

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

EV-Release	Modification
12.1(10)EV	This command was first 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.

Usage Guidelines

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.

Examples

The following example shows how to modify the network topology hold time.

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

Related Commands

Command	Description
show topology	Displays global physical topology configuration.
snmp-server enable traps topology	Configures the network topology SNMP trap notification throttle interval.
topology neighbor cdp	Enables CDP on wdm interfaces.

topology neighbor

To manually add a static entry for a thru, OSC wave, oscfilter, tengigethernetphy, transparent, 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** {**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]

Syntax Description

name *node-name*	Specifies the name of the neighbor node.
ip-addess *ip-address*	Specifies the IP address of the neighbor node.
mac-addess *mac-address*	Specifies the MAC address of the neighbor node.
port name *port-name*	Specifies the name of the port on the neighbor node.
port ip-address *port-ip-address*	Specifies the IP address of the port on the neighbor node.
port mac-address *port-mac-address*	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)EV	This command was first introduced.
12.1(12c)EV	Support for wdmrelay interfaces was added.
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.

Usage Guidelines

Use this command to manually add wdm, thru, oscfilter, OSC wave, tengigethernetphy, transparent, and wdmsplit 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 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 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 how to connect a mux/demux module to a mux/demux module in another node.

```
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 10.1.1.1
```

The following example shows how to connect a transponder module to an interface on the client equipment.

```
Switch# configure terminal
Switch(config)# interface transparent 2/0/2
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 a PSM on another node.

```
Switch# configure terminal
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
show topology neighbor	Displays network topology information.
snmp-server enable traps topology	Enables SNMP trap notifications for the network topology.
topology neighbor agent ip-address	Specifies the network management agent IP address.

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■ **topology neighbor**

Command	Description
topology neighbor cdp	Enables CDP on wdm interfaces.
topology neighbor disable	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. 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)EV	This command was first introduced.
12.1(12c)EV	Support for wdmrelay interfaces was added.
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.

Usage Guidelines   Use this command if you have configured a network topology manually with the **topology neighbor** command.

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 2/3/0
Switch(config-if)# topology neighbor name Router2 port name gigabitethernet2/2
Switch(config-if)# topology neighbor agent ip-address 209.165.202.130
```

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

```
Switch# configure terminal
Switch(config)# interface transparent 0/1/1
Switch(config-if)# topology neighbor name NodeB port name wdmsplit0/1/1
Switch(config-if)# topology neighbor agent ip-address 209.165.202.131
```

Related Commands

Command	Description
show topology neighbor	Displays the topology configuration.
topology neighbor	Adds a static entry for an interface to the network topology.

topology neighbor cdp

To enable CDP topology discovery 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

proxy *interface*	Specifies the interface capable of learning the topology to use as a proxy for CDP. Only OSC wave interfaces and ethernetdcc interfaces can be used as proxy interfaces.

Defaults

Topology discovery is enabled on wdm interfaces when a valid proxy interface is available.

Topology discovery is disabled on tengigethernetphy interfaces.

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 ethernetdcc interface on the same 10-GE transponder module 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)EV	This command was first introduced.
12.1(10)EV2	Support for tengigethernetphy interfaces was added.
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.

Usage Guidelines

CDP learns about the neighboring nodes the network topology. CDP is not supported on transparent interfaces. For this command to function properly, an OSC or ethernetdcc interface and CDP must be present and configured on the system.

Note   A tengigethernetphy interface can only use the ethernetdcc *slot*/*subslot*/**1** interface on the same 10-GE transponder module as its proxy.

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

Note   You must correctly configure the patch connection between the mux/demux modules using the **patch** command. Otherwise, CDP cannot locate the wdm interfaces that connect to the trunk fiber and discover the topology neighbors.

Note   When a patch connection between a wdm interface on a 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 0/3
Switch(config-if)# topology neighbor cdp
```

Related Commands

Command	Description
patch	Configures the patch connections between the mux/demux modules.
show topology neighbor	Displays the topology configuration.
snmp-server enable traps topology	Enables SNMP trap notifications for the network topology.
topology neighbor	Adds a static entry for an interface to the network topology.
topology neighbor disable	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)EV	This command was first 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.

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
show topology neighbor	Displays the system connections.
topology neighbor	Adds a static entry for an interface to the network topology.
topology neighbor cdp	Enables CDP on the interface.

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■ **topology neighbor disable**