

Chapter 56

Link Layer Discovery Protocol (LLDP)

Introduction	56-3
Link Layer Discovery Protocol	56-3
Type Length Values	56-4
Transmission and Reception	56-5
Storing LLDP Information	56-7
Configuring LLDP	56-8
LLDP Triggers	56-10
Cisco Discovery Protocol	56-11
CDP Advertisements	56-11
CDP Neighbours	56-12
Receiving and Checking Advertisements	56-12
Storing CDP Data	56-12
Configuring CDP	56-13
CDP Triggers	56-13
Command Reference	56-15
disable lldp cdp	56-15
disable lldp cdp debug	56-16
disable lldp cdp interface	56-17
disable lldp cdp ppptemplate	56-17
disable lldp managementaddress	56-18
disable lldp notifications	56-19
disable lldp port	56-20
disable lldp portdescription	56-21
disable lldp systemcapabilities	56-22
disable lldp systemdescription	56-23
disable lldp systemname	56-24
enable lldp cdp	56-25
enable lldp cdp debug	56-26
enable lldp cdp interface	56-27
enable lldp cdp ppptemplate	56-27
enable lldp managementaddress	56-28
enable lldp notifications	56-29
enable lldp port	56-30
enable lldp portdescription	56-31
enable lldp systemcapabilities	56-32
enable lldp systemdescription	56-33
enable lldp systemname	56-34
purge lldp	56-35
reset lldp	56-35
reset lldp cdp counters	56-35
reset lldp cdp table	56-36

set lldp managementaddress	56-36
set lldp notification interval	56-37
set lldp reinitdelay	56-37
set lldp txdelay	56-38
set lldp txhold	56-39
set lldp txinterval	56-39
show lldp	56-40
show lldp cdp	56-47
show lldp cdp counters	56-48
show lldp cdp entry	56-49
show lldp cdp interface	56-51
show lldp cdp neighbour	56-52
show lldp counters	56-55
show lldp memory	56-58
show lldp neighbour	56-59

Introduction

This chapter describes the types of link layer neighbour discovery protocol that are available on the router, how they are implemented on the router, and how to configure the router to use them.

Neighbour discovery protocols define a standard method for Ethernet network devices, such as switches and routers, to receive and/or transmit device-related information to other nodes on the network, and to store the information that is learned about other devices.

The following types of neighbour discovery protocol are supported on your router:

- [Link Layer Discovery Protocol](#)
- [Cisco Discovery Protocol](#)

Link Layer Discovery Protocol

Overview Link Layer Discovery Protocol (LLDP) is a Layer 2 protocol defined by the IEEE Standard 802.1AB-2005. For a complete set of rules and information about LLDP, refer to this standard.

LLDP allows Ethernet network devices to advertise details about themselves, such as device configuration, capabilities and identification, to directly connected devices on the network that are also using LLDP.

LLDP is a “one hop” protocol; LLDP information can only be sent to and received by devices that are directly connected to each other by the same link. Devices that are directly connected to each other are called **neighbours**. Advertised information is not forwarded on to other devices on the network.

SNMP LLDP is designed to be managed with Simple Network Management Protocol (SNMP). We provide a command line interface to manage LLDP, however SNMP is the recommended interface as LLDP is designed to be automatically managed from Network Management Systems (NMS).

What LLDP does Advertisements are sent in packets called *LLDP Data Units* (LLDPDUs). The data sent and received via LLDPDUs is useful for many reasons. For example, the router can discover which of the other devices on the network are each other’s neighbours, and through which ports they connect to each other.

You can configure the router to do the following:

- transmit information about itself to neighbours
- receive device information from neighbours
- store and manage received information in an LLDP MIB

Each device that uses LLDP has its own LLDP agent, which is a software entity that implements LLDP. The LLDP agent is responsible for the reception, transmission, and management of LLDP.

LLDP defines the following:

- A set of common advertisement messages (Type Length Values). For more information, see [Type Length Values](#).
- A protocol for transmitting and receiving advertisements. For more information, see [Transmission and Reception](#).
- A method for storing the information that is contained within received advertisements. For more information, see [Storing LLDP Information](#).

Type Length Values

The LLDP agent transmits and receives information via LLDPDUs. A single LLDPDU contains multiple advertisement messages, each of which is communicated within a Type Length Value (TLV). TLVs are short information elements which communicate complex data, such as variable length strings, in an organized format. Each TLV advertises a single type of information that identifies the sending device, for example, its device ID, type, or the address or addresses. The following table describes fields in the TLV.

Field	Description
Type	Identifies the kind of information. It consists of a 16-bit Type code.
Length	Identifies the length of the information. It consists of a 16-bit value that specifies the number of bytes of data in the Value field.
Value	Contains the actual value of the advertised information. This is a variable length data field.

Each LLDPDU contains at least four mandatory TLVs by default. You can also configure the router to send up to five optional additional TLVs.

Mandatory TLVs

Mandatory TLVs are sent by default in every LLDPDU. These advertise the device's MAC Service Access Point (MSAP) identifier, as well as the time period for which the device's information is valid. All LLDP information associated with a device is identified with the device's MSAP identifier.

The MSAP identifier is defined by the IEEE Standard 802.1AB-2005 as follows: "the concatenation of the chassis ID and the port ID is used by LLDP as an MSAP identifier, to identify the LLDP agent and physical port associated with an IEEE 802® LAN station" For more information, see the IEEE Standard 802.1AB-2005.

The following table describes mandatory TLVs.

Mandatory TLV	Description
Chassis ID	Identifies the device's chassis. It is the MAC address of the router, or the MAC address of the port for Eth ports.
PortID	Identifies the port that transmitted the LLDPDU.
Time To Live (TTL)	Indicates the length of time in seconds for which the information received in the LLDPDU remains valid. If the value is greater than zero, the information is stored in the LLDP remote system MIB. If the value is zero, the information is no longer valid, and is removed from the MIB.
End of LLDPDU	Signals that there are no more TLVs in the LLDPDU.

Optional TLVs You can configure the switch to send up to five optional TLVs alongside the mandatory TLVs in each LLDPDU. The the following table describes the optional TLVS from the LLDP-defined Basic Management TLV Set.

Optional TLV	Description
Port description	A description of the device's port in alpha-numeric format.
System name	The system's assigned name in alpha-numeric format.
System description	A description of the device in alpha-numeric format. This includes the system name, hardware versions, operating system, and the networking software supported in the device.
System capabilities	The device's router and bridge functions, and whether or not these functions are currently enabled.
Management address	The address of the local LLDP agent. This can be used to obtain information related to the local device. The <code>set lldp managementaddress</code> command lets you specify an IPv4 address to advertise in this TLV. Otherwise the router's MAC address is used.

LLDPDU and TLV error handling

LLDPDUs and TLVs that contain detectable errors are discarded.

If a TLV is not recognized, but contains no basic format errors, the LLDP agent assumes that it is validated and stores it for possible later retrieval by network management.

Transmission and Reception

LLDP is a one-way protocol. That is, the information transmitted in LLDPDUs flows in one direction only, from one device to its neighbours, and the communication ends there. Transmitted LLDPDUs do not solicit responses, and received LLDPDUs do not solicit acknowledgement. LLDP agents cannot solicit any information from other devices.

By default, when you enable LLDP on a port, both the transmission and reception of LLDPDUs is enabled. However, you can separately enable and disable transmission and reception. The LLDP agent can operate in any one of the following user-defined modes:

- **Transmit-only mode**
The agent can only transmit current information about the local system.
- **Receive-only mode**
The agent can only receive current information about remote systems.
- **Transmit and receive mode**
The agent can both transmit local information and receive remote information.

See [“Configuring LLDP” on page 56-8](#) for information on how to configure these modes.

Transmission

When LLDP transmission is **enabled**, the LLDP agent advertises information about your router to neighbours at regular, user-configured intervals.

Each transmitted LLDPDU contains the mandatory TLVs, and any optional TLVs that you have enabled. See [“Type Length Values” on page 56-4](#) for more information about TLVs. Or, see [“Configuring LLDP” on page 56-8](#) to find out how to configure the TLVs that are advertised on your router.

When LLDP transmission is **disabled**, one of two scenarios occurs. If transmission is disabled:

- because you have disabled a port using an LLDP command, then the LLDP agent transmits a single ‘shutdown’ LLDPDU with a Time-To-Live (TTL) TLV that has a value of "0". This tells any remote neighbouring devices to remove the information associated with your router from their remote systems MIB.
- for any other reason, for example you have disabled the port using **disable switch port**, then the LLDP agent does not send a shutdown LLDPDU.

Note that LLDP does not transmit LLDPDUs on switch ports that are untagged members of any VLAN other than the default VLAN (vlan1)

Transmission delay timer

Transmission cycles can be initiated by either of the following:

- the expiration of a transmit countdown timing counter
- a change to the status or value of one or more of the TLVs associated with your local system

A series of successive changes over a short period of time can trigger the agent to send a large number of LLDPDUs. To prevent this, there is a transmission delay timer. This establishes a minimum length of time that must elapse between successive LLDP transmissions. The default is two seconds, but you can configure this to suit your network. For more information, see the [set lldp txdelay command on page 56-38](#).

Reception

When LLDP reception is **enabled** on a port, the LLDP agent receives advertised information from and about remote neighbouring devices, and stores this data in the remote systems MIB. For more information, see [“LLDP Remote Systems MIB” on page 56-7](#).

When LLDP reception is **disabled** on a port, the LLDP agent does not receive any neighbour advertisements.

Storing LLDP Information

Whenever an LLDP device receives a valid and current LLDP advertisement from a neighbouring network device, it stores the information in an IEEE-defined Simple Network Management Protocol (SNMP) Management Information Base (MIB). For more information, see Section 12.2 of the IEEE Standard 802.1AB-2005.

LLDP Local System MIB

Information about your device is called local system information. The LLDP local system MIB maintains this information, which consists of device details, as well as any user-configured information that you have set up for your router, for example a port description or a management address.

LLDP Remote Systems MIB

Information gained from neighbouring devices is called *remote system information*. The LLDP remote systems MIB maintains this information.

The length of time for which neighbour information remains in the LLDP remote systems MIB is determined by the Time-To-Live (TTL) value of received LLDPDUs:

- When an LLDPDU first arrives from a neighbour, the LLDP agent initializes a timer.
- As new LLDPDUs arrive from that neighbour, this refreshes the timer.
- When the timer reaches the TTL value, the LLDP agent deletes the neighbour's information from the MIB.

This ensures that only valid LLDP information is stored.

Any remote, organization-specific TLV values are maintained in LLDP's organizationally-defined remote device LLDP MIB extensions. For more information, see Section 12 of the IEEE Standard 802.1AB-2005.

Remote tables change event

Whenever a new neighbour is discovered, or an existing neighbour advertises a change, for example a new TLV or a change in the TTL, a remote tables change event is activated. At this time:

- A trigger and log are activated. For information about LLDP triggers, see LLDP Triggers on page 10. For information about log messages, see [Appendix A, Messages](#).
- If you have notifications enabled, the notification `lldpRemTablesChange` is sent. For more information, see "LLDP MIB Notifications" in the IEEE Standard 802.1AB-2005.

Size limitations

To prevent the remote systems MIB from using large amounts of memory and possibly affecting the operation of your router, the following limitations are enforced:

- The total size of the MIB can be a maximum of 5MB, or 5% of your available memory - whichever is the lesser amount.
- There can be a maximum of five neighbours per port.

Once either of these limits is reached, the LLDP agent stops processing new neighbours. This condition is called **toomanyneighbours**. For more information, see Section 10.3.4 of the IEEE Standard 802.1AB-2005.

When the **toomanyneighbours** condition occurs, a trigger is sent, and a log is activated. For more information, see LLDP Triggers on page 10, and [Appendix A, Messages](#).

Clearing data You can clear all the data stored in the LLDP remote systems MIB using the **purge lldp command** on page 56-35. This clears all current remote LLDP MIB data. LLDP reverts to its default configuration, which means that LLDP is disabled for all ports.

See also For information about configuring the LLDP MIB, see “[Configuring LLDP](#)” on page 56-8.

For other information about the LLDP MIB, see [Appendix C, SNMP MIBs](#).

Configuring LLDP

LLDP is best configured and managed with SNMP, however you can also use the command line interface (CLI). This section contains an example of a basic LLDP configuration using the CLI.

Enabling and disabling LLDP

By default, LLDP is disabled. To enable LLDP on a port, list of ports, or all ports, use the command:

```
enable lldp port={all|port-list} [{tx|rx|txrx}]
```

To disable LLDP on a port, list of ports, or all ports, use the command:

```
disable lldp port={all|port-list} [{tx|rx|txrx}]
```

By default, when you enable a port for LLDP, both LLDP transmission and reception are enabled. To enable either LLDP transmission or reception only on the chosen ports, specify either **tx** or **rx**.

Enabling and disabling LLDP TLVs

When LLDP is enabled on a port, the LLDP agent advertises all TLVs by default. However, you can separately enable or disable each optional TLV on the port, using the following commands:

TLV	Enable using...	Disable using...
Port Description	<code>enable lldp portdescription</code>	<code>disable lldp portdescription</code>
System Name	<code>enable lldp systemname</code>	<code>disable lldp systemname</code>
System Description	<code>enable lldp systemdescription</code>	<code>disable lldp systemdescription</code>
System Capabilities	<code>enable lldp systemcapabilities</code>	<code>disable lldp systemcapabilities</code>
Management Address	<code>enable lldp managementaddress</code>	<code>disable lldp managementaddress</code>

For more information about TLVs, see “[Type Length Values](#)” on page 56-4.

LLDP notifications

To enable LLDP notifications, use the command:

```
enable lldp notifications [other-options]
```

To disable LLDP notifications, use the command:

```
disable lldp notifications [other-options]
```

To set the amount of time between LLDP notifications, use the command:

```
set lldp notification interval [other-options]
```

Purging and re-setting LLDP

To clear your existing LLDP configuration information and all remote LLDP MIB data, use the command:

```
purge lldp [other-options]
```

To clear all remote LLDP MIB data, and start the LLDP re-initialization procedure, use the command:

```
reset lldp [other-options]
```

Monitoring LLDP

To display general LLDP information, use the command:

```
show lldp [other-options]
```

To display information about LLDP counters, use the command:

```
show lldp counters [other-options]
```

To display information about LLDP memory, use the command:

```
show lldp memory [other-options]
```

To display detailed information about LLDP neighbours, use the command:

```
show lldp neighbour [other-options]
```

LLDP Triggers

You can use the Trigger Facility to automatically run specific command scripts when particular triggers are activated. When a trigger is activated by an event, parameters specific to the event are passed to the script that is run. Triggers can be activated:

- when the LLDP remote systems MIB changes
- when LLDP too many neighbour events occur

For more information about the Trigger Facility, see [Chapter 59, Trigger Facility](#).

Module LLDP

Event LLDPRemotetablechange

Description The LLDP remote systems MIB changes.

Parameters You cannot specify any command parameters in the **create trigger** command.

Script arguments The trigger passes arguments in the following table to the script:

Argument	Description
%1	Value of LLDP MIB object lldpStatsRemTablesInserts
%2	Value of LLDP MIB object lldpStatsRemTablesDeletes
%3	Value of LLDP MIB object lldpStatsRemTablesDrops
%4	Value of LLDP MIB object lldpStatsRemTablesAgeouts

Example To create trigger 1, which activates whenever the LLDP remote systems MIB changes, use the command:

```
create trigger=<number> module=lldp
event=lldpremotetablechange
```

Module LLDP

Event LLDPToomanyneighbours

Description There are too many active LLDP neighbours in the network.

Parameters You cannot specify any command parameters in the **create trigger** command.

Script arguments The trigger passes arguments in the following table to the script:

Argument	Description
%1	The system name of the neighbour that was refused
%2	The port description of the port on which the LLDPDU was received

Example To create trigger 1, which activates whenever there are too many active LLDP neighbours in the network, use the command:

```
create trigger=<number> module=lldp
event=lldptoomanyneighbours
```

Cisco Discovery Protocol

Overview Cisco Discovery Protocol (CDP) is a type of link layer discovery protocol. It enables the router to receive and process Cisco® Discovery Protocol packets, or advertisements. CDP advertisements received by the router are flooded to other ports in the VLAN. Unlike LLDP, however, the router does not generate CDP advertisements of its own.

CDP is supported on Ethernet PPP interfaces, and switch ports (`ethn` and `portn`).

CDP is used by Cisco devices to communicate protocol and set-up information to other devices. CDP runs over the data link layer only, so it provides a mechanism for two neighbouring devices to learn about each other, even when they are supporting different network layer protocols.

CDP advertisements contain information about network layer addresses, device type, and device capabilities. CDP can also be used to show information about the interfaces a switch or router uses.

A device configured to send CDP advertisements advertises at least one address where it can receive SNMP messages. Network management applications use the Simple Network Management Protocol (SNMP) with the CDP Management Information Base (MIB) to gain information about both the device type and the IP address of neighbouring devices, and to send SNMP queries to those devices.

CDP Advertisements

A device configured to send CDP information sends periodic messages to a multicast address. These messages are called *advertisements*. CDP advertisements contain the following:

Type	Description
Holdtime information	The length of time for which CDP information is kept by a receiving device. Also called <i>time-to-live</i> .
Checksum	Verifies the advertisement.
TLVs	Type, Length, Value. TLVs communicate complex data, such as variable length strings, in an organized format. TLVs communicate information that identifies the device, for example, device ID and type, and the address or addresses of the device. For more information, see “The LLDP agent transmits and receives information via LLDPDUs. A single LLDPDU contains multiple advertisement messages, each of which is communicated within a Type Length Value (TLV). TLVs are short information elements which communicate complex data, such as variable length strings, in an organized format. Each TLV advertises a single type of information that identifies the sending device, for example, its device ID, type, or the address or addresses. The following table describes fields in the TLV.” on page 56-4.

CDP Neighbours

Neighbours are neighbouring devices that send CDP advertisements, and are discovered using CDP.

To display information about neighbours, use the command:

```
show lldp cdp neighbour
```

Information that neighbours advertise includes the holdtime value, the device ID, and the device type.

Receiving and Checking Advertisements

CDP advertisements are formatted using Subnetwork Access Protocol (SNAP) encapsulation, and are sent as multicasts. When the router receives CDP advertisements, it checks the information contained within them, and stores it in a Management Information Base called the CISCO CDP MIB.

The following attributes are checked for accuracy:

- The *Checksum* must be correct.
- The packet length must be greater than or equal to 4.
- The packet version must be 1 or 2.
- TLV values must be correct.

Reception of advertisements can result in logging and trigger activity. For information about CDP triggers, see [“CDP Triggers” on page 56-13](#). For information about CDP log messages, see [Appendix B, Log Message Types and Subtypes](#).

Storing CDP Data

CDP data storage is disabled by default. When CDP is enabled with the [enable lldp cdp command on page 56-25](#), CDP data is stored and maintained in a Management Information Base (MIB). MIB table entries exist for each physical interface on which CDP is running, and for each neighbour that is discovered via LLDP.

The router supports:

- reading of all CDP MIB variables that relate to the reception of CDP advertisements
- writing of the CDP MIB variables *cdpInterfaceEnable* and *cdpGlobalRun*.

Configuring CDP

CDP supports the reception and processing of CDP advertisements, but it does not generate CDP advertisements of its own.

CDP is only supported on Ethernet interfaces and switch ports (*ethn* and *portn*).

Enabling and disabling CDP

By default, CDP is disabled. To enable CDP on the router, use the command:

```
enable lldp cdp
```

To disable CDP on the router, use the command:

```
disable lldp cdp
```

NOTE: CDP uses a hardware filter. You can only enable CDP when a hardware filter is available.

Disabling and enabling CDP Interfaces

By default, CDP is enabled on all supported interfaces. To disable CDP on a specific interface, use the command:

```
disable lldp cdp interface=interface
```

To enable CDP on a specific interface, use the command:

```
enable lldp cdp interface=interface
```

Monitoring CDP

To display general CDP information, use the command:

```
show lldp cdp
```

To display information about CDP interfaces, use the command:

```
show lldp cdp interface
```

To display information about CDP neighbours, use the command:

```
show lldp cdp entry
```

To display detailed information about CDP neighbours, use the command:

```
show lldp cdp neighbour detail
```

CDP Triggers

The Trigger Facility can be used to automatically run specific command scripts when particular triggers are activated. When a trigger is activated by an event, parameters specific to the event are passed to the script that is run. Triggers can be created:

- when CDP discovers a new device.
- when CDP loses a device.

For more information about the Trigger Facility, see [Chapter 59, Trigger Facility](#).

Module LLDP

Event CDPADD

Description The router has discovered a new CDP device.

Parameters There are no command parameters to be specified in the **create trigger** command.

Script arguments The trigger passes arguments in the following table to the script.

Argument	Description
%1	The eth instance, if the discovered port is an Ethernet port
%2	The port number, if the discovered port is a switch port
%3	The platform as defined in the CDP advertisement
%4	The device ID as defined in the CDP advertisement
%5	The power consumption as defined in the CDP advertisement.
%6	The PPP instance, if the interface is a PPP interface.
%7	The PPP template index, if the interface is a dynamic PPP interface.
%8	Either "eth", "port", or "PPP" depending on the interface type.

Example To create trigger 1, which activates whenever CDP discovers a new device, use the command:

```
create trigger=1 module=lldp event=cdpadd
```

Event CDPREMOVE

Description A CDP device has been lost, either because information about it has timed out, or because a corresponding interface has gone down.

Parameters There are no command parameters to be specified in the **create trigger** command.

Script arguments The trigger passes arguments in the following table to the script.

Argument	Description
%1	The eth instance, if the lost port is an Ethernet port
%2	The port number, if the lost port is a switch port
%3	
%4	
%5	
%6	The PPP instance, if the interface is a PPP interface.
%7	The PPP template index, if the interface is a dynamic PPP interface.
%8	Either "eth", "port", or "PPP" depending on the interface type.

Example To create trigger 2, which activates whenever CDP loses a device, use the command:

```
create trigger=2 module=lldp event=cdpremove
```

Command Reference

This section describes the commands available on the router to enable, configure, control and monitor LLDP and CDP.

The shortest valid command is denoted by capital letters in the Syntax section. See “Conventions” on page lxv of [About this Software Reference](#) in the front of this manual for details of the conventions used to describe command syntax. See [Appendix A, Messages](#) for a complete list of messages and their meanings.

disable lldp cdp

Syntax DISable LLDP CDP

Description This command disables CDP. The router stops receiving CDP advertisements, and deletes any existing neighbour entries. CDP is disabled by default.

Example To disable CDP, use the command:

```
dis lldp cdp
```

Related Commands [enable lldp cdp](#)
[show lldp cdp](#)

disable lldp cdp debug

Syntax `DISable LLDP CDP DEBug [= {PACKet | ADJacency | EVent | PPP}]`

Description This command disables CDP debugging for a specific debug mode or for all modes. CDP debugging is disabled by default.

Parameter	Description
DEBug	The debug mode to disable. If no value is entered, all debug modes are disabled.
PACKet	Disables debugging of the reception of CDP advertisements.
ADJacency	Disables debugging of the creation and deletion of CDP neighbours.
EVent	Disables debugging of error conditions, such as bad packets.
PPP	Disables debugging of PPP events.

Examples To disable CDP debugging for all modes, use the command:

```
dis lldp cdp debug
```

To disable CDP debugging for the adjacency mode, use the command:

```
dis lldp cdp deb=adj
```

Related Commands [enable lldp cdp debug](#)
[disable lldp cdp interface](#)
[show lldp cdp](#)

disable lldp cdp interface

Syntax `DISable LLDP CDP INTerface=interface`

where *interface* is the interface on which to disable CDP, one of:

- `ethn`
An Eth port, where *n* is the Eth port instance (for example, eth0)
- `portm`
A switch port, where *m* is the port number (for example, port2 for the switch port numbered 2)
- `pppm`
A PPP interface, where *m* is the interface number

Description This command disables CDP on a specified interface. For the specified interface only, the router stops receiving CDP advertisements and deletes any existing neighbour entries.

CDP is enabled by default on all interfaces, even when it is disabled on the router.

Example To disable CDP operation on port 1 of the router, use the command:

```
dis lldp cdp int=port1
```

Related Commands [enable lldp cdp interface](#)
[disable lldp cdp](#)
[disable lldp cdp debug](#)
[show lldp cdp interface](#)

disable lldp cdp ppptemplate

Syntax `DISable LLDP CDP PPPTemplate=template`

Where *template* is a number from 0 to 31

Description This command disables CDP listening on interfaces that are dynamically created using the specified PPP template.

Example To disable CDP listening for PPP template number 3, use the command:

```
dis lldp cdp pppt=3
```

Related Commands [disable lldp cdp](#)
[disable lldp cdp debug](#)
[disable lldp cdp interface](#)
[enable lldp cdp ppptemplate](#)
[show lldp cdp interface](#)

disable lldp managementaddress

Syntax DISable LLDP MANAge mentaddress [Port={ALL|*port-list*}]

Description This command stops the router from advertising the management address TLV on the specified ports. The LLDP agent now sends LLDPDUs without management address information.

Unless an IPv4 management address has been set using the [set lldp managementaddress](#) command, the **managementaddress** is the MAC address of the router.

Use the **port** parameter to define the ports for which to disable management address TLV advertisement, either a list of ports or all ports. *port-list* can be any/all of the following:

- a single switch port number. Port numbers start at 1 and end at *m*, where *m* is the highest numbered port.
- a range of switch port numbers (specified as *n-m*).
- a comma-separated list of switch port numbers and/or ranges.
- a single Ethernet interface (specified as *ethn*).
- a comma-separated list of Ethernet interfaces. Ethernet port numbers start at *eth0* and end at *ethn*, where *n* is the highest numbered Ethernet port.

By default, LLDP management address advertisement is enabled for all ports.

Examples To stop the router from advertising the management address on ports 1 and 2, use the command:

```
dis lldp mana po=1,2
```

To stop the router from advertising the management address on all ports, use one of the commands:

```
dis lldp mana
dis lldp mana po=all
```

Related Commands [disable lldp port](#)
[enable lldp managementaddress](#)
[set lldp managementaddress](#)
[show lldp](#)

disable lldp notifications

Syntax DISable LLDP NOTifications [Port={ALL|*port-list*}]

Description This command stops the router from sending LLDP SNMP notifications from the specified ports. Notifications are SNMP traps, triggers, and logs.

Use the **port** parameter to specify the ports for which to disable LLDP notifications, either a list of ports or all ports. *port-list* can be any/all of the following:

- a single switch port number. Port numbers start at 1 and end at *m*, where *m* is the highest numbered port.
- a range of switch port numbers (specified as *n-m*).
- a comma-separated list of switch port numbers and/or ranges.
- a single Ethernet interface (specified as *ethn*).
- a comma-separated list of Ethernet interfaces. Ethernet port numbers start at *eth0* and end at *ethn*, where *n* is the highest numbered Ethernet port.

By default, LLDP notifications are disabled for all ports.

To set the amount of time between notifications, use [set lldp notification interval command on page 56-37](#).

Examples To stop the router from sending LLDP notifications from ports 1 and 2, use the command:

```
dis lldp noti po=1,2
```

To stop the router from sending LLDP notifications from all ports, use one of the commands:

```
dis lldp noti
dis lldp noti po=all
```

Related Commands [disable lldp port](#)
[enable lldp notifications](#)
[set lldp notification interval](#)
[show lldp](#)

disable lldp port

Syntax `DISable LLDP POrt={ALL|port-list} [{TX|RX|TXRX}]`

Description This command disables the specified LLDP actions on the specified ports, either **tx** (transmission), **rx** (reception), or **txrx** (both). By default, all LLDP actions are disabled for all ports.

Parameter	Description								
POrt	<p>The ports for which to disable the specified LLDP actions, either a list of ports or all ports.</p> <p><i>port-list</i> can be any/all of the following:</p> <ul style="list-style-type: none"> • a single switch port number. Port numbers start at 1 and end at <i>m</i>, where <i>m</i> is the highest numbered port. • a range of switch port numbers (specified as <i>n-m</i>). • a comma-separated list of switch port numbers and/or ranges. • a single Ethernet interface (specified as <i>ethn</i>). • a comma-separated list of Ethernet interfaces. Ethernet port numbers start at <i>eth0</i> and end at <i>ethn</i>, where <i>n</i> is the highest numbered Ethernet port. <p>Default: all</p>								
TX RX TXRX	<table border="1"> <thead> <tr> <th>Specify:</th> <th>To:</th> </tr> </thead> <tbody> <tr> <td>TX</td> <td>Stop the LLDP agent from transmitting LLDPDUs on the specified ports.</td> </tr> <tr> <td>RX</td> <td>Stop the LLDP agent from receiving LLDPDUs on the specified ports.</td> </tr> <tr> <td>TXRX</td> <td>Stop the LLDP agent from both transmitting and receiving LLDPDUs on the specified ports.</td> </tr> </tbody> </table> <p>Default: txrx</p>	Specify:	To:	TX	Stop the LLDP agent from transmitting LLDPDUs on the specified ports.	RX	Stop the LLDP agent from receiving LLDPDUs on the specified ports.	TXRX	Stop the LLDP agent from both transmitting and receiving LLDPDUs on the specified ports.
Specify:	To:								
TX	Stop the LLDP agent from transmitting LLDPDUs on the specified ports.								
RX	Stop the LLDP agent from receiving LLDPDUs on the specified ports.								
TXRX	Stop the LLDP agent from both transmitting and receiving LLDPDUs on the specified ports.								

Examples To stop the router from transmitting LLDPDUs from all ports, use the command:

```
dis lldp po tx
```

To stop the router from both transmitting and receiving LLDPDUs on ports 1 to 3, use one of the commands:

```
dis lldp po=1-3
```

```
dis lldp po=1-3 txrx
```

Related Commands

- [enable lldp port](#)
- [purge lldp](#)
- [reset lldp](#)
- [show lldp](#)

disable lldp portdescription

Syntax `DISable LLDP PORTDescription [Port={ALL|port-list}]`

Description This command stops the router from advertising the port description TLV on the specified ports. This is the IEEE 802 LAN station's port description that is associated with the local system. The LLDP agent now sends LLDPDUs without port description information.

Use the **port** parameter to specify the ports for which to disable port description TLV advertisement, either a list of ports or all ports. *port-list* can be any/all of the following:

- a single switch port number. Port numbers start at 1 and end at *m*, where *m* is the highest numbered port.
- a range of switch port numbers (specified as *n-m*).
- a comma-separated list of switch port numbers and/or ranges.
- a single Ethernet interface (specified as *ethn*).
- a comma-separated list of Ethernet interfaces. Ethernet port numbers start at *eth0* and end at *ethn*, where *n* is the highest numbered Ethernet port.

By default, LLDP port description advertisement is enabled for all ports.

Examples To stop the router from advertising the port description on port 1 and 2, use the command:

```
dis lldp portd po=1,2
```

To stop the router from advertising the port description on all ports, use one of the commands:

```
dis lldp portd
dis lldp portd po=all
```

Related Commands [disable lldp port](#)
[enable lldp portdescription](#)
[set switch port](#) in Chapter 8, Switching
[show lldp](#)

disable lldp systemcapabilities

Syntax DISable LLDP SYSTEMCapabilities [Port={ALL|*port-list*}]

Description This command stops the router from advertising the system capabilities TLV on the specified ports. System capabilities are the primary functions of your system, including bridge and/or router.

The LLDP agent now sends LLDPDUs without system capabilities information.

Use the **port** parameter to specify the ports for which to disable system capability TLV advertisement, either a list of ports or all ports. *port-list* can be any/all of the following:

- a single switch port number. Port numbers start at 1 and end at *m*, where *m* is the highest numbered port.
- a range of switch port numbers (specified as *n-m*).
- a comma-separated list of switch port numbers and/or ranges.
- a single Ethernet interface (specified as *ethn*).
- a comma-separated list of Ethernet interfaces. Ethernet port numbers start at *eth0* and end at *ethn*, where *n* is the highest numbered Ethernet port.

By default, LLDP system capabilities advertisement is enabled for all ports.

Examples To stop the router from advertising the system capabilities on ports 1 and 2, use the command:

```
dis lldp systemc po=1,2
```

To stop the router from advertising the system capabilities on all ports, use one of the commands:

```
dis lldp systemc
dis lldp systemc po=all
```

Related Commands [disable lldp port](#)
[enable lldp systemcapabilities](#)
[show lldp](#)

disable lldp systemdescription

Syntax DISable LLDP SYSTEMDescription [Port={ALL|*port-list*}]

Description This command stops the router from advertising the system description TLV on the specified ports. This is the description of the local system, and is displayed in output of the **show system** command.

The LLDP agent now sends LLDPDUs without system description information.

Use the **port** parameter to specify the ports for which to disable system description TLV advertisement, either a list of ports or all ports. *port-list* can be any/all of the following:

- a single switch port number. Port numbers start at 1 and end at *m*, where *m* is the highest numbered port.
- a range of switch port numbers (specified as *n-m*).
- a comma-separated list of switch port numbers and/or ranges.
- a single Ethernet interface (specified as *ethn*).
- a comma-separated list of Ethernet interfaces. Ethernet port numbers start at *eth0* and end at *ethn*, where *n* is the highest numbered Ethernet port.

By default, LLDP system description advertisement is enabled for all ports.

Examples To stop the router from advertising the system description on port 1 and 2, use the command:

```
dis lldp systemd po=1,2
```

To stop the router from advertising the system description on all ports, use one of the commands:

```
dis lldp systemd
dis lldp systemd po=all
```

Related Commands [disable lldp port](#)
[enable lldp systemdescription](#)
[show lldp](#)

disable lldp systemname

Syntax DISable LLDP SYSTEMName [Port={ALL|*port-list*}]

Description This command stops the router from advertising the system name TLV on the specified ports. The LLDP agent now excludes the local system name information from any LLDPDUs it sends.

Use the **port** parameter to specify the ports for which to disable system name TLV advertisement, either a list of ports or all ports. *port-list* can be any/all of the following:

- a single switch port number. Port numbers start at 1 and end at *m*, where *m* is the highest numbered port.
- a range of switch port numbers (specified as *n-m*).
- a comma-separated list of switch port numbers and/or ranges.
- a single Ethernet interface (specified as *ethn*).
- a comma-separated list of Ethernet interfaces. Ethernet port numbers start at *eth0* and end at *ethn*, where *n* is the highest numbered Ethernet port.

By default, LLDP system name advertisement is enabled for all ports.

Examples To stop the router from advertising the system name on port 1 and 2, use the command:

```
dis lldp systemn po=1,2
```

To stop the router from advertising the system name on all ports, use one of the commands:

```
dis lldp systemn
```

```
dis lldp systemn po=all
```

Related Commands [disable lldp port](#)
[enable lldp systemname](#)
[show lldp](#)

enable lldp cdp

Syntax ENAbLe LLDP CDP

Description This command enables CDP. The reception of CDP advertisements begins, and new neighbour entries are added as devices are discovered.

This command does not start CDP operations on any individual interfaces that have previously been specifically disabled with the **disable lldp cdp interface** command.

NOTE: CDP uses a hardware filter. You can only enable CDP when a hardware filter is available.

CDP is disabled by default.

Example To enable CDP, use the command:

```
ena lldp cdp
```

Related Commands [disable lldp cdp](#)
[enable lldp cdp debug](#)
[enable lldp cdp interface](#)
[show lldp cdp](#)

enable lldp cdp debug

Syntax ENABle LLDP CDP DEBug={PACKet | ADJacency | EVent | PPP}

Description This command enables CDP debugging in a particular debug mode.

CDP debugging can be enabled on one management device only at any given time, either an asynchronous port or a Telnet login. If a debugging mode is enabled on a particular device, no other debugging mode can be enabled on any other device simultaneously.

CDP debugging is disabled by default.

Parameter	Description
DEBug	The debugging mode to enable.
PACKet	Enables debugging of the reception of CDP advertisements.
ADJacency	Enables debugging of the creation and deletion of CDP neighbours
EVent	Enables debugging of error conditions, such as bad packets.
PPP	Enables debugging of PPP events.

Example To enable CDP packet debugging, use the command:

```
ena lldp cdp deb=pac
```

Related Commands [disable lldp cdp debug](#)
[enable lldp cdp](#)
[enable lldp cdp interface](#)

enable lldp cdp interface

Syntax ENable LLDP CDP INTerface=*interface*

where *interface* is the interface on which to enable CDP, one of:

- *ethn*
An Eth port, where *n* is the Eth port instance (for example, eth0)
- *portm*
A switch port, where *m* is the port number (for example, port2 for the switch port numbered 2)
- *pppm*
A PPP interface, where *m* is the interface number

Description This command enables CDP on the specified interface, which has been previously disabled with the **disable lldp cdp interface** command. For the specified interface only, the reception of CDP advertisements begins, and neighbour entries are added as they are discovered.

CDP is enabled by default for all interfaces, but you must first enable CDP with the **enable lldp cdp** command.

Example To enable CDP on switch port 1, use the command:

```
ena lldp cdp int=port1
```

Related Commands [disable lldp cdp interface](#)
[enable lldp cdp](#)
[enable lldp cdp debug](#)
[show lldp cdp interface](#)

enable lldp cdp ppptemplate

Syntax ENable LLDP CDP PPPTemplate=*template*

Where *template* is a number from 0 to 31

Description This command enables CDP listening on interfaces that are dynamically created using the specified PPP template.

By default, when CDP has been enabled with the **enable lldp cdp** command, CDP listening is enabled for any dynamically created PPP interface.

Example To enable CDP listening for PPP template number 3, use the command:

```
ena lldp cdp pppt=3
```

Related Commands [disable lldp cdp ppptemplate](#)
[enable lldp cdp](#)
[enable lldp cdp debug](#)
[enable lldp cdp interface](#)
[show lldp cdp interface](#)

enable lldp managementaddress

Syntax ENable LLDP MANagementaddress [Port={ALL|*port-list*}]

Description This command enables management address TLV advertisement on the specified ports. The LLDP agent now includes management address information in any LLDPDUs it sends.

By default, the **managementaddress** is the MAC address of the router. To advertise the IPv4 management address of the local LLDP agent instead, use the [set lldp managementaddress](#) command.

Use the **port** parameter to define the ports for which to enable management address TLV advertisement, either a list of ports or all ports. *port-list* can be any/all of the following:

- a single switch port number. Port numbers start at 1 and end at *m*, where *m* is the highest numbered port.
- a range of switch port numbers (specified as *n-m*).
- a comma-separated list of switch port numbers and/or ranges.
- a single Ethernet interface (specified as *ethn*).
- a comma-separated list of Ethernet interfaces. Ethernet port numbers start at *eth0* and end at *ethn*, where *n* is the highest numbered Ethernet port.

By default, LLDP management address advertisement is enabled for all ports.

Examples To enable management address advertisement on ports 1 and 2, use the command:

```
ena lldp mana po=1,2
```

To enable management address advertisement on all ports, use one of the commands:

```
ena lldp mana
ena lldp mana po=all
```

Related Commands [disable lldp managementaddress](#)
[enable lldp port](#)
[set lldp managementaddress](#)
[show lldp](#)

enable lldp notifications

Syntax ENABle LLDP NOTIfications [POrt={ALL|*port-list*}]

Description This command enables the router to send LLDP SNMP notifications from the specified ports. Notifications are SNMP traps, triggers, and logs.

Use the **port** parameter to specify the ports for which to enable LLDP notifications, either a list of ports or all ports. *port-list* can be any/all of the following:

- a single switch port number. Port numbers start at 1 and end at *m*, where *m* is the highest numbered port.
- a range of switch port numbers (specified as *n-m*).
- a comma-separated list of switch port numbers and/or ranges.
- a single Ethernet interface (specified as *ethn*).
- a comma-separated list of Ethernet interfaces. Ethernet port numbers start at *eth0* and end at *ethn*, where *n* is the highest numbered Ethernet port.

By default, LLDP notifications are disabled for all ports.

To set the amount of time between notifications, use [set lldp notification interval command on page 56-37](#).

Examples To enable LLDP notifications from ports 1 and 2, use the command:

```
ena lldp noti po=1,2
```

To enable LLDP notifications from all ports, use one of the commands:

```
ena lldp noti
ena lldp noti po=all
```

Related Commands [disable lldp notifications](#)
[enable lldp port](#)
[set lldp notification interval](#)
[show lldp](#)

enable lldp port

Syntax ENABle LLDP POrt={ALL|*port-list*} [{TX|RX|TXRX}]

Description This command enables the specified LLDP actions on the specified ports, either **tx** (transmission), **rx** (reception), or **txrx** (both). By default, all LLDP actions are disabled for all ports.

Parameter	Description								
POrt	<p>The ports for which to enable the specified LLDP actions, either a list of ports or all ports.</p> <p><i>port-list</i> can be any/all of the following:</p> <ul style="list-style-type: none"> • a single switch port number. Port numbers start at 1 and end at <i>m</i>, where <i>m</i> is the highest numbered port. • a range of switch port numbers (specified as <i>n-m</i>). • a comma-separated list of switch port numbers and/or ranges. • a single Ethernet interface (specified as <i>ethn</i>). • a comma-separated list of Ethernet interfaces. Ethernet port numbers start at <i>eth0</i> and end at <i>ethn</i>, where <i>n</i> is the highest numbered Ethernet port. <p>Default: all.</p>								
TX RX TXRX	<table border="1"> <thead> <tr> <th>Specify:</th> <th>To:</th> </tr> </thead> <tbody> <tr> <td>TX</td> <td>Allow the LLDP agent to transmit LLDPDUs on the specified ports.</td> </tr> <tr> <td>RX</td> <td>Allow the LLDP agent to receive LLDPDUs on the specified ports.</td> </tr> <tr> <td>TXRX</td> <td>Allow the LLDP agent to both transmit and receive LLDPDUs on the specified ports.</td> </tr> </tbody> </table> <p>Default: TXRX</p>	Specify:	To:	TX	Allow the LLDP agent to transmit LLDPDUs on the specified ports.	RX	Allow the LLDP agent to receive LLDPDUs on the specified ports.	TXRX	Allow the LLDP agent to both transmit and receive LLDPDUs on the specified ports.
Specify:	To:								
TX	Allow the LLDP agent to transmit LLDPDUs on the specified ports.								
RX	Allow the LLDP agent to receive LLDPDUs on the specified ports.								
TXRX	Allow the LLDP agent to both transmit and receive LLDPDUs on the specified ports.								

Examples To enable the transmission of LLDPDUs from all ports, use the command:

```
ena lldp po tx
```

To enable both the transmission and reception of LLDPDUs on ports 1 to 3, use one of the commands:

```
ena lldp po=1-3
```

```
ena lldp po=1-3 txrx
```

Related Commands

- [disable lldp port](#)
- [purge lldp](#)
- [reset lldp](#)
- [show lldp](#)

enable lldp portdescription

Syntax ENable LLDP PORTDescription [Port={ALL|*port-list*}]

Description This command enables port description TLV advertisement on the specified ports. The IEEE 802 LAN station's port description that is associated with the local system. You can set this using the **set switch port description** command. Note that you cannot set an Ethernet port's description, because Ethernet ports are static.

The LLDP agent now includes port description information in any LLDPDUs it sends.

Use the **port** parameter to specify the ports for which to enable port description TLV advertisement, either a list of ports or all ports. *port-list* can be any/all of the following:

- a single switch port number. Port numbers start at 1 and end at *m*, where *m* is the highest numbered port.
- a range of switch port numbers (specified as *n-m*).
- a comma-separated list of switch port numbers and/or ranges.
- a single Ethernet interface (specified as *ethn*).
- a comma-separated list of Ethernet interfaces. Ethernet port numbers start at *eth0* and end at *ethn*, where *n* is the highest numbered Ethernet port.

By default, LLDP port description advertisement is enabled for all ports.

Examples To enable port description advertisement on port 1 and 2, use the command:

```
ena lldp portd po=1,2
```

To enable port description advertisement on all ports, use one of the commands:

```
ena lldp portd
ena lldp portd po=all
```

Related Commands [disable lldp portdescription](#)
[enable lldp port](#)
[set switch port](#) in Chapter 8, Switching
[show lldp](#)

enable lldp systemcapabilities

Syntax ENAbLe LLDP SYSTEMCapabilities [Port={ALL|*port-list*}]

Description This command enables system capabilities TLV advertisement on the specified ports. System capabilities are the primary functions of your system, including bridge and/or router. The LLDP agent now includes system capabilities information in any LLDPDUs it sends.

Use the **port** parameter to specify the ports for which to enable system capability TLV advertisement, either a list of ports or all ports. *port-list* can be any/all of the following:

- a single switch port number. Port numbers start at 1 and end at *m*, where *m* is the highest numbered port.
- a range of switch port numbers (specified as *n-m*).
- a comma-separated list of switch port numbers and/or ranges.
- a single Ethernet interface (specified as *ethn*).
- a comma-separated list of Ethernet interfaces. Ethernet port numbers start at *eth0* and end at *ethn*, where *n* is the highest numbered Ethernet port.

By default, LLDP system capabilities advertisement is enabled for all ports.

Examples To enable system capabilities advertisement on ports 1 and 2, use the command:

```
ena lldp systemc po=1,2
```

To enable system capabilities advertisement on all ports, use one of the commands:

```
ena lldp systemc
ena lldp systemc po=all
```

Related Commands [disable lldp systemcapabilities](#)
[enable lldp port](#)
[show lldp](#)

enable lldp systemdescription

Syntax ENABle LLDP SYSTEMDescription [Port={ALL|*port-list*}]

Description This command enables system description TLV advertisement on the specified ports. This is the description of the local system, and is displayed in output of the **show system** command.

The LLDP agent now includes system description information in any LLDPDUs it sends.

Use the **port** parameter to specify the ports for which to enable system description TLV advertisement, either a list of ports or all ports. *port-list* can be any/all of the following:

- a single switch port number. Port numbers start at 1 and end at *m*, where *m* is the highest numbered port.
- a range of switch port numbers (specified as *n-m*).
- a comma-separated list of switch port numbers and/or ranges.
- a single Ethernet interface (specified as *ethn*).
- a comma-separated list of Ethernet interfaces. Ethernet port numbers start at *eth0* and end at *ethn*, where *n* is the highest numbered Ethernet port.

By default, LLDP system description advertisement is enabled for all ports.

Examples To enable system description advertisement on port 1 and 2, use the command:

```
ena lldp systemd po=1,2
```

To enable system description advertisement on all ports, use one of the commands:

```
ena lldp systemd
ena lldp systemd po=all
```

Related Commands [disable lldp systemdescription](#)
[enable lldp port](#)
[show lldp](#)

enable lldp systemname

Syntax ENAbLe LLDP SYSTEMName [Port={ALL|*port-list*}]

Description This command enables system name TLV advertisement on the specified ports. The LLDP agent now includes local system name information in any LLDPDUs it sends.

Use the **port** parameter to specify the ports for which to enable system name TLV advertisement, either a list of ports or all ports. *port-list* can be any/all of the following:

- a single switch port number. Port numbers start at 1 and end at *m*, where *m* is the highest numbered port.
- a range of switch port numbers (specified as *n-m*).
- a comma-separated list of switch port numbers and/or ranges.
- a single Ethernet interface (specified as *ethn*).
- a comma-separated list of Ethernet interfaces. Ethernet port numbers start at *eth0* and end at *ethn*, where *n* is the highest numbered Ethernet port.

By default, LLDP system name advertisement is enabled for all ports.

Examples To enable system name advertisement on port 1 and 2, use the command:

```
ena lldp systemn po=1,2
```

To enable system name advertisement on all ports, use one of the commands:

```
ena lldp systemn  
ena lldp systemn po=all
```

Related Commands [disable lldp systemname](#)
[enable lldp port](#)
[show lldp](#)

purge lldp

Syntax PURge LLDP

Description This command clears your existing LLDP configuration information and all remote LLDP MIB data. LLDP reverts to its default configuration, which means that LLDP is disabled for all ports.

This command does not reset LLDP MIB counters because these counters cannot be reset.

Example To purge your LLDP configuration and remote LLDP data, and restore the default values, use the command:

```
pur lldp
```

Related Commands [reset lldp](#)
[show lldp](#)

reset lldp

Syntax RESET LLDP

Description This command clears all your remote LLDP MIB data, and starts the LLDP re-initialization procedure. LLDP reverts to the previous, user-defined configuration.

This command does not reset LLDP MIB counters because these counters cannot be reset.

Example To clear your remote LLDP MIB data and reset your LLDP configuration, use the command:

```
reset lldp
```

Related Commands [purge lldp](#)
[show lldp](#)

reset lldp cdp counters

Syntax RESET LLDP CDP COunters

Description This command resets the CDP traffic counters. All counters are set to 0.

Example To reset the CDP counters, use the command:

```
reset lldp cdp cou
```

Related Commands [reset lldp cdp table](#)
[show lldp cdp counters](#)

reset lldp cdp table

Syntax RESET LLDP CDP TABLE

Description This command resets the CDP neighbour table. All neighbour entries are deleted. Subsequent reception of CDP advertisements is used to re-populate the table.

Example To reset the CDP table, use the command:

```
reset lldp cdp ta
```

Related Commands [reset lldp cdp counters](#)

set lldp managementaddress

Syntax SET LLDP MANAGEMENTADDRESS=*ipadd*

Description This command sets an IPv4 address value to advertise for your local LLDP agent's management address.

The **managementaddress** parameter specifies the IPv4 management address that is advertised for your local LLDP agent. If you do not set this parameter, the management address that is advertised is the MAC address of the router. *ipadd* is an IP version 4 address in dotted decimal notation.

By default, LLDP management address advertisement is enabled for all ports. To disable it, use the **disable lldp managementaddress** command.

Examples To set the management address to 192.168.0.1, use the command:

```
set lldp mana=192.168.0.1
```

Related Commands [disable lldp managementaddress](#)
[enable lldp managementaddress](#)
[show lldp](#)

set lldp notification interval

Syntax SET LLDP NOTIFicationinterval=5..3600

Description This command sets the amount of time between LLDP notifications. Notifications include SNMP traps, log messages and triggers.

The **notificationinterval** parameter is the number of seconds to elapse between LLDP notifications. The notification interval prevents multiple notifications occurring within the given time. The default is 5.

By default, all LLDP notifications are disabled. To enable them, use the **enable lldp notifications** command.

Example To set the LLDP notification interval to 10 seconds, use the command:

```
set lldp notif=10
```

Related Commands

- [disable lldp notifications](#)
- [enable lldp notifications](#)
- [set lldp reinitdelay](#)
- [set lldp txdelay](#)
- [set lldp txhold](#)
- [set lldp txinterval](#)
- [show lldp](#)

set lldp reinitdelay

Syntax SET LLDP REINITdelay=1..10

Description This command sets the LLDP re-initialization delay.

The **reinitdelay** parameter specifies the number of seconds that the router waits after a port's status becomes disabled before it begins the LLDP re-initialization process. The default is 2.

Example To set the re-initialization delay to 5 seconds, use the command:

```
set lldp reinit=5
```

Related Commands

- [set lldp txdelay](#)
- [set lldp txhold](#)
- [set lldp txinterval](#)
- [show lldp](#)

set lldp txdelay

Syntax SET LLDP TXDelay=1..8192

Description This command changes the default time delay between successive LLDP transmissions initiated by value or status changes in the local LLDP MIB. For more information, see [Transmission delay timer on page 6](#).

This is the LLDP MIB object **lldpTxDelay**. For more information, see Section 12 of the IEEE Standard 802.1AB-2005.

The **txdelay** parameter is the number of seconds that the router waits between transmitting successive LLDPDUs, when those LLDPDUs are initiated by value or status changes in the local LLDP MIB. The default is 2. Changing the default can affect LLDP operation.

Example To set the transmission delay to 10 seconds, use the command:

```
set lldp txd=10
```

Related Commands [set lldp reinitdelay](#)
[set lldp txhold](#)
[set lldp txinterval](#)
[show lldp](#)

set lldp txhold

Syntax SET LLDP TXHold=2..10

Description This command changes the default value of the LLDP MIB object **lldpMessageTxHoldMultiplier**. For more information, see Section 12 of the IEEE Standard 802.1AB-2005.

The **txhold** parameter specifies the multiplier on the **msgTxInterval** parameter of the **set lldp txinterval** command. The default is 4. Changing the default can affect LLDP operation.

Example To set the txhold value to 8, use the command:

```
set lldp txh=8
```

Related Commands [set lldp reinitdelay](#)
[set lldp txdelay](#)
[set lldp txinterval](#)
[show lldp](#)

set lldp txinterval

Syntax SET LLDP TXInterval=5..32768

Description This command sets the time interval between LLDP transmissions. This is the LLDP MIB object **lldpMessageTxInterval**. For more information, see Section 12 of the IEEE Standard 802.1AB-2005.

The **txinterval** parameter specifies the number of seconds that the router transmits LLDPDUs on behalf of the LLDP agent. The default is 30. Note that changing the default can affect LLDP operation.

Example To set the LLDP to transmit LLDPDUs every 100 seconds, use the command:

```
set lldp txi=100
```

Related Commands [set lldp reinitdelay](#)
[set lldp txdelay](#)
[set lldp txhold](#)
[show lldp](#)

show lldp

Syntax SHow LLDP [LOCALData] [Port={ALL|*port-list*}] [DETail]

Description This command displays information about your LLDP configuration. If no optional parameters are specified, the global LLDP configuration is displayed.

Parameter	Description
LOCALData	Displays additional LLDP local system data for the specified ports, or all ports if you do not specify the port parameter.
Port	<p>The ports for which to display LLDP information, either a list of ports or all ports.</p> <p><i>port-list</i> can be any/all of the following:</p> <ul style="list-style-type: none"> • a single switch port number. Port numbers start at 1 and end at <i>m</i>, where <i>m</i> is the highest numbered port. • a range of switch port numbers (specified as <i>n-m</i>). • a comma-separated list of switch port numbers and/or ranges. • a single Ethernet interface (specified as <i>ethn</i>). • a comma-separated list of Ethernet interfaces. Ethernet port numbers start at <i>eth0</i> and end at <i>ethn</i>, where <i>n</i> is the highest numbered Ethernet port. <p>Default: all</p>
DETail	Displays additional, detailed LLDP port configuration information about the specified ports (Figure 3, Table 1).

Figure 56-1: Example output from the **show lldp port** command

```

LLDP configuration

LLDP global configuration:
msgTxInterval ..... 30
msgTxHold ..... 4
reinitDelay ..... 2
txDelay ..... 2
Notification interval ..... 5
Management address ..... 00-09-41-4c-d0-18
Total current neighbours ..... 0
Too many neighbours events ..... 0
System errors ..... 0

LLDP port configuration:
Port      adminStatus  Notifications  LLDP TLVs
-----
1         txOnly      enabled        PD SN SD SC MA
2         rxOnly      disabled       - - - - -
3         txAndRx     enabled        PD SN SD SC -
4         disabled   enabled        PD SN SD SC MA
5         txAndRx     disabled       PD SN SD SC MA
eth0     disabled   disabled       PD SN SD SC MA
eth1     disabled   disabled       PD SN SD SC MA

Key:
PD ..... Port description
SN ..... System name
SD ..... System description
SC ..... System capabilities
MA ..... Management address
    
```

Figure 56-2: Example output from the **show lldp localdata port=1,2** command

```
LLDP configuration

LLDP global configuration:
  msgTxInterval ..... 30
  msgTxHold ..... 4
  reinitDelay ..... 2
  txDelay ..... 2
  Notification interval ..... 5
  Management address ..... 00-09-41-4c-d0-18
  Total current neighbours ..... 0
  Too many neighbours events ..... 0
  System errors ..... 0

LLDP local system data:
  lldpLocChassisIdSubtype ..... 4
  lldpLocChassisId ..... 00-09-41-4c-d0-18
  lldpLocSysName ..... AR450
  lldpLocSysDesc ..... Allied Telesis AR450 version 2.9.1-00
  ..... 30-Dec-2006
  lldpLocSysCapSupported ..... Bridge, Router
  lldpLocSysCapEnabled ..... Bridge, Router

lldpLocManAddrTable:
  lldpLocManAddrSubtype ..... 6
  lldpLocManAddr ..... 00-09-41-4c-d0-18
  lldpLocManAddrLen ..... 7
  lldpLocManAddrIfSubtype ..... 1
  lldpLocManAddrOID ..... -

lldpLocPortTable:
  Port 1:
    LLDP:
      lldpLocPortIdSubtype ..... 5
      lldpLocPortId ..... port1
      lldpLocPortDesc ..... port1

  Port 2:
    LLDP:
      lldpLocPortIdSubtype ..... 5
      lldpLocPortId ..... port2
      lldpLocPortDesc ..... port2

LLDP port configuration:
  .
  .
  .
```

Figure 56-3: Example output from the **show lldp port=1,3 detail** command

```
LLDP configuration

LLDP global configuration:
msgTxInterval ..... 30
msgTxHold ..... 4
reinitDelay ..... 2
txDelay ..... 2
Notification interval ..... 5
Management address ..... 00-09-41-4c-d0-18
Total current neighbours ..... 0
Too many neighbours events ..... 0
System errors ..... 0

LLDP port configuration:
Port 1:
Admin status ..... txOnly
Notifications ..... enabled
LLDP optional TLVs:
Port description ..... advertise
System name ..... advertise
System description ..... advertise
System capabilities ..... advertise
Management address ..... advertise

Port 2:
Admin status ..... rxOnly
Notifications ..... disabled
LLDP optional TLVs:
Port description ..... not advertise
System name ..... not advertise
System description ..... not advertise
System capabilities ..... not advertise
Management address ..... not advertise
```

Table 56-1: Parameters in output of the **show lldp** command

Parameter	Meaning
LLDP global configuration	
msgTxInterval	The time interval in seconds between which the router transmits LLDPDUs on behalf of the LLDP agent. You can set this using the set lldp txinterval command.
msgTxHold	The current multiplier on msgTxInterval . You can set this using the set lldp txhold command.
reinitDelay	The time in seconds that the router waits after a port is disabled, before it begins the LLDP re-initialization process. You can set this using the set lldp reinitdelay command.
txDelay	The time in seconds, that the router waits between transmitting successive LLDPDUs initiated by value or status changes in the local LLDP MIB. You can set this using the set lldp txdelay command.
Notification interval	The time in seconds that elapses between LLDP notifications. You can set this using the set lldp notification interval command.
Management address	The IPv4 management address the switch advertises for your local LLDP agent. You can set this using the set lldp managementaddress command.
Total current neighbours	The total number of active neighbours that are currently associated with your local system.
Too many neighbours events	The number of times the toomanyneighbours event has occurred since the last LLDP re-initialization.
System errors	Major LLDP system errors that could affect LLDP operation. If a number greater than 0 is displayed, contact your System Administrator.
LLDP port configuration	
Port	The port number.
adminStatus	The LLDP transmission and reception status of the port, one of: <ul style="list-style-type: none"> • txOnly Transmission is enabled only • rxOnly Reception is enabled only • txAndrx Both transmission and reception are enabled • disabled Both transmission and reception are disabled You can enable a value of txOnly , rxOnly , or txAndrx for the port using the enable lldp port command. You can disable txOnly , rxOnly , or txAndrx for the port using the disable lldp port command.
Notifications	The current notifications setting, either 'enabled' or 'disabled'. You can set this using the disable lldp notifications or enable lldp notifications commands.

Table 56-1: Parameters in output of the **show lldp** command (cont)

Parameter	Meaning
LLDP TLVs	A list of the LLDP optional TLVs currently advertised on the listed ports, one or more of: <ul style="list-style-type: none"> • PD - Port Description • SN - System Name • SD - System Description • SC - System Capabilities • MA - Management Address
LLDP local system data	
This section is displayed only when you specify the localdata parameter.	
lldpLocChassisIdSubtype	The type of encoding used to identify the chassis associated with your local system.
lldpLocChassisId	The chassis ID associated with your local system. This is the MAC address.
lldpLocSysName	The system name of your local system.
lldpLocSysDesc	A textual description of your local system, including the full name and version identification of your system's hardware type, software operating system, and networking software.
lldpLocSysCapSupported	The system's currently supported primary functions.
lldpLocSysCapEnabled	The system's currently enabled primary functions.
lldpLocManAddrTable	
LLDP local management address MIB information. This is displayed only when you have both set and enabled an LLDP management address.	
lldpLocManAddrSubtype	The type of encoding used to identify the management address associated with your local system.
lldpLocManAddr	The IPv4 management address that is currently set for your local system. To set a management address, use the set lldp managementaddress command.
lldpLocManAddrLen	The total combined length of the management address subtype field, and the management address field in LLDPDUs transmitted by your local LLDP agent.
lldpLocManAddrIfSubtype	The interface numbering method used to define the interface number associated with your local system.
lldpLocManAddrOID	Currently unsupported.
lldpLocPortTable	
LLDP port information.	
LLDP	LLDP standard TLV configuration.
lldpLocPortIdSubtype	The type of encoding used to identify the port identifier associated with your local system.
lldpLocPortId	The port identification for the specified port in your local system.
lldpLocPortDesc	The IEEE 802 LAN station's port description associated with your local system.
LLDP port configuration	
This section is displayed only when you specify the detail parameter.	
Port	The port number.

Table 56-1: Parameters in output of the **show lldp** command (cont)

Parameter	Meaning
adminStatus	<p>The LLDP transmission and reception status of the port, one of:</p> <ul style="list-style-type: none"> • txOnly Transmission is enabled only • rxOnly Reception is enabled only • txAndrx Both transmission and reception are enabled • disabled Both transmission and reception are disabled <p>You can enable a value of txOnly, rxOnly, or txAndrx for the port using the enable lldp port command. You can disable txOnly, rxOnly, or txAndrx for the port using the disable lldp port command.</p>
Notifications	<p>The current notifications setting, either 'enabled' or 'disabled'. You can set this using the disable lldp notifications or enable lldp notifications commands.</p>
LLDP optional TLVs	
Port description	<p>The port description TLV advertisement status, either 'advertise' or 'not advertise'. You can set this using the disable lldp portdescription or enable lldp portdescription commands.</p>
System name	<p>The system name TLV advertisement status, either 'advertise' or 'not advertise'. You can set this using the disable lldp systemname or enable lldp systemname commands.</p>
System description	<p>The system description TLV advertisement status, either 'advertise' or 'not advertise'. You can set this using the disable lldp systemdescription or enable lldp systemdescription commands.</p>
System capabilities	<p>The system capabilities TLV advertisement status, either 'advertise' or 'not advertise'. You can set this using the disable lldp systemcapabilities and enable lldp systemcapabilities commands.</p>
Management address	<p>The management address TLV advertisement status, either 'advertise' or 'not advertise'. You can set this using the disable lldp managementaddress or enable lldp managementaddress commands.</p>

Examples To display the LLDP configuration information about port 1 and 3 in detail, use the command:

```
sh lldp po=1,3 det
```

To display the LLDP configuration information with local system data about port 1 to 3 in summary, use the command:

```
sh lldp locald po=1,3
```

Related Commands

- disable lldp port**
- enable lldp port**
- show lldp counters**
- show lldp neighbour**

show lldp cdp

Syntax SHow LLDP CDP

Description This command displays general information about the current CDP set up. (Figure 56-4, Table 56-2).

Figure 56-4: Example output from the **show lldp cdp** command

```

CDP general information
-----
Enabled ..... Yes
Number of CDP neighbours ..... 14
SysUpTime ..... 12345.42s
CDP processing time ..... 3.385727s
PPP Templates Enabled ..... 1,4
PPP Templates Disabled ..... 2,3
Triggers:
  CDP neighbour add ..... -
  CDP neighbour remove ..... 5
-----
    
```

Table 56-2: Parameters in output of the **show lldp cdp** command

Parameter	Meaning
Enabled	Whether CDP is enabled on the router.
Number of CDP neighbours	The number of CDP neighbour entries currently stored on the router.
SysUpTime	The length of time in seconds for which the router has been up.
CDP processing time	The length of time in seconds spent processing CDP advertisements and maintaining the neighbour database. This begins when CDP processing begins, and ends when it is terminated.
PPP Templates Enabled	A list of the PPP templates, by number, that are enabled for CDP listening.
PPP Templates Disabled	A list of the PPP templates, by number, that are disabled for CDP listening.
Triggers	Information about the triggers defined for CDP events.
CDP neighbour add	The number of the trigger that applies when a CDP neighbour is added (CDPADD event) or "-" if no trigger is defined for this event.
CDP neighbour remove	The number of the trigger that applies when a CDP neighbour is removed (CDPREMOVE event), or "-" if no trigger is defined for this event.

Example To display general CDP information, use the command:

```
sh lldp cdp
```

- Related Commands**
- [disable lldp cdp](#)
 - [disable lldp cdp ppptemplate](#)
 - [enable lldp cdp](#)
 - [enable lldp cdp ppptemplate](#)

show lldp cdp counters

Syntax SHow LLDP CDP COunters

Description This command displays information about CDP traffic counters. (Figure 56-5, Table 56-3).

Figure 56-5: Example output from the **show lldp cdp counters** command

```

CDP traffic counters
-----
Rx CDPv1 packets ..... 0
Rx CDPv2 packets ..... 1188
Rx total packets ..... 1188

Errors:
  Header syntax ..... 0
  Checksum error ..... 0
  No memory ..... 0
  Invalid ..... 0
  Fragments ..... 0
-----

```

Table 56-3: Parameters in output of the **show lldp cdp counters** command

Parameter	Meaning
Rx CDPv1 packets	The total number of CDP version 1 advertisements received.
Rx CDPv2 packets	The total number of CDP version 2 advertisements received.
Rx Total packets	The total number of CDP advertisements received. This is the sum of version 1 and version 2 CDP advertisements received.
Errors	A series of error counters.
Header syntax	The number of CDP advertisements received with a syntax error in the header.
Checksum error	The number of CDP advertisements received with an invalid checksum.
No memory	The number of CDP advertisements received which could not have a neighbour entry created for them due to memory limitations in the router.
Invalid	The number of CDP advertisements received which were invalid for other reasons.
Fragments	The number of incomplete CDP advertisements received.

Example To display CDP traffic counters, use the command:

```
show lldp cdp counters
```

Related Commands

- [reset lldp cdp counters](#)
- [show lldp cdp](#)
- [show lldp cdp entry](#)
- [show lldp cdp interface](#)
- [show lldp cdp neighbour](#)

show lldp cdp entry

Syntax SHow LLDP CDP ENTry=*entryname* [PROToCol] [VERsion]

Description This command displays information about a neighbour or neighbours (Figure 56-6, Table 56-4 on page 56-50).

Parameter	Description
ENTry	Name of one or more neighbours for which you want to view information. <i>entryname</i> can be in any format, and can be concluded with a wild-card character (*) to match more than one device. The wild-card character can be entered on its own to display information about all neighbours.
PROToCol	This parameter limits the display to protocol and device ID information for the entry. Protocol information is information about the network addresses to which the neighbour responds.
VERsion	This parameter limits the display to version and device ID information for the entry.

Figure 56-6: Example output from the **show lldp cdp entry** command

```

CDP entry information
-----
Device ID ..... Switch
Protocol information:
  IP address ..... 192.168.1.202
Platform ..... cisco WS-C3750G-24TS
Capabilities ..... Router,Switch,IGMP device
Interface ..... port2
Port ID (outgoing port) ... GigabitEthernet1/0/10
Holdtime ..... 155s
Version:
Cisco Internetwork Operating System Software
IOS (tm) C3750 Software (C3750-I5-M), Version 12.2(20)SE, RELEASE SOFTWARE (fc1)
Copyright (c) 1986-2004 by cisco Systems, Inc.
Compiled Wed 19-May-04 11:52 by yenanh
-----

```

Table 56-4: Parameters in output of the **show lldp cdp entry** command

Parameter	Meaning
Device ID	The description of the entry being displayed. This is displayed regardless of whether you specify "protocol" or "version" in the command.
Protocol information	Information about the network addresses to which the neighbour responds. This is the information output if you specify "protocol" in the command. The subsequent lines display the network protocols and addresses for the neighbour.
Platform	The neighbour device type.
Capabilities	The network capabilities of the neighbour device. One or more of the following: R outer Bridge (T) (transparent bridge) Bridge (SR) (source-routing bridge) Switch Host IGMP_device Repeater Phone
Interface	The interface on the router from which it received the neighbour's CDP advertisement.
Port ID (outgoing interface)	The interface on the neighbour from which it sent out the CDP advertisement.
Holdtime	The length of time in seconds for which the router stores this neighbour's information.
Version	The version information for the software running on the neighbour. This is the information output if you enter "version" in the command.

Example To show version information for all CDP neighbour entries, use the command:

```
sh lldp cdp ent=* ver
```

Related Commands [show lldp cdp neighbour](#)

show lldp cdp interface

Syntax `SHoW LLDP CDP INTerface[=interface]`

where *interface* is one of the following:

- `ethn`
An Eth port, where *n* is the Ethernet port instance (for example, eth0)
- `portm`
A switch port, where *m* is the port number (for example, port2 for the switch port numbered 2)
- `pppm`
A PPP interface, where *m* is the interface number

Description This command displays information about the interfaces on which CDP is currently enabled. (Figure 56-7, Table 56-5).

CDP is disabled by default. If CDP has not been previously enabled, entering this command generates an error notification.

The **interface** parameter specifies the interface for which CDP information is displayed. If no interface is specified, information for all interfaces currently enabled for CDP is displayed.

Figure 56-7: Example output from the **show lldp cdp interface** command

CDP interface information	
Name	Status
port1	Down
port2	Up
port3	Down
port5	Up
ppp0	Up
ppp1	Up

Table 56-5: Parameters in output of the **show lldp cdp interface** command

Parameter	Meaning
Name	The interface name. Only those interfaces for which CDP has been enabled are displayed.
Status	The operational status of this interface, either Up or Down. If the status is Down, this may be due to the interface being disabled, or it may be operationally down.

Example To display the CDP status for port4 on a router, use the command:

```
sh lldp cdp int=port4
```

Related Commands

- [disable lldp cdp interface](#)
- [disable lldp cdp ppptemplate](#)
- [enable lldp cdp interface](#)
- [enable lldp cdp ppptemplate](#)
- [show lldp cdp](#)

show lldp cdp neighbour

Syntax SHow LLDP CDP NEIghbour [INTErface=*interface*] [DETAil]

where *interface* is one of:

- *ethn*
An Eth port, where *n* is the Ethernet port instance (for example, eth0)
- *portm*
A switch port, where *m* is the port number (for example, port2 for the switch port numbered 2).

Description This command displays information about CDP neighbours. (Figure 56-8, Table 56-6 on page 56-53).

CDP is disabled by default. If CDP has not been previously enabled, entering this command generates an error notification.

The **interface** parameter specifies the interface for which CDP neighbour information is displayed. If no interface is specified, CDP neighbour information is displayed for all interfaces currently enabled for CDP.

The **detail** parameter is an optional parameter that allows you to view more detailed information about CDP neighbours, such as protocol and version information. If this parameter is not specified, only summary information is displayed.

Figure 56-8: Example output from the **show lldp cdp neighbour** command

CDP neighbour information					
Device ID	Loc Int	Hold	Capability	Platform	Port ID
Switch	port2	165s	RSI	WS-C3750G-24TS	Gig 1/0/10

Table 56-6: Parameters in output of the **show lldp cdp neighbour** command

Parameter	Meaning
Device ID	The ID of the neighbour.
Loc Int	The interface on the router on which the neighbour is found.
Holdtime	The length of time in seconds for which the router stores this neighbour's information.
Capability	The network capabilities of the neighbour device. One or more of the following: R - router T - transparent bridge B - source-routing bridge S - switch H - host I - IGMP device r - repeater P - phone
Platform	The device type of the neighbour.
Port ID	The neighbour interface that communicates with the router.

Figure 56-9: Example output from the **show lldp cdp neighbour detail** command

```

CDP neighbour information
-----
Device ID ..... Switch
Protocol information:
  IP address ..... 192.168.1.202
Platform ..... cisco WS-C3750G-24TS
Capabilities ..... Router,Switch,IGMP device
Interface ..... port20
Port ID (outgoing port) .... GigabitEthernet1/0/10
Holdtime ..... 177s
Version:
Cisco Internetwork Operating System Software
IOS (tm) C3750 Software (C3750-I5-M), Version 12.2(20)SE, RELEASE SOFTWARE (fc1)
Copyright (c) 1986-2004 by cisco Systems, Inc.
Compiled Wed 19-May-04 11:52 by ynanh
-----

```

Table 56-7: Parameters in output of the **show lldp cdp neighbour detail** command

Parameter	Meaning
Device ID	ID of the neighbour.
Protocol information	Information about the network addresses to which the neighbour responds. The subsequent lines give the network protocols and addresses for the neighbour.
Platform	The type of the neighbour device.
Capabilities	The network capabilities of the neighbour device. One or more of the following: R - router T - transparent bridge B - source-routing bridge S - switch H - host I - IGMP device r - repeater
Interface	The interface on the router from which the neighbour's CDP advertisement was received.
Port ID (outgoing interface)	The interface on the neighbour from which the CDP advertisement was sent.
Holdtime	The length of time in seconds for which the router stores this neighbour's information.
Version	The version information for the software running on the neighbour.

Example To display detailed information about CDP neighbours on interface port3, use the command:

```
sh lldp cdp nei int=port3 det
```

Related Commands

- [show lldp cdp](#)
- [show lldp cdp entry](#)
- [show lldp cdp interface](#)
- [show lldp cdp counters](#)

show lldp counters

Syntax SHow LLDP COUnters [Port={ALL|*port-list*}] [DETail]

Description This command displays information about LLDP counters in your configuration. If no optional parameters are specified, global LLDP counters are displayed. For information about LLDP counters, see the IEEE Standard 802.1AB-2005.

Parameter	Description
Port	<p>The ports for which to display LLDP counter information, either a list of ports or all ports.</p> <p><i>port-list</i> can be any/all of the following:</p> <ul style="list-style-type: none"> • a single switch port number. Port numbers start at 1 and end at <i>m</i>, where <i>m</i> is the highest numbered port. • a range of switch port numbers (specified as <i>n-m</i>). • a comma-separated list of switch port numbers and/or ranges. • a single Ethernet interface (specified as <i>ethn</i>). • a comma-separated list of Ethernet interfaces. Ethernet port numbers start at <i>eth0</i> and end at <i>ethn</i>, where <i>n</i> is the highest numbered Ethernet port. <p>Default: all</p>
DETail	Specify detail to display additional, detailed LLDP counter information about the specified ports or all ports.

Figure 56-10: Example output from the **show lldp counters port=1,2** command

```

LLDP counters information

LLDP statistics group:
  Remote tables last change time ..... 00:10:33 (63350)
  Remote tables inserts ..... 1
  Remote tables deletes ..... 0
  Remote tables drops ..... 0
  Remote tables ageouts ..... 0

LLDP frame statistics summary:
Port      Tx total      Rx total      Rx discards   Rx errors
-----
1         120           0             0             0
2          0            1             0             0

```

Figure 56-11: Example output from the **show lldp counters port=1,2 detail** command

```

LLDP counters information

LLDP statistics group:
  Remote tables last change time ..... 00:12:30 (75038)
  Remote tables inserts ..... 1
  Remote tables deletes ..... 0
  Remote tables drops ..... 0
  Remote tables ageouts ..... 0

LLDP port statistics:
  Port 1:
    framesIn ..... 0      framesOut ..... 120
    framesDiscarded ..... 0
    framesInErrors ..... 0
    ageouts ..... 0
    TLVsDiscarded ..... 0
    TLVsUnrecognized ..... 0

  Port 2:
    framesIn ..... 1      framesOut ..... 0
    framesDiscarded ..... 0
    framesInErrors ..... 0
    ageouts ..... 0
    TLVsDiscarded ..... 0
    TLVsUnrecognized ..... 0

```

Table 56-8: Parameters in output of the **show lldp counters** command

Parameter	Meaning
LLDP statistics group	
A list of counters for remote MIB table information.	
Remote tables last change time	The time of the most recent change to the remote table, or when an entry was last created, modified, or deleted.
Remote tables inserts	The number of times that a complete set of information advertised by a neighbour has been inserted into the table.
Remote tables deletes	The number of times that a complete set of information advertised by a neighbour has been deleted from the table.
Remote tables drops	The number of times that a complete set of information advertised by a neighbour could not be inserted into the table.
Remote tables ageouts	The number of times that a complete set of information advertised by a neighbour has been removed from the table because its TTL has expired.
LLDP frame statistics summary	
A list of LLDP counters for each specified LLDP port. Counters are re-set using the reset lldp cdp counters command.	
Port	The port number.
TX total	The total number of LLDPDUs transmitted through the port.
Rx total	The total number of LLDPDUs received by the port.
Rx discards	The total number of LLDPDUs received and subsequently discarded.
Rx errors	The total number of LLDPDUs received by the port with one or more detectable errors.

Table 56-8: Parameters in output of the **show lldp counters** command (cont)

Parameter	Meaning
LLDP port statistics	
A list of LLDP frame counters for each specified LLDP port.	
framesIn	The total number of LLDP frames received by the port.
framesOut	The total number of LLDP frames transmitted from the port.
framesDiscarded	The total number of LLDP frames received and subsequently discarded.
framesInErrors	The total number of LLDP frames that were received by the port with one or more detectable errors.
ageouts	The total number of times that the switch deleted a neighbour's information from the LLDP remote systems MIB because that neighbour's time-to-live has expired.
TLVsDiscarded	The total number of TLVs that were received by the port and subsequently discarded.
TLVsUnrecognized	The total number of TLVs that the receiving LLDP local agent did not recognize.

Examples To display counter information for ports 1 and 3 in a summary table, use the command:

```
sh lldp cou po=1,3
```

To display detailed counter information for port 1, use the command:

```
sh lldp cou po=1 det
```

Related Commands

- [disable lldp port](#)
- [enable lldp port](#)
- [show lldp](#)
- [show lldp neighbour](#)

show lldp memory

Syntax SHow LLDP MEMory

Description This command displays the available memory for LLDP, the total memory usage by LLDP as a whole, and the amount of memory used by the remote systems MIB. This information is displayed both in kbps and as a percentage.

To prevent the remote systems MIB from using large amounts of memory and possibly affecting the operation of your router, the total size of the MIB is set to be a maximum of 5MB, or 5% of your available memory - whichever is the lesser amount.

Figure 56-12: Example output from the **show lldp memory** command

```
LLDP memory information

Total LLDP memory available ..... 5120 (KB)
Total LLDP memory usage ..... 4 (KB) (0%)
LLDP remote systems MIB usage ..... 0 (KB) (0%)
```

Table 56-9: Parameters in output of the **show lldp memory** command

Parameter	Meaning
Total LLDP memory available	The total memory space in Kbps that is currently available for LLDP.
Total LLDP memory usage	The total memory space in Kbps that LLDP is currently using, followed by its usage expressed as a percentage of the total LLDP memory.
LLDP remote systems MIB usage	The total memory space in Kbps that the LLDP remote systems MIB is currently using, followed by its usage expressed as a percentage of the total LLDP memory. If this counter shows that the maximum of 5% or 5MB is being reached often, consider deactivating LLDP reception on some ports.

Example To display information about LLDP memory, use the command:

```
sh lldp mem
```

Related Commands [purge lldp](#)
[reset lldp](#)
[show lldp](#)

show lldp neighbour

Syntax `SHoW LLDP NEIghbour [POrt={ALL|port-list}] [DETAil]`

Description This command displays information about neighbours discovered on the specified ports. If no optional parameters are specified, information about all LLDP neighbours is displayed.

Parameter	Description
POrt	<p>The ports for which to display LLDP neighbour information, either a list of ports or all ports.</p> <p><i>port-list</i> can be any/all of the following:</p> <ul style="list-style-type: none"> • a single switch port number. Port numbers start at 1 and end at <i>m</i>, where <i>m</i> is the highest numbered port. • a range of switch port numbers (specified as <i>n-m</i>). • a comma-separated list of switch port numbers and/or ranges. • a single Ethernet interface (specified as <i>ethn</i>). • a comma-separated list of Ethernet interfaces. Ethernet port numbers start at <i>eth0</i> and end at <i>ethn</i>, where <i>n</i> is the highest numbered Ethernet port. <p>Default: all.</p>
DETAil	Specify detail to display additional, detailed LLDP neighbour information about the specified ports or all ports.

Figure 56-13: Example output from the **show lldp neighbour port=1,2** command

```

LLDP neighbour information

Port 1:
There are no neighbours for this port.

Port 2:
remoteIndex      timeMark  chassisId          sysName
-----
1                89148    00-30-84-6e-ba-c2  switch1
  
```

Figure 56-14: Example output from the **show lldp neighbour port=1,2 detail** command

```

LLDP neighbour information

Neighbour information for port 1:
There are no neighbours for this port.

Neighbour information for port 2:

Remote index 1:
  lldpRemTable:
    lldpRemLocalPortNum ..... 2
    lldpRemIndex ..... 1
    lldpRemTimeMark ..... 89148
    lldpRemChassisIdSubtype ..... 4
    lldpRemChassisId ..... 00-30-84-6e-ba-c2
    lldpRemPortIdSubtype ..... 5
    lldpRemPortId ..... port1
    lldpRemPortDesc ..... port1
    lldpRemSysName ..... switch1
    lldpRemSysDesc ..... Allied telesis AR450
                                version 2.9.1
                                30-Oct-2005
    lldpRemSysCapSupported ..... Bridge, Router
    lldpRemSysCapEnabled ..... Bridge
    Time to live ..... 120

  lldpRemManAddrTable:
    lldpRemManAddrSubtype ..... 1
    lldpRemManAddr ..... 192.168.1.200
    lldpRemManAddrIfSubtype ..... 2
    lldpRemManAddrIfId ..... 1
    lldpRemManAddrOID ..... -

  lldpRemOrgDefInfoTable:
    lldpRemOrgDefInfoOUI ..... 00-80-C2
    lldpRemOrgDefInfoSubtype ..... 1
    lldpRemOrgDefInfoIndex ..... 1
    lldpRemOrgDefInfo .....

    lldpRemOrgDefInfoOUI ..... 00-80-C2
    lldpRemOrgDefInfoSubtype ..... 2
    lldpRemOrgDefInfoIndex ..... 2
    lldpRemOrgDefInfo ..... 00

    lldpRemOrgDefInfoOUI ..... 00-80-C2
    lldpRemOrgDefInfoSubtype ..... 3
    lldpRemOrgDefInfoIndex ..... 3
    lldpRemOrgDefInfo ..... 000105766c61

    lldpRemOrgDefInfoOUI ..... 00-80-C2
    lldpRemOrgDefInfoSubtype ..... 4
    lldpRemOrgDefInfoIndex ..... 4
    lldpRemOrgDefInfo ..... 0354

```

Table 56-10: Parameters in output of the **show lldp neighbour** command

Parameter	Meaning
remoteIndex	A unique neighbour identity assigned to each neighbour added to the remote system MIBs.
timeMark	The number of centiseconds since this neighbour was added.
chassisId	The chassis identity of the neighbour.
sysName	The system name of the neighbour's system.
IldpRemTable	
This information is displayed when you enter the detailed parameter.	
IldpRemLocalPortNum	The number of the neighbour's port from which the LLDPDU was sent.
IldpRemIndex	A unique neighbour identity. This is assigned to each neighbour added to the remote system MIBs.
IldpRemTimeMark	The number of centiseconds since this neighbour was added.
IldpRemChassisIdSubtype	The type of encoding used to identify the neighbour's chassis.
IldpRemChassisId	The ID number of the neighbour's chassis.
IldpRemPortIdSubtype	The type of port identifier encoding used for the neighbour's port from which the LLDPDU was sent.
IldpRemPortId	The neighbour's port from which the LLDPDU was sent.
IldpRemPortDesc	A description of the neighbour's port from which the LLDPDU was sent.
IldpRemSysName	The system name of the neighbour's system.
IldpRemSysDesc	The system description of the neighbour's system.
IldpRemSysCapSupported	The system capabilities that are supported on the neighbour's system.
IldpRemSysCapEnabled	The system capabilities that are enabled on the neighbour's system.
Time to live	The number of seconds for which your LLDP agent will regard the neighbour's information as valid.
IldpRemManAddrTable	
IldpRemManAddrSubtype	The type of management address identifier encoding used for the neighbour's defined Management Address.
IldpRemManAddr	The neighbour's defined Management Address.
IldpRemManAddrIfSubtype	The interface numbering method used to define the interface name associated with the neighbour.
IldpRemManAddrIfId	The interface number for the management address component associated with the neighbour.
IldpRemManAddrOID	The type of hardware component or protocol entity associated with the neighbour's management address.
IldpRemOrgDefInfoTable	
IldpRemOrgDefInfoOUI	A globally unique assigned Organisationally Unique Identifier (OUI) number for the information received from the neighbour.

Table 56-10: Parameters in output of the **show lldp neighbour** command (cont)

Parameter	Meaning
lldpRemOrgDefInfoSubtype	The subtype of the organisationally defined information received from the neighbour.
lldpRemOrgDefInfoIndex	An arbitrary local integer value used by your LLDP agent to identify a particular, unrecognized, organisationally defined information instance.
lldpRemOrgDefInfo	The organisationally defined information associated with the neighbour.

For more information about LLDP parameters, see the IEEE Standard 802.1AB-2005.

Examples To display the neighbour information for port 1 and 2 in detail, use the command:

```
sh lldp nei po=1,2 det
```

To display the neighbour information for all ports in summary, use one of the commands:

```
sh lldp nei
sh lldp nei port=all
```

Related Commands [disable lldp port](#)
[enable lldp port](#)
[show lldp](#)
[show lldp counters](#)