

Chapter 40

Link Layer Discovery Protocol (LLDP)

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Introduction

This chapter describes neighbour discovery protocols that are available on the switch, how they are implemented, and how to configure the switch 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 neighbour discovery protocols are supported:

- [Overview of LLDP](#)
- [Overview of CDP](#) (x900-48FE and AT-9900 only)

Overview of LLDP

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 switch 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 switch 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 Value \(TLV\)](#).
- 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 Value (TLV)

The LLDP agent transmits and receives information with LLDPDUs. A single LLDPDU contains multiple advertisement messages, each of which is communicated within a Type Length Value (TLV). TLVs are short information elements that 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. |

| Field | Description |
|--------|--|
| 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 switch to send up to five 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 switch, or the MAC address of Eth ports on x900-24X switches. |
| 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 switch'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 40-9](#) for information on how to configure these modes.

Transmission

When LLDP transmission is enabled, the LLDP agent advertises information about your switch 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 Value \(TLV\)” on page 40-4](#) for more information about TLVs. Or, see [“Configuring LLDP” on page 40-9](#) to find out how to configure the TLVs that are advertised on your switch.

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 switch 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.

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 40-37](#).

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 40-8](#).

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 switch, 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 **lldpRemTablesChange** notification 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 switch, 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 40-34](#). 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 40-9](#).

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 use the commands in the following table to separately enable or disable each optional TLV on the port.

| TLV | Enable using... | Disable using... |
|---------------------|---------------------------------------|--|
| Port Description | enable lldp portdescription | disable lldp portdescription |
| System Name | enable lldp systemname | disable lldp systemname |
| System Description | enable lldp systemdescription | disable lldp systemdescription |
| System Capabilities | enable lldp systemcapabilities | disable lldp systemcapabilities |
| Management Address | enable lldp managementaddress | disable lldp managementaddress |

For more information about TLVs, see “Type Length Value (TLV)” on page 40-4.

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
- too many neighbour events occur

For more information about the Trigger Facility, see [Chapter 44, 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
```

Overview of CDP

x900-48FE and AT-9900 switches support the Cisco® Discovery Protocol, which lets them receive and process CDP packets or advertisements. CDP advertisements the switch receives are flooded to other ports in the VLAN. Unlike LLDP, however, the switch does not generate CDP advertisements of its own.

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

Cisco devices use CDP 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 with LLDPDUs. A single LLDPDU contains multiple advertisement messages, each of which is communicated within a Type Length Value (TLV). TLVs are short information elements that 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 40-4. |

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 switch 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 40-15](#). 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 40-24](#), 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 switch 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 (eth*n* and port*n*).

Enabling and disabling CDP

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

```
enable lldp cdp
```

To disable CDP on the switch, use the command:

```
disable lldp cdp
```

Note that CDP uses a hardware filter so you can enable CDP only 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
- CDP loses a device

For more information about the Trigger Facility, see [Chapter 44, Trigger Facility](#).

| | |
|-------------------------|---|
| Module | LLDP |
| Event | CDPADD |
| Description | The switch 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 switch to enable, configure, control and monitor LLDP.

The shortest valid command is denoted by capital letters in the Syntax section. See [“Conventions” on page xlix 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 on x900-48FE and AT-9900 switches. The switch stops receiving CDP advertisements, and deletes any 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 on x900-48FE and AT-9900 switches. CDP debugging is disabled by default.

| Parameter | Description |
|-----------|---|
| DEBug | Debugging 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:

- `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 specific interface on x900-48FE and AT-9900 switches. For the specified interface only, the switch 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 switch.

Example To disable CDP operation on port 1 of the switch, 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 on x900-48FE and AT-9900 switches that is 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 By default, LLDP management address advertisement is enabled for all ports. This command stops the switch from advertising the management address TLV on specific ports. After this command, the LLDP agent 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 switch.

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 or 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.
- the Ethernet interface eth0 on x900-24X switches.

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

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

To stop the switch 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 switch from sending LLDP SNMP notifications from specific ports. Notifications are SNMP traps, triggers, and logs, and they are disabled for all ports by default.

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 or 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.
- the Ethernet interface eth0 on x900-24X switches.

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

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

To stop the switch 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 transmission and/or reception on specific ports. By default, all LLDP actions are disabled for all ports.

| Parameter | Description |
|-----------|--|
| Port | Ports to affect. <i>port-list</i> can be any or all of the following: <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.the Ethernet interface eth0 on x900-24X switches. Default: all |
| TX | Stops the LLDP agent from transmitting LLDPDUs on the specified ports. |
| RX | Stops the LLDP agent from receiving LLDPDUs on the specified ports. |
| TXRX | Stops the LLDP agent from transmitting and receiving LLDPDUs on the specified ports. |

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

```
dis lldp po tx
```

To stop the switch 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 switch from advertising the port description TLV on specific ports. This is the IEEE 802 LAN station's port description that is associated with the local system. LLDP port description advertisement is enabled for all ports by default. After this command, the LLDP agent 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 or 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.
- the Ethernet interface eth0 on x900-24X switches.

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

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

To stop the switch 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 7, Switching
[show lldp](#)

disable lldp systemcapabilities

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

Description This command stops the switch from advertising the system capabilities TLV on specific ports. LLDP system capabilities advertisement is enabled for all ports by default.

System capabilities are the primary functions of your system, including bridge and/or switch. After this command, the LLDP agent 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 or 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.
- the Ethernet interface eth0 on x900-24X switches.

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

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

To stop the switch 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 By default, LLDP system description advertisement is enabled for all ports. This command stops the switch from advertising the system description TLV on specific ports. This is the description of the local system, and is displayed in output of the **show system** command. After this command, the LLDP agent 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 or 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.
- the Ethernet interface eth0 on x900-24X switches.

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

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

To stop the switch 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 By default, LLDP system name advertisement is enabled for all ports. This command stops the switch from advertising the system name TLV on specific ports. After this command, the LLDP agent 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 or 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.
- the Ethernet interface eth0 on x900-24X switches.

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

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

To stop the switch 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 CDP is disabled by default. This command enables CDP on x900-48FE and AT-9900 switches. 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 that CDP uses a hardware filter so you can enable CDP only when a hardware filter is available.

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 CDP debugging is disabled by default. This command enables CDP debugging on x900-48FE and AT-9900 switches. 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.

| Parameter | Description |
|-----------|--|
| DEBUg | 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 For x900-48FE and AT-9900 switches, this command enables CDP on a specific interface that had been 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 on x900-48FE and AT-9900 switches that is listening on interfaces that are dynamically created using a specific 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 MANAge mentaddress [Port={ALL|*port-list*}]

Description This command enables management address TLV advertisement on specific ports. Management address advertisement is enabled for all ports by default. After this command, the LLDP agent includes management address information in any LLDPDUs it sends.

By default, the **managementaddress** is the MAC address of the switch. 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 or 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.
- the Ethernet interface eth0 on x900-24X switches.

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 By default, LLDP notifications are disabled for all ports. This command sets the switch to send LLDP SNMP notifications from specific 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 or 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.
- the Ethernet interface eth0 on x900-24X switches.

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 transmission and/or reception on specific ports. By default, all LLDP actions are disabled for all ports.

| Parameter | Description |
|-----------|---|
| Port | Ports for which to enable the LLDP action. <i>port-list</i> can be any or all of the following: <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.the Ethernet interface eth0 on x900-24X switches. Default: all . |
| TX | Lets the LLDP agent transmit LLDPDUs on the specified ports. |
| RX | Lets the LLDP agent receive LLDPDUs on the specified ports. |
| TXRX | Lets the LLDP agent both transmit and receive LLDPDUs on the specified ports. This is the default. |

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 specific ports. This is the IEEE 802 LAN station's port description that is associated with the local system. Advertising is enabled for all ports by default. After this command, the LLDP agent includes port description information in any LLDPDUs it sends.

You can set the description with the **set switch port description** command. Note that you cannot set an Ethernet port's description, because Ethernet ports are static.

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 or 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.
- the Ethernet interface eth0 on x900-24X switches.

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 7, Switching
[show lldp](#)

enable lldp systemcapabilities

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

Description This command enables system capabilities TLV advertisement on specific ports. This is enabled for all ports by default.

System capabilities are the primary functions of your system, including bridge and/or switch. After this command, the LLDP agent 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 or 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.
- the Ethernet interface eth0 on x900-24X switches.

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 specific ports. This is the description of the local system, and is displayed in output of the **show system** command. This is enabled for all ports by default. After this command, the LLDP agent 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 or 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.
- the Ethernet interface eth0 on x900-24X switches.

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 specific ports. This is enabled for all ports by default. After this command, the LLDP agent 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 or 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.
- the Ethernet interface eth0 on x900-24X switches.

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 they 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 CDP traffic counters on x900-48FE and AT-9900 switches. 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 on x900-48FE and AT-9900 switches. 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 switch. *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 switch 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 7](#).

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 switch waits between transmitting successive LLDPDUs, when those LLDPDUs are initiated by value or status changes in the local LLDP MIB. The default is 2. Take care because 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 switch 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 ([Figure 40-1 on page 40-39](#)). See [Table 40-1 on page 40-42](#) for descriptions of parameters.

| 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 | The ports for which to display LLDP information, either a list of ports or all ports (Figure 40-2 on page 40-40). <i>port-list</i> can be any or all of the following: <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.the Ethernet interface eth0 on x900-24X switches. Default: all |
| DETail | Detailed LLDP port configuration information about the specified ports (Figure 40-3 on page 40-41). |

Figure 40-1: 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

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

```

Figure 40-2: 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 40-3: 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 40-1: Parameters in output of the **show lldp** command

| Parameter | Meaning |
|----------------------------------|---|
| LLDP global configuration | |
| msgTxInterval | The time interval in seconds between which the switch 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 switch 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 switch 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 | <p>The LLDP transmission and reception status of the port, one of:</p> <p>txOnly Transmission is enabled only</p> <p>rxOnly Reception is enabled only</p> <p>txAndrx Both transmission and reception are enabled</p> <p>disabled Both transmission and reception are disabled</p> <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 | The current notifications setting, either 'enabled' or 'disabled'. You can set this using the disable lldp notifications or enable lldp notifications commands. |

Table 40-1: 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: 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. |

Table 40-1: Parameters in output of the **show lldp** command (cont)

| Parameter | Meaning |
|--|---|
| LLDP port configuration | |
| This section is displayed only when you specify the detail parameter. | |
| Port | The port number. |
| adminStatus | <p>The LLDP transmission and reception status of the port, one of:</p> <p>txOnly Transmission is enabled only</p> <p>rxOnly Reception is enabled only</p> <p>txAndrx Both transmission and reception are enabled</p> <p>disabled Both transmission and reception are disabled</p> <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 how CDP is set up on x900-48FE and AT-9900 switches. (Figure 40-4, Table 40-2).

Figure 40-4: 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 40-2: Parameters in output of the **show lldp cdp** command

| Parameter | Meaning |
|--------------------------|--|
| Enabled | Whether CDP is enabled on the switch. |
| Number of CDP neighbours | The number of CDP neighbour entries currently stored on the switch. |
| SysUpTime | The length of time in seconds for which the switch 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 entry](#)
- [show lldp cdp interface](#)
- [show lldp cdp neighbour](#)
- [show lldp cdp counters](#)

show lldp cdp counters

Syntax SHow LLDP CDP COUnters

Description This command displays information about CDP traffic counters on x900-48FE and AT-9900 switches. ([Figure 40-5](#), [Table 40-3](#)).

Figure 40-5: 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 40-3: 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 switch. |

Table 40-3: Parameters in output of the **show lldp cdp counters** command (cont)

| Parameter | Meaning |
|-----------|---|
| 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 one or more neighbours on x900-48FE and AT-9900 switches ([Figure 40-6 on page 40-48](#), [Table 40-4 on page 40-48](#)).

| 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 40-6: 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 yenanah

```

Table 40-4: 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 switch 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 switch 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 40-7, Table 40-5). This command is valid for x900-48FE and AT-9900 switches.

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 40-7: 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 40-5: 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 switch, 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 entry
- show lldp cdp neighbour
- show lldp cdp counters

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 for x900-48FE and AT-9900 switches (Figure 40-8, Table 40-6 on page 40-51).

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 (Figure 40-9 on page 40-51, Table 40-7 on page 40-51). If this parameter is not specified, only summary information is displayed.

Figure 40-8: 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 40-6: 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 switch on which the neighbour is found. |
| Holdtime | The length of time in seconds for which the switch 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 switch. |

Figure 40-9: 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 yenanh
-----

```

Table 40-7: 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. |

Table 40-7: Parameters in output of the **show lldp cdp neighbour detail** command (cont)

| Parameter | Meaning |
|------------------------------|---|
| 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 switch 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 switch 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 (Figure 40-10). If no optional parameters are specified, global LLDP counters are displayed. For information about LLDP counters, see the IEEE Standard 802.1AB-2005. See Table 40-8 on page 40-54 for descriptions of parameters.

| 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 or 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. the Ethernet interface eth0 on x900-24X switches. <p>Default: all</p> |
| DETail | Displays additional, detailed LLDP counter information about specific ports or all ports (Figure 40-11 on page 40-54). |

Figure 40-10: 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 40-11: 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 40-8: 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 40-8: 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 (Figure 40-12, Table 40-9).

To prevent the remote systems MIB from using large amounts of memory and possibly affecting the operation of your switch, 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 40-12: 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 40-9: 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 specific ports ([Figure 40-13](#)). If no optional parameters are specified, information about all LLDP neighbours is displayed. See [Table 40-10 on page 40-59](#) for descriptions of parameters.

| Parameter | Description |
|-----------|---|
| Port | The ports for which to display LLDP neighbour information, either a list of ports or all ports. <i>port-list</i> can be any or all of the following: <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.the Ethernet interface eth0 on x900-24X switches. Default: all . |
| DETail | Displays additional, detailed LLDP neighbour information about specific ports or all ports (Figure 40-14 on page 40-58). |

Figure 40-13: 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 40-14: 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 40-10: 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. |

Table 40-10: Parameters in output of the **show lldp neighbour** command (cont)

| Parameter | Meaning |
|-------------------------------|---|
| IldpRemOrgDefInfoTable | |
| IldpRemOrgDefInfoOUI | A globally unique assigned Organisationally Unique Identifier (OUI) number for the information received from the neighbour. |
| IldpRemOrgDefInfoSubtype | The subtype of the organisationally defined information received from the neighbour. |
| IldpRemOrgDefInfoIndex | An arbitrary local integer value used by your LLDP agent to identify a particular, unrecognized, organisationally defined information instance. |
| IldpRemOrgDefInfo | 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](#)