Interface and Hardware Commands

debug ilpower

To enable debugging of the power controller and Power over Ethernet (PoE) system, use the **debug ilpower** command in privileged EXEC mode. To disable debugging, use the **no** form of this command.

debug ilpower cdp | **event** | **ha** | **ipc** | **police** | **port** | **powerman** | **registries** | **scp** | **sense**
no debug ilpower cdp | **event** | **ha** | **ipc** | **police** | **port** | **powerman** | **registries** | **scp** | **sense**

Syntax Description

cdp	Displays PoE Cisco Discovery Protocol (CDP) debug messages.
event	Displays PoE event debug messages.
ha	Displays PoE high-availability messages.
ipc	Displays PoE Inter-Process Communication (IPC) debug messages.
police	Displays PoE police debug messages.
port	Displays PoE port manager debug messages.
powerman	Displays PoE power management debug messages.
registries	Displays PoE registries debug messages.
scp	Displays PoE SCP debug messages.
sense	Displays PoE sense debug messages.

Command Default

Debugging is disabled.

Command Modes

Privileged EXEC

Command History

Release	Modification
Cisco IOS XE Everest 16.5.1a	This command was introduced.

Usage Guidelines

This command is supported only on PoE-capable switches.

When you enable debugging on a switch stack, it is enabled only on the active switch. To enable debugging on a member switch, you can start a session from the active switch by using the **session** *switch-number* EXEC command. Then enter the **debug** command at the command-line prompt of the member switch. You also can use the **remote command** *stack-member-number LINE* EXEC command on the active switch to enable debugging on a member switch without first starting a session.

debug interface

To enable debugging of interface-related activities, use the **debug interface** command in privileged EXEC mode. To disable debugging, use the **no** form of this command.

debug interface *interface-id* | **counters exceptions** | **protocol memory** | **null** *interface-number* | **port-channel** *port-channel-number* | **states** | **vlan** *vlan-id*
no debug interface *interface-id* | **counters exceptions** | **protocol memory** | **null** *interface-number* | **port-channel** *port-channel-number* | **states** | **vlan** *vlan-id*

Syntax Description

interface-id	ID of the physical interface. Displays debug messages for the specified physical port, identified by type switch number/module number/port, for example, gigabitethernet 1/0/2.
null *interface-number*	Displays debug messages for null interfaces. The interface number is always **0**.
port-channel *port-channel-number*	Displays debug messages for the specified EtherChannel port-channel interface. The *port-channel-number* range is 1 to 48.
vlan *vlan-id*	Displays debug messages for the specified VLAN. The vlan range is 1 to 4094.
counters	Displays counters debugging information.
exceptions	Displays debug messages when a recoverable exceptional condition occurs during the computation of the interface packet and data rate statistics.
protocol memory	Displays debug messages for memory operations of protocol counters.
states	Displays intermediary debug messages when an interface's state transitions.

Command Default

Debugging is disabled.

Command Modes

Privileged EXEC

Command History

Release	Modification
Cisco IOS XE Everest 16.5.1a	This command was introduced.

Usage Guidelines

If you do not specify a keyword, all debug messages appear.

The **undebug interface** command is the same as the **no debug interface** command.

When you enable debugging on a switch stack, it is enabled only on the active switch. To enable debugging on a member switch, you can start a session from the active switch by using the **session** *switch-number* EXEC command. Then enter the **debug** command at the command-line prompt of the member switch. You also can use the **remote command** *stack-member-number LINE* EXEC command on the active switch to enable debugging on a member switch without first starting a session.

debug lldp packets

To enable debugging of Link Layer Discovery Protocol (LLDP) packets, use the **debug lldp packets** command in privileged EXEC mode. To disable debugging, use the **no** form of this command.

debug lldp packets
no debug lldp packets

Syntax Description

This command has no arguments or keywords.

Command Default

Debugging is disabled.

Command Modes

Privileged EXEC

Command History

Release	Modification
Cisco IOS XE Everest 16.5.1a	This command was introduced.

Usage Guidelines

The **undebug lldp packets** command is the same as the **no debug lldp packets** command.

When you enable debugging on a switch stack, it is enabled only on the . To enable debugging on a stack member, you can start a session from the by using the **session** *switch-number* EXEC command.

debug platform poe

To enable debugging of a Power over Ethernet (PoE) port, use the **debug platform poe** command in privileged EXEC mode. To disable debugging, use the **no** form of this command.

debug platform poe [**error** | **info**] [**switch** *switch-number*]
no debug platform poe [**error** | **info**] [**switch** *switch-number*]

Syntax Description

error	(Optional) Displays PoE-related error debug messages.
info	(Optional) Displays PoE-related information debug messages.
switch *switch-number*	(Optional) Specifies the stack member. This keyword is supported only on stacking-capable switches.

Command Default

Debugging is disabled.

Command Modes

Privileged EXEC

Command History

Release	Modification
Cisco IOS XE Everest 16.5.1a	This command was introduced.

Usage Guidelines

The **undebug platform poe** command is the same as the **no debug platform poe** command.

duplex

To specify the duplex mode of operation for a port, use the **duplex** command in interface configuration mode. To return to the default value, use the **no** form of this command.

duplex **auto** | **full** | **half**
no duplex **auto** | **full** | **half**

Syntax Description

auto	Enables automatic duplex configuration. The port automatically detects whether it should run in full- or half-duplex mode, depending on the attached device mode.
full	Enables full-duplex mode.
half	Enables half-duplex mode (only for interfaces operating at 10 or 100 Mbps). You cannot configure half-duplex mode for interfaces operating at 1000 or 10,000 Mbps.

Command Default

For Gigabit Ethernet ports, the default is **auto**.

Command Modes

Interface configuration (config-if)

Command History

Release	Modification
Cisco IOS XE Everest 16.5.1a	This command was introduced.

Usage Guidelines

For Gigabit Ethernet ports, setting the port to **auto** has the same effect as specifying **full** if the attached device does not autonegotiate the duplex parameter.

Duplex options are not supported on the 1000BASE-*x* or 10GBASE-*x* (where -*x* is -BX, -CWDM, -LX, -SX, or -ZX) small form-factor pluggable (SFP) modules.

Note Half-duplex mode is supported on Gigabit Ethernet interfaces if the duplex mode is **auto** and the connected device is operating at half duplex. However, you cannot configure these interfaces to operate in half-duplex mode.

Certain ports can be configured to be either full duplex or half duplex. How this command is applied depends on the device to which the switch is attached.

If both ends of the line support autonegotiation, we highly recommend using the default autonegotiation settings. If one interface supports autonegotiation and the other end does not, configure duplex and speed on both interfaces, and use the **auto** setting on the supported side.

If the speed is set to **auto**, the switch negotiates with the device at the other end of the link for the speed setting and then forces the speed setting to the negotiated value. The duplex setting remains as configured on each end of the link, which could result in a duplex setting mismatch.

You can configure the duplex setting when the speed is set to **auto**.

Caution Changing the interface speed and duplex mode configuration might shut down and reenable the interface during the reconfiguration.

You can verify your setting by entering the **show interfaces** privileged EXEC command.

Examples

This example shows how to configure an interface for full-duplex operation:

```
Device> enable
Device# configure terminal
Device(config)# interface gigabitethernet 1/0/1
Device(config-if)# duplex full
```

errdisable detect cause

To enable error-disable detection for a specific cause or for all causes, use the **errdisable detect cause** command in global configuration mode. To disable the error-disable detection feature, use the **no** form of this command.

errdisable detect cause all | arp-inspection | bpduguard shutdown vlan | dhcp-rate-limit | dtp-flap | gbic-invalid | inline-power | link-flap | loopback | pagp-flap | pppoe-ia-rate-limit | psp shutdown vlan | security-violation shutdown vlan | sfp-config-mismatch
no errdisable detect cause all | arp-inspection | bpduguard shutdown vlan | dhcp-rate-limit | dtp-flap | gbic-invalid | inline-power | link-flap | loopback | pagp-flap | pppoe-ia-rate-limit | psp shutdown vlan | security-violation shutdown vlan | sfp-config-mismatch

Syntax Description

all	Enables error detection for all error-disabled causes.
arp-inspection	Enables error detection for dynamic Address Resolution Protocol (ARP) inspection.
bpduguard shutdown vlan	Enables per-VLAN error-disable for BPDU guard.
dhcp-rate-limit	Enables error detection for DHCP snooping.
dtp-flap	Enables error detection for the Dynamic Trunking Protocol (DTP) flapping.
gbic-invalid	Enables error detection for an invalid Gigabit Interface Converter (GBIC) module. **Note** This error refers to an invalid small form-factor pluggable (SFP) module.
inline-power	Enables error detection for the Power over Ethernet (PoE) error-disabled cause. **Note** This keyword is supported only on switches with PoE ports.
link-flap	Enables error detection for link-state flapping.
loopback	Enables error detection for detected loopbacks.
pagp-flap	Enables error detection for the Port Aggregation Protocol (PAgP) flap error-disabled cause.
pppoe-ia-rate-limit	Enables error detection for the PPPoE Intermediate Agent rate-limit error-disabled cause.
psp shutdown vlan	Enables error detection for protocol storm protection (PSP).
security-violation shutdown vlan	Enables voice aware 802.1x security.
sfp-config-mismatch	Enables error detection on an SFP configuration mismatch.

Command Default

Detection is enabled for all causes. All causes, except per-VLAN error disabling, are configured to shut down the entire port.

Command Modes

Global configuration

Command History

Release	Modification
Cisco IOS XE Everest 16.5.1a	This command was introduced.

Usage Guidelines

A cause (such as a link-flap or dhcp-rate-limit) is the reason for the error-disabled state. When a cause is detected on an interface, the interface is placed in an error-disabled state, an operational state that is similar to a link-down state.

When a port is error-disabled, it is effectively shut down, and no traffic is sent or received on the port. For the bridge protocol data unit (BPDU) guard, voice-aware 802.1x security, and port-security features, you can configure the switch to shut down only the offending VLAN on the port when a violation occurs, instead of shutting down the entire port.

If you set a recovery mechanism for the cause by entering the **errdisable recovery** global configuration command, the interface is brought out of the error-disabled state and allowed to retry the operation when all causes have timed out. If you do not set a recovery mechanism, you must enter the **shutdown** and then the **no shutdown** commands to manually recover an interface from the error-disabled state.

For protocol storm protection, excess packets are dropped for a maximum of two virtual ports. Virtual port error disabling using the **psp** keyword is not supported for EtherChannel and Flexlink interfaces.

To verify your settings, enter the **show errdisable detect** privileged EXEC command.

This example shows how to enable error-disabled detection for the link-flap error-disabled cause:

```
Device(config)# errdisable detect cause link-flap
```

This command shows how to globally configure BPDU guard for a per-VLAN error-disabled state:

```
Device(config)# errdisable detect cause bpduguard shutdown vlan
```

This command shows how to globally configure voice-aware 802.1x security for a per-VLAN error-disabled state:

```
Device(config)# errdisable detect cause security-violation shutdown vlan
```

You can verify your setting by entering the **show errdisable detect** privileged EXEC command.

errdisable recovery cause

To enable the error-disabled mechanism to recover from a specific cause, use the **errdisable recovery cause** command in global configuration mode. To return to the default setting, use the **no** form of this command.

errdisable recovery cause all | **arp-inspection** | **bpduguard** | **channel-misconfig** | **dhcp-rate-limit** | **dtp-flap** | **gbic-invalid** | **inline-power** | **link-flap** | **loopback** | **mac-limit** | **pagp-flap** | **port-mode-failure** | **pppoe-ia-rate-limit** | **psecure-violation** | **psp** | **security-violation** | **sfp-config-mismatch** | **storm-control** | **udld**
no errdisable recovery cause all | **arp-inspection** | **bpduguard** | **channel-misconfig** | **dhcp-rate-limit** | **dtp-flap** | **gbic-invalid** | **inline-power** | **link-flap** | **loopback** | **mac-limit** | **pagp-flap** | **port-mode-failure** | **pppoe-ia-rate-limit** | **psecure-violation** | **psp** | **security-violation** | **sfp-config-mismatch** | **storm-control** | **udld**

Syntax Description

all	Enables the timer to recover from all error-disabled causes.
arp-inspection	Enables the timer to recover from the Address Resolution Protocol (ARP) inspection error-disabled state.
bpduguard	Enables the timer to recover from the bridge protocol data unit (BPDU) guard error-disabled state.
channel-misconfig	Enables the timer to recover from the EtherChannel misconfiguration error-disabled state.
dhcp-rate-limit	Enables the timer to recover from the DHCP snooping error-disabled state.
dtp-flap	Enables the timer to recover from the Dynamic Trunking Protocol (DTP) flap error-disabled state.
gbic-invalid	Enables the timer to recover from an invalid Gigabit Interface Converter (GBIC) module error-disabled state. **Note** This error refers to an invalid small form-factor pluggable (SFP) error-disabled state.
inline-power	Enables the timer to recover from the Power over Ethernet (PoE) error-disabled state. This keyword is supported only on switches with PoE ports.
link-flap	Enables the timer to recover from the link-flap error-disabled state.
loopback	Enables the timer to recover from a loopback error-disabled state.
mac-limit	Enables the timer to recover from the mac limit error-disabled state.
pagp-flap	Enables the timer to recover from the Port Aggregation Protocol (PAgP)-flap error-disabled state.

port-mode-failure	Enables the timer to recover from the port mode change failure error-disabled state.
pppoe-ia-rate-limit	Enables the timer to recover from the PPPoE IA rate limit error-disabled state.
psecure-violation	Enables the timer to recover from a port security violation disable state.
psp	Enables the timer to recover from the protocol storm protection (PSP) error-disabled state.
security-violation	Enables the timer to recover from an IEEE 802.1x-violation disabled state.
sfp-config-mismatch	Enables error detection on an SFP configuration mismatch.
storm-control	Enables the timer to recover from a storm control error.
udld	Enables the timer to recover from the UniDirectional Link Detection (UDLD) error-disabled state.

Command Default

Recovery is disabled for all causes.

Command Modes

Global configuration

Command History

Release	Modification
Cisco IOS XE Everest 16.5.1a	This command was introduced.

Usage Guidelines

A cause (such as all or BDPU guard) is defined as the reason that the error-disabled state occurred. When a cause is detected on an interface, the interface is placed in the error-disabled state, an operational state similar to link-down state.

When a port is error-disabled, it is effectively shut down, and no traffic is sent or received on the port. For the BPDU guard and port-security features, you can configure the switch to shut down only the offending VLAN on the port when a violation occurs, instead of shutting down the entire port.

If you do not enable the recovery for the cause, the interface stays in the error-disabled state until you enter the **shutdown** and the **no shutdown** interface configuration commands. If you enable the recovery for a cause, the interface is brought out of the error-disabled state and allowed to retry the operation again when all the causes have timed out.

Otherwise, you must enter the **shutdown** and then the **no shutdown** commands to manually recover an interface from the error-disabled state.

You can verify your settings by entering the **show errdisable recovery** privileged EXEC command.

Examples

This example shows how to enable the recovery timer for the BPDU guard error-disabled cause:

```
Device(config)# errdisable recovery cause bpduguard
```

errdisable recovery interval

To specify the time to recover from an error-disabled state, use the **errdisable recovery interval** command in global configuration mode. To return to the default setting, use the **no** form of this command.

errdisable recovery interval *timer-interval*
no errdisable recovery interval *timer-interval*

Syntax Description

timer-interval	Time to recover from the error-disabled state. The range is 30 to 86400 seconds. The same interval is applied to all causes. The default interval is 300 seconds.

Command Default

The default recovery interval is 300 seconds.

Command Modes

Global configuration

Command History

Release	Modification
Cisco IOS XE Everest 16.5.1a	This command was introduced.

Usage Guidelines

The error-disabled recovery timer is initialized at a random differential from the configured interval value. The difference between the actual timeout value and the configured value can be up to 15 percent of the configured interval.

You can verify your settings by entering the **show errdisable recovery** privileged EXEC command.

Examples

This example shows how to set the timer to 500 seconds:

```
Device(config)# errdisable recovery interval 500
```

interface

To configure an interface, use the **interface** command.

interface Auto-Template *Auto-Template interface-number* | **GigabitEthernet** *Gigabit Ethernet interface number* | **Group VI** *Group VI interface number* **Internal Interface** *Internal Interface number* **Loopback** *Loopback interface number* **Null** *Null interface number* **Port-channel** *interface number* **Port-channel** *interface number* **TenGigabitEthernet** *interface number* **Tunnel** *interface number* **Vlan** *interface number*

Syntax Description

Auto-Template *Auto-template interface-number*	Enables you to configure a auto-template interface. The range is 1 to 999.
GigabitEthernet *Gigabit Ethernet interface number*	Enables you to configure a Gigabit Ethernet IEEE 802.3z interface. The range is from 0 to 9.
Group VI *Group VI interface number*	Enables you to configure a Group VI interface. The range is from 0 to 9.
Internal Interface Internal Interface	Enables you to configure an internal interface.
Loopback *Loopback Interface number*	Enables you to configure a loopback interface. The range is from 0 to 2147483647.
Null *Null interface number*	Enables you to configure a null interface. The default value is 0.
Port-channel *interface number*	Enables you to configure a port-channel interface. The range is from 1 to 128.
TenGigabitEthernet *interface number*	Enables you to configure a 10-Gigabit Ethernet interface. The range is from 0 to 9.
Tunnel *interface number*	Enables you to configure a tunnel interface. The range is from 0 to 2147483647.
Vlan *interface number*	Enables you to configure a switch VLAN. The range is from 0 to 4098.

Command Default

None

Command Modes

Global configuration

Command History

Release	Modification
Cisco IOS XE Everest 16.5.1a	This command was introduced.

Usage Guidelines

You can not use the "no" form of this command.

The following example shows how to configure a tunnel interface:

```
Device# interface Tunnel 15
```

interface range

To configure an interface range, use the **interface range** command.

interface range Gigabit Ethernet *interface-number* | **Loopback** *interface-number* | **Port Channel** *interface-number* | **TenGigabit Ethernet** *interface-number* **Tunnel** *interface-number* **Vlan** *interface-number* **Macro** *WORD*

Syntax Description

GigabitEthernet *interface-number*	Configures the Gigabit Ethernet IEEE 802.3z interface. Values range from 1 to 9.
Loopback *interface-number*	Configures the loopback interface. Values range from 0 to 2147483647.
Port-Channel *interface-number*	Configures 10-Gigabit Ethernet channel of interfaces. Values range from 1 to 128.
TenGigabit Ethernet *interface-number*	Configures 10-Gigabit Ethernet interfaces. Values range from 0 to 9.
Tunnel *interface-number*	Configures the tunnel interface. Values range from 0 to 2147483647.
VLAN *interface-number*	Configures the switch VLAN interfaces. Values range from 1 to 4095.
Macro *WORD*	Configures the keywords to interfaces. Support up to 32 characters.

Command Default

None

Command Modes

Global configuration

Command History

Release	Modification
Cisco IOS XE Everest 16.5.1a	This command was introduced.

This example shows how you can configure interface range:

```
Device(config)# interface range vlan 1
```

ip mtu

To set the IP maximum transmission unit (MTU) size of routed packets on all routed ports of the switch or switch stack, use the **ip mtu** command in interface configuration mode. To restore the default IP MTU size, use the **no** form of this command.

ip mtu *bytes*
no ip mtu *bytes*

Syntax Description

bytes	MTU size, in bytes. The range is from 68 up to the system MTU value (in bytes).

Command Default

The default IP MTU size for frames received and sent on all switch interfaces is 1500 bytes.

Command Modes

Interface configuration

Command History

Release	Modification
Cisco IOS XE Everest 16.5.1a	This command was introduced.

Usage Guidelines

The upper limit of the IP value is based on the switch or switch stack configuration and refers to the currently applied system MTU value. For more information about setting the MTU sizes, see the **system mtu** global configuration command.

To return to the default IP MTU setting, you can apply the **default ip mtu** command or the **no ip mtu** command on the interface.

You can verify your setting by entering the **show ip interface** *interface-id* or **show interfaces** *interface-id* privileged EXEC command.

The following example sets the maximum IP packet size for VLAN 200 to 1000 bytes:

```
Device(config)# interface vlan 200
Device(config-if)# ip mtu 1000
```

The following example sets the maximum IP packet size for VLAN 200 to the default setting of 1500 bytes:

```
Device(config)# interface vlan 200
Device(config-if)# default ip mtu
```

This is an example of partial output from the **show ip interface** *interface-id* command. It displays the current IP MTU setting for the interface.

```
Device# show ip interface gigabitethernet4/0/1
GigabitEthernet4/0/1 is up, line protocol is up
  Internet address is 18.0.0.1/24
  Broadcast address is 255.255.255.255
  Address determined by setup command
  MTU is 1500 bytes
  Helper address is not set

<output truncated>
```

ipv6 mtu

To set the IPv6 maximum transmission unit (MTU) size of routed packets on all routed ports of the switch or switch stack, use the **ipv6 mtu** command in interface configuration mode. To restore the default IPv6 MTU size, use the **no** form of this command.

ipv6 mtu *bytes*
no ipv6 mtu *bytes*

Syntax Description

bytes	MTU size, in bytes. The range is from 1280 up to the system MTU value (in bytes).

Command Default

The default IPv6 MTU size for frames received and sent on all switch interfaces is 1500 bytes.

Command Modes

Interface configuration

Command History

Release	Modification
Cisco IOS XE Everest 16.5.1a	This command was introduced.

Usage Guidelines

The upper limit of the IPv6 MTU value is based on the switch or switch stack configuration and refers to the currently applied system MTU value. For more information about setting the MTU sizes, see the **system mtu** global configuration command.

To return to the default IPv6 MTU setting, you can apply the **default ipv6 mtu** command or the **no ipv6 mtu** command on the interface.

You can verify your setting by entering the **show ipv6 interface** *interface-id* or **show interface** *interface-id* privileged EXEC command.

The following example sets the maximum IPv6 packet size for an interface to 2000 bytes:

```
Device(config)# interface gigabitethernet4/0/1
Device(config-if)# ipv6 mtu 2000
```

The following example sets the maximum IPv6 packet size for an interface to the default setting of 1500 bytes:

```
Device(config)# interface gigabitethernet4/0/1
Device(config-if)# default ipv6 mtu
```

This is an example of partial output from the **show ipv6 interface** *interface-id* command. It displays the current IPv6 MTU setting for the interface.

```
Device# show ipv6 interface gigabitethernet4/0/1
GigabitEthernet4/0/1 is up, line protocol is up
  Internet address is 18.0.0.1/24
  Broadcast address is 255.255.255.255
  Address determined by setup command
  MTU is 1500 bytes
  Helper address is not set

<output truncated>
```

lldp (interface configuration)

To enable Link Layer Discovery Protocol (LLDP) on an interface, use the **lldp** command in interface configuration mode. To disable LLDP on an interface, use the **no** form of this command.

lldp med-tlv-select *tlv* | **receive** | **tlv-select power-management** | **transmit**
no lldp med-tlv-select *tlv* | **receive** | **tlv-select power-management** | **transmit**

Syntax Description

med-tlv-select	Selects an LLDP Media Endpoint Discovery (MED) time-length-value (TLV) element to send.
tlv	String that identifies the TLV element. Valid values are the following: • **inventory-management**— LLDP MED Inventory Management TLV. • **location**— LLDP MED Location TLV. • **network-policy**— LLDP MED Network Policy TLV. • **power-management**— LLDP MED Power Management TLV.
receive	Enables the interface to receive LLDP transmissions.
tlv-select	Selects the LLDP TLVs to send.
power-management	Sends the LLDP Power Management TLV.
transmit	Enables LLDP transmission on the interface.

Command Default

LLDP is disabled.

Command Modes

Interface configuration

Command History

Release	Modification
Cisco IOS XE Everest 16.5.1a	This command was introduced.

Usage Guidelines

This command is supported on 802.1 media types.

If the interface is configured as a tunnel port, LLDP is automatically disabled.

The following example shows how to disable LLDP transmission on an interface:

```
Device(config)# interface gigabitethernet1/0/1
Device(config-if)# no lldp transmit
```

The following example shows how to enable LLDP transmission on an interface:

```
Device(config)# interface gigabitethernet1/0/1
```

```
Device(config-if)# lldp transmit
```

logging event power-inline-status

To enable the logging of Power over Ethernet (PoE) events, use the **logging event power-inline-status** command in interface configuration mode. To disable the logging of PoE status events, use the **no** form of this command.

logging event power-inline-status
no logging event power-inline-status

Syntax Description

This command has no arguments or keywords.

Command Default

Logging of PoE events is enabled.

Command Modes

Interface configuration

Command History

Release	Modification
Cisco IOS XE Everest 16.5.1a	This command was introduced.

Usage Guidelines

The **no** form of this command does not disable PoE error events.

Examples

This example shows how to enable logging of PoE events on a port:

```
Device(config-if)# interface gigabitethernet1/0/1
Device(config-if)# logging event power-inline-status
Device(config-if)#
```

mdix auto

To enable the automatic medium-dependent interface crossover (auto-MDIX) feature on the interface, use the **mdix auto** command in interface configuration mode. To disable auto-MDIX, use the **no** form of this command.

mdix auto
no mdix auto

Syntax Description

This command has no arguments or keywords.

Command Default

Auto-MDIX is enabled.

Command Modes

Interface configuration

Command History

Release	Modification
Cisco IOS XE Everest 16.5.1a	This command was introduced.

Usage Guidelines

When auto-MDIX is enabled, the interface automatically detects the required cable connection type (straight-through or crossover) and configures the connection appropriately.

When you enable auto-MDIX on an interface, you must also set the interface speed and duplex to **auto** so that the feature operates correctly.

When auto-MDIX (and autonegotiation of speed and duplex) is enabled on one or both of the connected interfaces, link up occurs, even if the cable type (straight-through or crossover) is incorrect.

Auto-MDIX is supported on all 10/100 and 10/100/1000 Mb/s interfaces and on 10/100/1000BASE-TX small form-factor pluggable (SFP) module interfaces. It is not supported on 1000BASE-SX or -LX SFP module interfaces.

This example shows how to enable auto-MDIX on a port:

```
Device# configure terminal
Device(config)# interface gigabitethernet1/0/1
Device(config-if)# speed auto
Device(config-if)# duplex auto
Device(config-if)# mdix auto
Device(config-if)# end
```

mode (power-stack configuration)

To configure power stack mode for the power stack, use the **mode** command in power-stack configuration mode. To return to the default settings, use the **no** form of the command.

mode power-shared | **redundant** [**strict**]
no mode

Syntax Description

power-shared	Sets the power stack to operate in power-shared mode. This is the default.
redundant	Sets the power stack to operate in redundant mode. The largest power supply is removed from the power pool to be used as backup power in case one of the other power supplies fails.
strict	(Optional) Configures the power stack mode to run a strict power budget. The stack power needs cannot exceed the available power.

Command Default

The default modes are **power-shared** and nonstrict.

Command Modes

Power-stack configuration

Command History

Release	Modification
Cisco IOS XE Everest 16.5.1a	This command was introduced.

Usage Guidelines

This command is available only on switch stacks running the IP Base or IP Services feature set.

To access power-stack configuration mode, enter the **stack-power stack** *power stack name* global configuration command.

Entering the **no mode** command sets the switch to the defaults of **power-shared** and non-strict mode.

Note For stack power, available power is the total power available for PoE from all power supplies in the power stack, available power is the power allocated to all powered devices connected to PoE ports in the stack, and consumed power is the actual power consumed by the powered devices.

In **power-shared** mode, all of the input power can be used for loads, and the total available power appears as one large power supply. The power budget includes all power from all supplies. No power is set aside for power supply failures. If a power supply fails, load shedding (shutting down of powered devices or switches) might occur.

In **redundant** mode, the largest power supply is removed from the power pool to use as backup power in case one of the other power supplies fails. The available power budget is the total power minus the largest power supply. This reduces the available power in the pool for switches and powered devices, but in case of a failure or an extreme power load, there is less chance of having to shut down switches or powered devices.

In **strict** mode, when a power supply fails and the available power drops below the budgeted power, the system balances the budget through load shedding of powered devices, even if the actual power is less than the available power. In nonstrict mode, the power stack can run in an over-allocated state and is stable as long as

the actual power does not exceed the available power. In this mode, a powered device drawing more than normal power could cause the power stack to start shedding loads. This is normally not a problem because most devices do not run at full power. The chances of multiple powered devices in the stack requiring maximum power at the same time is small.

In both strict and nonstrict modes, power is denied when there is no power available in the power budget.

This is an example of setting the power stack mode for the stack named power1 to power-shared with strict power budgeting. All power in the stack is shared, but when the total available power is allotted, no more devices are allowed power.

```
Device(config)# stack-power stack power1
Device(config-stackpower)# mode power-shared strict
Device(config-stackpower)# exit
```

This is an example of setting the power stack mode for the stack named power2 to redundant. The largest power supply in the stack is removed from the power pool to provide redundancy in case one of the other supplies fails.

```
Device(config)# stack-power stack power2
Device(config-stackpower)# mode redundant
Device(config-stackpower)# exit
```

network-policy

To apply a network-policy profile to an interface, use the **network-policy** command in interface configuration mode. To remove the policy, use the **no** form of this command.

network-policy *profile-number*
no network-policy

Syntax Description

profile-number	The network-policy profile number to apply to the interface.

Command Default

No network-policy profiles are applied.

Command Modes

Interface configuration

Command History

Release	Modification
Cisco IOS XE Everest 16.5.1a	This command was introduced.

Usage Guidelines

Use the **network-policy** *profile number* interface configuration command to apply a profile to an interface.

You cannot apply the **switchport voice vlan** command on an interface if you first configure a network-policy profile on it. However, if **switchport voice vlan** *vlan-id* is already configured on the interface, you can apply a network-policy profile on the interface. The interface then has the voice or voice-signaling VLAN network-policy profile applied.

This example shows how to apply network-policy profile 60 to an interface:

```
Device(config)# interface gigabitethernet1/0/1
Device(config-if)# network-policy 60
```

network-policy profile (global configuration)

To create a network-policy profile and to enter network-policy configuration mode, use the **network-policy profile** command in global configuration mode. To delete the policy and to return to global configuration mode, use the **no** form of this command.

network-policy profile *profile-number*
no network-policy profile *profile-number*

Syntax Description

profile-number	Network-policy profile number. The range is 1 to 4294967295.

Command Default

No network-policy profiles are defined.

Command Modes

Global configuration

Command History

Release	Modification
Cisco IOS XE Everest 16.5.1a	This command was introduced.

Usage Guidelines

Use the **network-policy profile** global configuration command to create a profile and to enter network-policy profile configuration mode.

To return to privileged EXEC mode from the network-policy profile configuration mode, enter the **exit** command.

When you are in network-policy profile configuration mode, you can create the profile for voice and voice signaling by specifying the values for VLAN, class of service (CoS), differentiated services code point (DSCP), and tagging mode.

These profile attributes are contained in the Link Layer Discovery Protocol for Media Endpoint Devices (LLDP-MED) network-policy time-length-value (TLV).

This example shows how to create network-policy profile 60:

```
Device(config)# network-policy profile 60
Device(config-network-policy)#
```

power-priority

To configure Cisco StackPower power-priority values for a switch in a power stack and for its high-priority and low-priority PoE ports, use the **power-priority** command in switch stack-power configuration mode. To return to the default setting, use the **no** form of the command.

power-priority high *value* | **low** *value* | **switch** *value*
no power-priority high | **low** | **switch**

Syntax Description

high *value*	Sets the power priority for the ports configured as high-priority ports. The range is 1 to 27, with 1 as the highest priority. The **high** value must be lower than the value set for the low-priority ports and higher than the value set for the switch.
low *value*	Sets the power priority for the ports configured as low-priority ports. The range is 1 to 27. The **low** value must be higher than the value set for the high-priority ports and the value set for the switch.
switch *value*	Sets the power priority for the switch. The range is 1 to 27. The **switch** value must be lower than the values set for the low and high-priority ports.

Command Default

If no values are configured, the power stack randomly determines a default priority.

The default ranges are 1 to 9 for switches, 10 to 18 for high-priority ports, 19 to 27 for low-priority ports.

On non-PoE switches, the high and low values (for port priority) have no effect.

Command Modes

Switch stack-power configuration

Command History

Release	Modification
Cisco IOS XE Everest 16.5.1a	This command was introduced.

Usage Guidelines

To access switch stack-power configuration mode, enter the **stack-power switch** *switch-number* global configuration command.

Cisco StackPower power-priority values determine the order for shutting down switches and ports when power is lost and load shedding must occur. Priority values are from 1 to 27; the highest numbers are shut down first.

We recommend that you configure different priority values for each switch and for its high priority ports and low priority ports to limit the number of devices shut down at one time during a loss of power. If you try to configure the same priority value on different switches in a power stack, the configuration is allowed, but you receive a warning message.

Note This command is available only on switch stacks running the IP Base or IP Services feature set.

Examples

This is an example of setting the power priority for switch 1 in power stack a to 7, for the high-priority ports to 11, and for the low-priority ports to 20.

```
Device(config)# stack-power switch 1
Device(config-switch-stackpower)# stack-id power_stack_a
Device(config-switch-stackpower)# power-priority high 11
Device(config-switch-stackpower)# power-priority low 20
Device(config-switch-stackpower)# power-priority switch 7
Device(config-switch-stackpower)# exit
```

power inline

To configure the power management mode on Power over Ethernet (PoE) ports, use the **power inline** command in interface configuration mode. To return to the default settings, use the **no** form of this command.

power inline auto [**max** *max-wattage*] | **never** | **port priority high** | **low** | **static** [**max** *max-wattage*]
no power inline auto | **never** | **port priority high** | **low** | **static** [**max** *max-wattage*]

Syntax Description

auto	Enables powered-device detection. If enough power is available, automatically allocates power to the PoE port after device detection. Allocation is first-come, first-serve.
max *max-wattage*	(Optional) Limits the power allowed on the port. The range is 4000 to 30000 mW. If no value is specified, the maximum is allowed.
never	Disables device detection, and disables power to the port.
port	Configures the power priority of the port. The default priority is low.
priority {**high** | **low**}	Sets the power priority of the port. In case of a power supply failure, ports configured as low priority are turned off first and ports configured as high priority are turned off last. The default priority is low.
static	Enables powered-device detection. Pre-allocates (reserves) power for a port before the switch discovers the powered device. This action guarantees that the device connected to the interface receives enough power.

Command Default

The default is **auto** (enabled).

The maximum wattage is 30,000 mW.

The default port priority is low.

Command Default

Interface configuration

Command History

Release	Modification
Cisco IOS XE Everest 16.5.1a	This command was introduced.

Usage Guidelines

This command is supported only on PoE-capable ports. If you enter this command on a port that does not support PoE, this error message appears:

```
Device(config)# interface gigabitethernet1/0/1
Device(config-if)# power inline auto
                   ^
% Invalid input detected at '^' marker.
```

In a switch stack, this command is supported on all ports in the stack that support PoE.

Use the **max** *max-wattage* option to disallow higher-power powered devices. With this configuration, when the powered device sends Cisco Discovery Protocol (CDP) messages requesting more power than the maximum wattage, the switch removes power from the port. If the powered-device IEEE class maximum is greater than the maximum wattage, the switch does not power the device. The power is reclaimed into the global power budget.

Note The switch never powers any class 0 or class 3 device if the **power inline max max-wattage** command is configured for less than 30 W.

If the switch denies power to a powered device (the powered device requests more power through CDP messages or if the IEEE class maximum is greater than the maximum wattage), the PoE port is in a power-deny state. The switch generates a system message, and the Oper column in the **show power inline** privileged EXEC command output shows *power-deny*.

Use the **power inline static max** *max-wattage* command to give a port high priority. The switch allocates PoE to a port configured in static mode before allocating power to a port configured in auto mode. The switch reserves power for the static port when it is configured rather than upon device discovery. The switch reserves the power on a static port even when there is no connected device and whether or not the port is in a shutdown or in a no shutdown state. The switch allocates the configured maximum wattage to the port, and the amount is never adjusted through the IEEE class or by CDP messages from the powered device. Because power is pre-allocated, any powered device that uses less than or equal to the maximum wattage is guaranteed power when it is connected to a static port. However, if the powered device IEEE class is greater than the maximum wattage, the switch does not supply power to it. If the switch learns through CDP messages that the powered device needs more than the maximum wattage, the powered device is shut down.

If the switch cannot pre-allocate power when a port is in static mode (for example, because the entire power budget is already allocated to other auto or static ports), this message appears: Command rejected: power inline static: pwr not available. The port configuration remains unchanged.

When you configure a port by using the **power inline auto** or the **power inline static** interface configuration command, the port autonegotiates by using the configured speed and duplex settings. This is necessary to determine the power requirements of the connected device (whether or not it is a powered device). After the power requirements have been determined, the switch hardcodes the interface by using the configured speed and duplex settings without resetting the interface.

When you configure a port by using the **power inline never** command, the port reverts to the configured speed and duplex settings.

If a port has a Cisco powered device connected to it, you should not use the **power inline never** command to configure the port. A false link-up can occur, placing the port in an error-disabled state.

Use the **power inline port priority {high | low}** command to configure the power priority of a PoE port. Powered devices connected to ports with low port priority are shut down first in case of a power shortage.

You can verify your settings by entering the **show power inline** EXEC command.

Examples

This example shows how to enable detection of a powered device and to automatically power a PoE port on a switch:

```
Device(config)# interface gigabitethernet1/0/2
Device(config-if)# power inline auto
```

This example shows how to configure a PoE port on a switch to allow a class 1 or a class 2 powered device:

```
Device(config)# interface gigabitethernet1/0/2
Device(config-if)# power inline auto max 7000
```

This example shows how to disable powered-device detection and to not power a PoE port on a switch:

```
Device(config)# interface gigabitethernet1/0/2
Device(config-if)# power inline never
```

This example shows how to set the priority of a port to high, so that it would be one of the last ports to be shut down in case of power supply failure:

```
Device(config)# interface gigabitethernet1/0/2
Device(config-if)# power inline port priority high
```

power inline police

To enable policing of real-time power consumption on a powered device, use the **power inline police** command in interface configuration mode. To disable this feature, use the **no** form of this command

power inline police [**action errdisable** | **log**]
no power inline police

Syntax Description

action errdisable	(Optional) Configures the device to turn off power to the port if the real-time power consumption exceeds the maximum power allocation on the port. This is the default action.
action log	(Optional) Configures the device to generate a syslog message while still providing power to a connected device if the real-time power consumption exceeds the maximum power allocation on the port.

Command Default

Policing of the real-time power consumption of the powered device is disabled.

Command Modes

Interface configuration

Command History

Release	Modification
Cisco IOS XE Everest 16.5.1a	This command was introduced.

Usage Guidelines

This command is supported only on the LAN Base image.

This command is supported only on Power over Ethernet (PoE)-capable ports. If you enter this command on a device or port that does not support PoE, an error message appears.

In a switch stack, this command is supported on all switches or ports in the stack that support PoE and real-time power-consumption monitoring.

When policing of the real-time power consumption is enabled, the device takes action when a powered device consumes more power than the allocated maximum amount.

When PoE is enabled, the device senses the real-time power consumption of the powered device. This feature is called *power monitoring* or *power sensing*. The device also polices the power usage with the *power policing* feature.

When power policing is enabled, the device uses one of the these values as the cutoff power on the PoE port in this order:

1. The user-defined power level that limits the power allowed on the port when you enter the **power inline auto max** *max-wattage* or the **power inline static max** *max-wattage* interface configuration command
2. The device automatically sets the power usage of the device by using CDP power negotiation or by the IEEE classification and LLPD power negotiation.

If you do not manually configure the cutoff-power value, the device automatically determines it by using CDP power negotiation or the device IEEE classification and LLDP power negotiation. If CDP or LLDP are not enabled, the default value of 30 W is applied. However without CDP or LLDP, the device does not allow devices to consume more than 15.4 W of power because values from 15400 to 30000 mW are only allocated based on CDP or LLDP requests. If a powered device consumes more than 15.4 W without CDP or LLDP

negotiation, the device might be in violation of the maximum current *Imax* limitation and might experience an *Icut* fault for drawing more current than the maximum. The port remains in the fault state for a time before attempting to power on again. If the port continuously draws more than 15.4 W, the cycle repeats.

When a powered device connected to a PoE+ port restarts and sends a CDP or LLDP packet with a power TLV, the device locks to the power-negotiation protocol of that first packet and does not respond to power requests from the other protocol. For example, if the device is locked to CDP, it does not provide power to devices that send LLDP requests. If CDP is disabled after the device has locked on it, the device does not respond to LLDP power requests and can no longer power on any accessories. In this case, you should restart the powered device.

If power policing is enabled, the device polices power usage by comparing the real-time power consumption to the maximum power allocated on the PoE port. If the device uses more than the maximum power allocation (or *cutoff power*) on the port, the device either turns power off to the port, or the device generates a syslog message and updates the LEDs (the port LEDs are blinking amber) while still providing power to the device.

- To configure the device to turn off power to the port and put the port in the error-disabled state, use the **power inline police** interface configuration command.
- To configure the device to generate a syslog message while still providing power to the device, use the **power inline police action log** command.

If you do not enter the **action log** keywords, the default action is to shut down the port, turn off power to it, and put the port in the PoE error-disabled state. To configure the PoE port to automatically recover from the error-disabled state, use the **errdisable detect cause inline-power** global configuration command to enable error-disabled detection for the PoE cause and the **errdisable recovery cause inline-power interval** *interval* global configuration command to enable the recovery timer for the PoE error-disabled cause.

Caution If policing is disabled, no action occurs when the powered device consumes more than the maximum power allocation on the port, which could adversely affect the device.

You can verify your settings by entering the **show power inline police** privileged EXEC command.

Examples

This example shows how to enable policing of the power consumption and configuring the device to generate a syslog message on the PoE port on a device:

```
Device(config)# interface gigabitethernet1/0/2
Device(config-if)# power inline police action log
```

power supply

To configure and manage the internal power supplies on a switch, use the **power supply** command in privileged EXEC mode.

power supply *stack-member-number* **slot A | B off | on**

Syntax Description

stack-member-number	Stack member number for which to configure the internal power supplies. The range is 1 to 9, depending on the number of switches in the stack. This parameter is available only on stacking-capable switches.
slot	Selects the switch power supply to set.
A	Selects the power supply in slot A.
B	Selects the power supply in slot B. **Note** Power supply slot B is the closest slot to the outer edge of the switch.
off	Sets the switch power supply to off.
on	Sets the switch power supply to on.

Command Default

The switch power supply is on.

Command Modes

Privileged EXEC

Command History

Release	Modification
Cisco IOS XE Everest 16.5.1a	This command was introduced.

Usage Guidelines

The **power supply** command applies to a switch or to a switch stack where all switches are the same platform.

In a switch stack with the same platform switches, you must specify the stack member before entering the **slot** {**A** | **B**} **off** or **on** keywords.

To return to the default setting, use the **power supply** *stack-member-number* **on** command.

You can verify your settings by entering the **show env power** privileged EXEC command.

Examples

This example shows how to set the power supply in slot A to off:

```
Device> power supply 2 slot A off
Disabling Power supply A may result in a power loss to PoE devices and/or switches ...
Continue? (yes/[no]): yes
Device
Jun 10 04:52:54.389: %PLATFORM_ENV-6-FRU_PS_OIR: FRU Power Supply 1 powered off
Jun 10 04:52:56.717: %PLATFORM_ENV-1-FAN_NOT_PRESENT: Fan is not present
```

This example shows how to set the power supply in slot A to on:

```
Device> power supply 1 slot B on
Jun 10 04:54:39.600: %PLATFORM_ENV-6-FRU_PS_OIR: FRU Power Supply 1 powered on
```

This example shows the output of the show env power command:

```
Device> show env power
SW  PID                 Serial#     Status           Sys Pwr  PoE Pwr  Watts
--  ------------------  ----------  ---------------  -------  -------  -----
1A  PWR-1RUC2-640WAC    DCB1705B05B OK               Good     Good     250/390
1B  Not Present
```

show env

To display fan, temperature, and power information, use the **show env** command in EXEC mode.

show env all | **fan** | **power** [**all** | **switch** [*stack-member-number*]] | **stack** [*stack-member-number*] | **temperature** [**status**]

Syntax Description

all	Displays the fan and temperature environmental status and the status of the internal power supplies.
fan	Displays the switch fan status.
power	Displays the internal power status of the active switch.
all	(Optional) Displays the status of all the internal power supplies in a standalone switch when the command is entered on the switch, or in all the stack members when the command is entered on the active switch.
switch	(Optional) Displays the status of the internal power supplies for each switch in the stack or for the specified switch. This keyword is available only on stacking-capable switches.
stack-member-number	(Optional) Number of the stack member for which to display the status of the internal power supplies or the environmental status.
stack	Displays all environmental status for each switch in the stack or for the specified switch. This keyword is available only on stacking-capable switches.
temperature	Displays the switch temperature status.
status	(Optional) Displays the switch internal temperature (not the external temperature) and the threshold values.

Command Default

None

Command Modes

User EXEC

Privileged EXEC

Command History

Release	Modification
Cisco IOS XE Everest 16.5.1a	This command was introduced.

Usage Guidelines

Use the **show env** EXEC command to display the information for the switch being accessed—a standalone switch or the active switch. Use this command with the **stack** and **switch** keywords to display all information for the stack or for the specified stack member.

If you enter the **show env temperature status** command, the command output shows the switch temperature state and the threshold level.

You can also use the **show env temperature** command to display the switch temperature status. The command output shows the green and yellow states as *OK* and the red state as *FAULTY*. If you enter the **show env all** command, the command output is the same as the **show env temperature status** command output.

Examples

This is an example of output from the **show env all** command:

This is an example of output from the **show env fan** command:

This is an example of output from the **show env power all** command on the active switch:

This is an example of output from the **show env stack** command on the active switch:

This example shows how to display the temperature value, state, and the threshold values on a standalone switch. The table describes the temperature states in the command output.

Table 1: States in the show env temperature status Command Output

State	Description
Green	The switch temperature is in the *normal* operating range.
Yellow	The temperature is in the *warning* range. You should check the external temperature around the switch.
Red	The temperature is in the *critical* range. The switch might not run properly if the temperature is in this range.

show errdisable detect

To display error-disabled detection status, use the **show errdisable detect** command in EXEC mode.

show errdisable detect

Syntax Description

This command has no arguments or keywords.

Command Default

None

Command Modes

User EXEC

Privileged EXEC

Command History

Release	Modification
Cisco IOS XE Everest 16.5.1a	This command was introduced.

Usage Guidelines

A gbic-invalid error reason refers to an invalid small form-factor pluggable (SFP) module.

The error-disable reasons in the command output are listed in alphabetical order. The mode column shows how error-disable is configured for each feature.

You can configure error-disabled detection in these modes:

- port mode—The entire physical port is error-disabled if a violation occurs.
- vlan mode—The VLAN is error-disabled if a violation occurs.
- port/vlan mode—The entire physical port is error-disabled on some ports and is per-VLAN error-disabled on other ports.

show errdisable recovery

To display the error-disabled recovery timer information, use the **show errdisable recovery** command in EXEC mode.

show errdisable recovery

Syntax Description

This command has no arguments or keywords.

Command Default

None

Command Modes

User EXEC

Privileged EXEC

Command History

Release	Modification
Cisco IOS XE Everest 16.5.1a	This command was introduced.

Usage Guidelines

A gbic-invalid error-disable reason refers to an invalid small form-factor pluggable (SFP) module interface.

Note Though visible in the output, the unicast-flood field is not valid.

This is an example of output from the **show errdisable recovery** command:

show ip interface

To display the usability status of interfaces configured for IP, use the **show ip interface** command in privileged EXEC mode.

show ip interface [*type number*] [**brief**]

Syntax Description

type	(Optional) Interface type.
number	(Optional) Interface number.
brief	(Optional) Displays a summary of the usability status information for each interface. **Note** The output of the **show ip interface brief** command displays information of all the available interfaces whether or not the corresponding network module for these interfaces are connected. These interfaces can be configured if the network module is connected. Run the **show interface status** command to see which network modules are connected.

Command Default

The full usability status is displayed for all interfaces configured for IP.

Command Modes

Privileged EXEC (#)

Command History

Release	Modification
Cisco IOS XE Everest 16.5.1a	This command was introduced.

Usage Guidelines

The Cisco IOS software automatically enters a directly connected route in the routing table if the interface is usable (which means that it can send and receive packets). If an interface is not usable, the directly connected routing entry is removed from the routing table. Removing the entry lets the software use dynamic routing protocols to determine backup routes to the network, if any.

If the interface can provide two-way communication, the line protocol is marked "up." If the interface hardware is usable, the interface is marked "up."

If you specify an optional interface type, information for that specific interface is displayed. If you specify no optional arguments, information on all the interfaces is displayed.

When an asynchronous interface is encapsulated with PPP or Serial Line Internet Protocol (SLIP), IP fast switching is enabled. A **show ip interface** command on an asynchronous interface encapsulated with PPP or SLIP displays a message indicating that IP fast switching is enabled.

You can use the **show ip interface brief** command to display a summary of the device interfaces. This command displays the IP address, the interface status, and other information.

The **show ip interface brief** command does not display any information related to Unicast RPF.

Examples

The following example shows interface information on Gigabit Ethernet interface 1/0/1:

```
Device# show ip interface gigabitethernet 1/0/1

GigabitEthernet1/0/1 is up, line protocol is up
```

```
  Internet address is 10.1.1.1/16
  Broadcast address is 255.255.255.255
  Address determined by setup command
  MTU is 1500 bytes
  Helper address is not set
  Directed broadcast forwarding is disabled
  Outgoing access list is not set
  Inbound access list is not set
  Proxy ARP is enabled
  Local Proxy ARP is disabled
  Security level is default
  Split horizon is enabled
  ICMP redirects are always sent
  ICMP unreachables are always sent
  ICMP mask replies are never sent
  IP fast switching is enabled
  IP fast switching on the same interface is disabled
  IP Flow switching is disabled
  IP CEF switching is enabled
  IP Feature Fast switching turbo vector
  IP VPN Flow CEF switching turbo vector
  IP multicast fast switching is enabled
  IP multicast distributed fast switching is disabled
  IP route-cache flags are Fast, CEF
  Router Discovery is disabled
  IP output packet accounting is disabled
  IP access violation accounting is disabled
  TCP/IP header compression is disabled
  RTP/IP header compression is disabled
  Policy routing is enabled, using route map PBR
  Network address translation is disabled
  BGP Policy Mapping is disabled
  IP Multi-Processor Forwarding is enabled
     IP Input features, "PBR",
         are not supported by MPF and are IGNORED
     IP Output features, "NetFlow",
         are not supported by MPF and are IGNORED
```

The following example shows how to display the usability status for a specific VLAN:

```
Device# show ip interface vlan 1

Vlan1 is up, line protocol is up
  Internet address is 10.0.0.4/24
  Broadcast address is 255.255.255.255
Address determined by non-volatile memory
  MTU is 1500 bytes
  Helper address is not set
  Directed broadcast forwarding is disabled
  Outgoing access list is not set
  Inbound  access list is not set
  Proxy ARP is enabled
  Local Proxy ARP is disabled
  Security level is default
  Split horizon is enabled
  ICMP redirects are always sent
  ICMP unreachables are always sent
  ICMP mask replies are never sent
  IP fast switching is enabled
  IP fast switching on the same interface is disabled
  IP Flow switching is disabled
  IP CEF switching is enabled
  IP Fast switching turbo vector
```

```
IP Normal CEF switching turbo vector
IP multicast fast switching is enabled
IP multicast distributed fast switching is disabled
IP route-cache flags are Fast, CEF
Router Discovery is disabled
IP output packet accounting is disabled
IP access violation accounting is disabled
TCP/IP header compression is disabled
RTP/IP header compression is disabled
Probe proxy name replies are disabled
Policy routing is disabled
Network address translation is disabled
WCCP Redirect outbound is disabled
WCCP Redirect inbound is disabled
WCCP Redirect exclude is disabled
BGP Policy Mapping is disabled
Sampled Netflow is disabled
IP multicast multilayer switching is disabled
Netflow Data Export (hardware) is enabled
```

The table below describes the significant fields shown in the display.

Table 2: show ip interface Field Descriptions

Field	Description
Broadcast address is	Broadcast address.
Peer address is	Peer address.
MTU is	MTU value set on the interface, in bytes.
Helper address	Helper address, if one is set.
Directed broadcast forwarding	Shows whether directed broadcast forwarding is enabled.
Outgoing access list	Shows whether the interface has an outgoing access list set.
Inbound access list	Shows whether the interface has an incoming access list set.
Proxy ARP	Shows whether Proxy Address Resolution Protocol (ARP) is enabled for the interface.
Security level	IP Security Option (IPSO) security level set for this interface.
Split horizon	Shows whether split horizon is enabled.
ICMP redirects	Shows whether redirect messages will be sent on this interface.
ICMP unreachables	Shows whether unreachable messages will be sent on this interface.
ICMP mask replies	Shows whether mask replies will be sent on this interface.
IP fast switching	Shows whether fast switching is enabled for this interface. It is generally enabled on serial interfaces, such as this one.
IP Flow switching	Shows whether Flow switching is enabled for this interface.

Field	Description
IP CEF switching	Shows whether Cisco Express Forwarding switching is enabled for the interface.
IP multicast fast switching	Shows whether multicast fast switching is enabled for the interface.
IP route-cache flags are Fast	Shows whether NetFlow is enabled on an interface. Displays "Flow init" to specify that NetFlow is enabled on the interface. Displays "Ingress Flow" to specify that NetFlow is enabled on a subinterface using the **ip flow ingress**command. Shows "Flow" to specify that NetFlow is enabled on a main interface using the **ip route-cache flow** command.
Router Discovery	Shows whether the discovery process is enabled for this interface. It is generally disabled on serial interfaces.
IP output packet accounting	Shows whether IP accounting is enabled for this interface and what the threshold (maximum number of entries) is.
TCP/IP header compression	Shows whether compression is enabled.
WCCP Redirect outbound is disabled	Shows the status of whether packets received on an interface are redirected to a cache engine. Displays "enabled" or "disabled."
WCCP Redirect exclude is disabled	Shows the status of whether packets targeted for an interface will be excluded from being redirected to a cache engine. Displays "enabled" or "disabled."
Netflow Data Export (hardware) is enabled	NetFlow Data Expert (NDE) hardware flow status on the interface.

The following example shows how to display a summary of the usability status information for each interface:

```
Device# show ip interface brief

Interface              IP-Address      OK? Method Status                Protocol
Vlan1                  unassigned      YES NVRAM  administratively down down
GigabitEthernet0/0     unassigned      YES NVRAM  down                  down
GigabitEthernet1/0/1   unassigned      YES NVRAM  down                  down
GigabitEthernet1/0/2   unassigned      YES unset  down                  down
GigabitEthernet1/0/3   unassigned      YES unset  down                  down
GigabitEthernet1/0/4   unassigned      YES unset  down                  down
GigabitEthernet1/0/5   unassigned      YES unset  down                  down
GigabitEthernet1/0/6   unassigned      YES unset  down                  down
GigabitEthernet1/0/7   unassigned      YES unset  down                  down

<output truncated>
```

Table 3: show ip interface brief Field Descriptions

Field	Description
Interface	Type of interface.

Field	Description
IP-Address	IP address assigned to the interface.
OK?	"Yes" means that the IP Address is valid. "No" means that the IP Address is not valid.
Method	The Method field has the following possible values: • RARP or SLARP: Reverse Address Resolution Protocol (RARP) or Serial Line Address Resolution Protocol (SLARP) request. • BOOTP: Bootstrap protocol. • TFTP: Configuration file obtained from the TFTP server. • manual: Manually changed by the command-line interface. • NVRAM: Configuration file in NVRAM. • IPCP: **ip address negotiated** command. • DHCP: **ip address dhcp** command. • unset: Unset. • other: Unknown.
Status	Shows the status of the interface. Valid values and their meanings are: • up: Interface is up. • down: Interface is down. • administratively down: Interface is administratively down.
Protocol	Shows the operational status of the routing protocol on this interface.

Related Commands

Command	Description
ip interface	Configures a virtual gateway IP interface on a Secure Socket Layer Virtual Private Network (SSL VPN) gateway
show interface status	Displays the status of the interface.

show interfaces

To display the administrative and operational status of all interfaces or for a specified interface, use the **show interfaces** command in the EXEC mode.

show interfaces [*interface-id* | **vlan** *vlan-id*] [**accounting** | **capabilities** [**module** *number*] | **debounce** | **description** | **etherchannel** | **flowcontrol** | **private-vlan mapping** | **pruning** | **stats** | **status** [**err-disabled** | **inactive**] | **trunk**]

Syntax Description

interface-id	(Optional) ID of the interface. Valid interfaces include physical ports (including type, stack member for stacking-capable switches, module, and port number) and port channels. The port channel range is 1 to 48.
vlan *vlan-id*	(Optional) VLAN identification. The range is 1 to 4094.
accounting	(Optional) Displays accounting information on the interface, including active protocols and input and output packets and octets. **Note** The display shows only packets processed in software; hardware-switched packets do not appear.
capabilities	(Optional) Displays the capabilities of all interfaces or the specified interface, including the features and options that you can configure on the interface. Though visible in the command line help, this option is not available for VLAN IDs.
module *number*	(Optional) Displays capabilities of all interfaces on the switch or specified stack member. The range is 1 to 9. This option is not available if you entered a specific interface ID.
description	(Optional) Displays the administrative status and description set for interfaces. **Note** The output of the **show interfaces description** command displays information of all the available interfaces whether or not the corresponding network module for these interfaces are connected. These interfaces can be configured if the network module is connected. Run the **show interface status** command to see which network modules are connected.
etherchannel	(Optional) Displays interface EtherChannel information.
flowcontrol	(Optional) Displays interface flow control information.
private-vlan mapping	(Optional) Displays private-VLAN mapping information for the VLAN switch virtual interfaces (SVIs). This keyword is not available if the switch is running the LAN base feature set.

pruning	(Optional) Displays trunk VTP pruning information for the interface.
stats	(Optional) Displays the input and output packets by switching the path for the interface.
status	(Optional) Displays the status of the interface. A status of unsupported in the Type field means that a non-Cisco small form-factor pluggable (SFP) module is inserted in the module slot.
err-disabled	(Optional) Displays interfaces in an error-disabled state.
inactive	(Optional) Displays interfaces in an inactive state.
trunk	(Optional) Displays interface trunk information. If you do not specify an interface, only information for active trunking ports appears.

Note Though visible in the command-line help strings, the **crb**, **fair-queue**, **irb**, **mac-accounting**, **precedence**, **random-detect**, **rate-limit**, and **shape** keywords are not supported.

Command Default

None

Command Modes

Privileged EXEC (#)

Command History

Release	Modification
Cisco IOS XE Everest 16.5.1a	This command was introduced.

Usage Guidelines

The **show interfaces capabilities** command with different keywords has these results:

- Use the **show interface capabilities module** *number* command to display the capabilities of all interfaces on that switch in the stack. If there is no switch with that module number in the stack, there is no output.
- Use the **show interfaces** *interface-id* **capabilities** to display the capabilities of the specified interface.
- Use the **show interfaces capabilities** (with no module number or interface ID) to display the capabilities of all interfaces in the stack.

Note The field **Last Input** displayed in the command output indicates the number of hours, minutes, and seconds since the last packet was successfully received by an interface and processed by the CPU on the device. This information can be used to know when a dead interface failed.

Last Input is not updated by fast-switched traffic.

The field **output** displayed in the command output indicates the number of hours, minutes, and seconds since the last packet was successfully transmitted by the interface. The information provided by this field can useful for knowing when a dead interface failed.

This is an example of output from the **show interfaces** command for an interface on stack member 3:

```
Device# show interfaces gigabitethernet3/0/2

GigabitEthernet3/0/2 is down, line protocol is down (notconnect)
  Hardware is Gigabit Ethernet, address is 2037.064d.4381 (bia 2037.064d.4381)
  MTU 1500 bytes, BW 1000000 Kbit/sec, DLY 10 usec,
     reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation ARPA, loopback not set
  Keepalive set (10 sec)
  Auto-duplex, Auto-speed, media type is 10/100/1000BaseTX
  input flow-control is off, output flow-control is unsupported
  ARP type: ARPA, ARP Timeout 04:00:00
  Last input never, output never, output hang never
  Last clearing of "show interface" counters never
  Input queue: 0/2000/0/0 (size/max/drops/flushes); Total output drops: 0
  Queueing strategy: fifo
  Output queue: 0/40 (size/max)
  5 minute input rate 0 bits/sec, 0 packets/sec
  5 minute output rate 0 bits/sec, 0 packets/sec
     0 packets input, 0 bytes, 0 no buffer
     Received 0 broadcasts (0 multicasts)
     0 runts, 0 giants, 0 throttles
     0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
     0 watchdog, 0 multicast, 0 pause input
     0 input packets with dribble condition detected
     0 packets output, 0 bytes, 0 underruns
     0 output errors, 0 collisions, 1 interface resets
     0 unknown protocol drops
     0 babbles, 0 late collision, 0 deferred
     0 lost carrier, 0 no carrier, 0 pause output
     0 output buffer failures, 0 output buffers swapped out


Device# show interfaces accounting

Vlan1
                Protocol    Pkts In   Chars In   Pkts Out  Chars Out
                      IP          0          0          6        378
Vlan200
                Protocol    Pkts In   Chars In   Pkts Out  Chars Out
No traffic sent or received on this interface.
GigabitEthernet0/0
                Protocol    Pkts In   Chars In   Pkts Out  Chars Out
                   Other     165476   11417844          0          0
           Spanning Tree    1240284   64494768          0          0
                     ARP       7096     425760          0          0
                     CDP      41368   18781072      82908   35318808
GigabitEthernet1/0/1
                Protocol    Pkts In   Chars In   Pkts Out  Chars Out
No traffic sent or received on this interface.
GigabitEthernet1/0/2
                Protocol    Pkts In   Chars In   Pkts Out  Chars Out
No traffic sent or received on this interface.

<output truncated>
```

This is an example of output from the **show interfaces** *interface* **description** command when the interface has been described as *Connects to Marketing* by using the **description** interface configuration command:

```
Device# show interfaces gigabitethernet1/0/2 description

Interface                      Status         Protocol Description
Gi1/0/2                        up             down     Connects to Marketing


Device# show interfaces etherchannel
----
Port-channel34:
Age of the Port-channel   = 28d:18h:51m:46s
Logical slot/port   = 12/34          Number of ports = 0
GC                  = 0x00000000      HotStandBy port = null
Passive port list   =
Port state          = Port-channel L3-Ag Ag-Not-Inuse
Protocol            =    -
Port security       = Disabled
```

This is an example of output from the **show interfaces** *interface-id* **pruning** command when pruning is enabled in the VTP domain:

```
Device# show interfaces gigabitethernet1/0/2 pruning

Port      Vlans pruned for lack of request by neighbor
Gi1/0/2   3,4

Port      Vlans traffic requested of neighbor
Gi1/0/2   1-3
```

This is an example of output from the **show interfaces stats** command for a specified VLAN interface:

```
Device# show interfaces vlan 1 stats

Switching path    Pkts In    Chars In    Pkts Out    Chars Out
     Processor    1165354   136205310      570800     91731594
   Route cache          0           0           0            0
         Total    1165354   136205310      570800     91731594
```

This is an example of output from the **show interfaces status err-disabled** command. It displays the status of interfaces in the error-disabled state:

```
Device# show interfaces status err-disabled

Port      Name       Status         Reason
Gi1/0/2              err-disabled   gbic-invalid
Gi2/0/3              err-disabled   dtp-flap
```

This is an example of output from the **show interfaces** *interface-id* **pruning** command:

```
Device# show interfaces gigabitethernet1/0/2 pruning

Port Vlans pruned for lack of request by neighbor


Device# show interfaces gigabitethernet1/0/1 trunk

Port        Mode             Encapsulation  Status        Native vlan
Gi1/0/1     on               802.1q         other         10

Port        Vlans allowed on trunk
Gi1/0/1     none

Port        Vlans allowed and active in management domain
```

```
Gi1/0/1     none

Port        Vlans in spanning tree forwarding state and not pruned
Gi1/0/1     none
```

This is an example of output from the **show interfaces description** command:

```
Device# show interfaces description

Interface                      Status         Protocol Description
Vl1                            admin down     down
Gi0/0                          down           down
Gi1/0/1                        down           down
Gi1/0/2                        down           down
Gi1/0/3                        down           down
Gi1/0/4                        down           down
Gi1/0/5                        down           down
Gi1/0/6                        down           down
Gi1/0/7                        down           down

<output truncated>
```

show interfaces counters

To display various counters for the switch or for a specific interface, use the **show interfaces counters** command in privileged EXEC mode.

show interfaces [*interface-id*] **counters** [**errors** | **etherchannel** | **module** *stack-member-number* | **protocol status** | **trunk**]

Syntax Description

interface-id	(Optional) ID of the physical interface, including type, stack member (stacking-capable switches only) module, and port number.
errors	(Optional) Displays error counters.
etherchannel	(Optional) Displays EtherChannel counters, including octets, broadcast packets, multicast packets, and unicast packets received and sent.
module *stack-member-number*	(Optional) Displays counters for the specified stack member. The range is 1 to 9. **Note** In this command, the **module** keyword refers to the stack member number. The module number that is part of the interface ID is always zero.
protocol status	(Optional) Displays the status of protocols enabled on interfaces.
trunk	(Optional) Displays trunk counters.

Note Though visible in the command-line help string, the **vlan** *vlan-id* keyword is not supported.

Command Default

None

Command Modes

Privileged EXEC

Command History

Release	Modification
Cisco IOS XE Everest 16.5.1a	This command was introduced.

Usage Guidelines

If you do not enter any keywords, all counters for all interfaces are included.

This is an example of partial output from the **show interfaces counters** command. It displays all counters for the switch.

```
Device# show interfaces counters
Port            InOctets    InUcastPkts    InMcastPkts    InBcastPkts
Gi1/0/1                0              0              0              0
Gi1/0/2                0              0              0              0
Gi1/0/3         95285341          43115        1178430           1950
Gi1/0/4                0              0              0              0
```

```
<output truncated>
```

This is an example of partial output from the **show interfaces counters module** command for stack member 2. It displays all counters for the specified switch in the stack.

```
Device# show interfaces counters module 2
Port            InOctets    InUcastPkts    InMcastPkts    InBcastPkts
Gi1/0/1              520              2              0              0
Gi1/0/2              520              2              0              0
Gi1/0/3              520              2              0              0
Gi1/0/4              520              2              0              0

<output truncated>
```

This is an example of partial output from the **show interfaces counters protocol status** command for all interfaces:

```
Device# show interfaces counters protocol status
Protocols allocated:
Vlan1: Other, IP
Vlan20: Other, IP, ARP
Vlan30: Other, IP, ARP
Vlan40: Other, IP, ARP
Vlan50: Other, IP, ARP
Vlan60: Other, IP, ARP
Vlan70: Other, IP, ARP
Vlan80: Other, IP, ARP
Vlan90: Other, IP, ARP
Vlan900: Other, IP, ARP
Vlan3000: Other, IP
Vlan3500: Other, IP
GigabitEthernet1/0/1: Other, IP, ARP, CDP
GigabitEthernet1/0/2: Other, IP
GigabitEthernet1/0/3: Other, IP
GigabitEthernet1/0/4: Other, IP
GigabitEthernet1/0/5: Other, IP
GigabitEthernet1/0/6: Other, IP
GigabitEthernet1/0/7: Other, IP
GigabitEthernet1/0/8: Other, IP
GigabitEthernet1/0/9: Other, IP
GigabitEthernet1/0/10: Other, IP, CDP

<output truncated>
```

This is an example of output from the **show interfaces counters trunk** command. It displays trunk counters for all interfaces.

```
Device# show interfaces counters trunk
Port        TrunkFramesTx   TrunkFramesRx   WrongEncap
Gi1/0/1                 0               0            0
Gi1/0/2                 0               0            0
Gi1/0/3             80678               0            0
Gi1/0/4             82320               0            0
Gi1/0/5                 0               0            0

<output truncated>
```

show interfaces switchport

To display the administrative and operational status of a switching (nonrouting) port, including port blocking and port protection settings, use the **show interfaces switchport** command in privileged EXEC mode.

show interfaces [*interface-id*] **switchport** [**module** *number*]

Syntax Description

interface-id	(Optional) ID of the interface. Valid interfaces include physical ports (including type, stack member for stacking-capable switches, module, and port number) and port channels. The port channel range is 1 to 48.
module *number*	(Optional) Displays switchport configuration of all interfaces on the switch or specified stack member. The range is 1 to 9. This option is not available if you entered a specific interface ID.

Command Default

None

Command Modes

Privileged EXEC

Command History

Release	Modification
Cisco IOS XE Everest 16.5.1a	This command was introduced.

Usage Guidelines

Use the **show interface switchport module** *number* command to display the switch port characteristics of all interfaces on that switch in the stack. If there is no switch with that module number in the stack, there is no output.

This is an example of output from the **show interfaces switchport** command for a port. The table that follows describes the fields in the display.

Note Private VLANs are not supported in this release, so those fields are not applicable.

```
Device# show interfaces gigabitethernet1/0/1 switchport
Name: Gi1/0/1
Switchport: Enabled
Administrative Mode: trunk
Operational Mode: down
Administrative Trunking Encapsulation: dot1q
Negotiation of Trunking: On
Access Mode VLAN: 1 (default)
Trunking Native Mode VLAN: 10 (VLAN0010)
Administrative Native VLAN tagging: enabled
Voice VLAN: none
Administrative private-vlan host-association: none
Administrative private-vlan mapping: none
Administrative private-vlan trunk native VLAN: none
Administrative private-vlan trunk Native VLAN tagging: enabled
Administrative private-vlan trunk encapsulation: dot1q
```

```
Administrative private-vlan trunk normal VLANs: none
Administrative private-vlan trunk associations: none
Administrative private-vlan trunk mappings: none
Operational private-vlan: none
Trunking VLANs Enabled: 11-20
Pruning VLANs Enabled: 2-1001
Capture Mode Disabled
Capture VLANs Allowed: ALL

Protected: false
Unknown unicast blocked: disabled
Unknown multicast blocked: disabled
Appliance trust: none
```

Field	Description
Name	Displays the port name.
Switchport	Displays the administrative and operational status of the port. In this display, the port is in switchport mode.
Administrative Mode Operational Mode	Displays the administrative and operational modes.
Administrative Trunking Encapsulation Operational Trunking Encapsulation Negotiation of Trunking	Displays the administrative and operational encapsulation method and whether trunking negotiation is enabled.
Access Mode VLAN	Displays the VLAN ID to which the port is configured.
Trunking Native Mode VLAN Trunking VLANs Enabled Trunking VLANs Active	Lists the VLAN ID of the trunk that is in native mode. Lists the allowed VLANs on the trunk. Lists the active VLANs on the trunk.
Pruning VLANs Enabled	Lists the VLANs that are pruning-eligible.
Protected	Displays whether or not protected port is enabled (True) or disabled (False) on the interface.
Unknown unicast blocked Unknown multicast blocked	Displays whether or not unknown multicast and unknown unicast traffic is blocked on the interface.
Voice VLAN	Displays the VLAN ID on which voice VLAN is enabled.
Appliance trust	Displays the class of service (CoS) setting of the data packets of the IP phone.

show interfaces transceiver

To display the physical properties of a small form-factor pluggable (SFP) module interface, use the **show interfaces transceiver** command in EXEC mode.

show interfaces [*interface-id*] **transceiver** [**detail** | **module** *number* | **properties** | **supported-list** | **threshold-table**]

Syntax Description

interface-id	(Optional) ID of the physical interface, including type, stack member (stacking-capable switches only) module, and port number.
detail	(Optional) Displays calibration properties, including high and low numbers and any alarm information for any Digital Optical Monitoring (DoM)-capable transceiver if one is installed in the switch.
module *number*	(Optional) Limits display to interfaces on module on the switch. This option is not available if you entered a specific interface ID.
properties	(Optional) Displays speed, duplex, and inline power settings on an interface.
supported-list	(Optional) Lists all supported transceivers.
threshold-table	(Optional) Displays alarm and warning threshold table.

Command Modes

User EXEC

Privileged EXEC

Command History

Release	Modification
Cisco IOS XE Everest 16.5.1a	This command was introduced.

Examples

This is an example of output from the **show interfaces** *interface-id* **transceiver properties** command:

This is an example of output from the **show interfaces** *interface-id* **transceiver detail** command:

```
Device# show interfaces gigabitethernet1/1/1 transceiver detail
  ITU Channel not available (Wavelength not available),
  Transceiver is internally calibrated.
  mA:milliamperes, dBm:decibels (milliwatts), N/A:not applicable.
  ++:high alarm, +:high warning, -:low warning, -- :low alarm.
  A2D readouts (if they differ), are reported in parentheses.
  The threshold values are uncalibrated.

                           High Alarm  High Warn  Low Warn   Low Alarm
           Temperature     Threshold   Threshold  Threshold  Threshold
  Port     (Celsius)      (Celsius)   (Celsius)  (Celsius)  (Celsius)
  -------  -------------- ----------  ---------  ---------  ---------
  Gi1/1/1  29.9           74.0        70.0       0.0        -4.0
                           High Alarm  High Warn  Low Warn   Low Alarm
           Voltage         Threshold   Threshold  Threshold  Threshold
  Port     (Volts)         (Volts)     (Volts)    (Volts)    (Volts)
```

```
-------  ---------------    ----------  ---------  ---------  ---------
Gi1/1/1  3.28               3.60        3.50       3.10       3.00

         Optical            High Alarm  High Warn  Low Warn   Low Alarm
         Transmit Power     Threshold   Threshold  Threshold  Threshold
Port     (dBm)              (dBm)       (dBm)      (dBm)      (dBm)
-------  -----------------  ----------  ---------  ---------  ---------
Gi1/1/1  1.8                7.9         3.9        0.0        -4.0

         Optical            High Alarm  High Warn  Low Warn   Low Alarm
         Receive Power      Threshold   Threshold  Threshold  Threshold
Port     (dBm)              (dBm)       (dBm)      (dBm)      (dBm)
-------  -----------------  ----------  ---------  ---------  ---------
Gi1/1/1  -23.5              -5.0        -9.0       -28.2      -32.2
```

This is an example of output from the **show interfaces transceiver threshold-table** command:

```
Device# show interfaces transceiver threshold-table
             Optical Tx     Optical Rx    Temp     Laser Bias    Voltage
                                                   current
            -------------  -------------  ------   ------------  ---------

 DWDM GBIC
Min1             -4.00        -32.00        -4           N/A          4.65
Min2              0.00        -28.00        0            N/A          4.75
Max2              4.00         -9.00        70           N/A          5.25
Max1              7.00         -5.00        74           N/A          5.40
 DWDM SFP
Min1             -4.00        -32.00        -4           N/A          3.00
Min2              0.00        -28.00        0            N/A          3.10
Max2              4.00         -9.00        70           N/A          3.50
Max1              8.00         -5.00        74           N/A          3.60
 RX only WDM GBIC
Min1              N/A         -32.00        -4           N/A          4.65
Min2              N/A         -28.30        0            N/A          4.75
Max2              N/A          -9.00        70           N/A          5.25
Max1              N/A          -5.00        74           N/A          5.40
 DWDM XENPAK
Min1             -5.00        -28.00        -4           N/A          N/A
Min2             -1.00        -24.00        0            N/A          N/A
Max2              3.00         -7.00        70           N/A          N/A
Max1              7.00         -3.00        74           N/A          N/A
 DWDM X2
Min1             -5.00        -28.00        -4           N/A          N/A
Min2             -1.00        -24.00        0            N/A          N/A
Max2              3.00         -7.00        70           N/A          N/A
Max1              7.00         -3.00        74           N/A          N/A
 DWDM XFP
Min1             -5.00        -28.00        -4           N/A          N/A
Min2             -1.00        -24.00        0            N/A          N/A
Max2              3.00         -7.00        70           N/A          N/A
Max1              7.00         -3.00        74           N/A          N/A
 CWDM X2
Min1              N/A           N/A         0            N/A          N/A
Min2              N/A           N/A         0            N/A          N/A
Max2              N/A           N/A         0            N/A          N/A
Max1              N/A           N/A         0            N/A          N/A

<output truncated>
```

show inventory

To display the product inventory listing of all Cisco products installed in the networking device, use the **show inventory** command in user EXEC or privileged EXEC mode.

show inventory fru | **oid** | **raw** [**entity**]

fru	(Optional) Retrieves information about all Field Replaceable Units (FRUs) installed in the Cisco networking device.
oid	(Optional) Retrieves information about the vendor specific hardware registration identifier referred to as object identifier (OID). The OID identifies the MIB object's location in the MIB hierarchy, and provides a means of accessing the MIB object in a network of managed devices
raw	(Optional) Retrieves information about all Cisco products referred to as entities installed in the Cisco networking device, even if the entities do not have a product ID (PID) value, a unique device identifier (UDI), or other physical identification.
entity	(Optional) Name of a Cisco entity (for example, chassis, backplane, module, or slot). A quoted string may be used to display very specific UDI information; for example "sfslot 1" will display the UDI information for slot 1 of an entity named sfslot.

Command Modes

Privileged EXEC (#)

Command History

Release	Modification
Cisco IOS XE Everest 16.6.1	This command was introduced.
Cisco IOS XE Everest 16.6.3	This command was enhanced to display the serial number for the chassis.

Usage Guidelines

The **show inventory** command retrieves and displays inventory information about each Cisco product in the form of a UDI. The UDI is a combination of three separate data elements: a product identifier (PID), a version identifier (VID), and the serial number (SN).

The PID is the name by which the product can be ordered; it has been historically called the "Product Name" or "Part Number." This is the identifier that one would use to order an exact replacement part.

The VID is the version of the product. Whenever a product has been revised, the VID will be incremented. The VID is incremented according to a rigorous process derived from Telcordia GR-209-CORE, an industry guideline that governs product change notices.

The SN is the vendor-unique serialization of the product. Each manufactured product will carry a unique serial number assigned at the factory, which cannot be changed in the field. This is the means by which to identify an individual, specific instance of a product.

The UDI refers to each product as an entity. Some entities, such as a chassis, will have subentities like slots. Each entity will display on a separate line in a logically ordered presentation that is arranged hierarchically by Cisco entities.

Use the **show inventory** command without options to display a list of Cisco entities installed in the networking device that are assigned a PID.

The following is sample output from the **show inventory** command:

```
Device#show inventory
NAME: "c93xx Stack", DESCR: "c93xx Stack"
PID: C9300-48UXM       , VID: P2B  , SN: FCW2117G00C

NAME: "Switch 2", DESCR: "C9300-48UXM"
PID: C9300-48UXM       , VID: P2B  , SN: FCW2117G00C

NAME: "Switch 2 - Power Supply A", DESCR: "Switch 2 - Power Supply A"
PID: PWR-C1-1100WAC    , VID: V02  , SN: LIT211227NZ

NAME: "Switch 2 FRU Uplink Module 1", DESCR: "8x10G Uplink Module"
PID: C3850-NM-8-10G    , VID: V01  , SN: FOC20153M58

NAME: "Te2/1/1", DESCR: "SFP-10GBase-CX1"
PID: SFP-H10GB-CU2M      , VID: V02  , SN: TED2132H0SU

NAME: "Te2/1/3", DESCR: "SFP-10GBase-CX1"
PID: SFP-H10GB-CU2M      , VID: V02  , SN: TED2132H0A8

NAME: "Te2/1/5", DESCR: "SFP-10GBase-CX1"
PID: SFP-H10GB-CU2M      , VID: V02  , SN: TED2132H1G8

NAME: "usbflash1", DESCR: "usbflash1"
PID: SSD-120G          , VID: STP21460FNA, SN: V01
```

Table 4: show inventory Field Descriptions

Field	Description
NAME	Physical name (text string) assigned to the Cisco entity. For example, console or a simple component number (port or module number), such as “1,” depending on the physical component naming syntax of the device.
DESCR	Physical description of the Cisco entity that characterizes the object. The physical description includes the hardware serial number and the hardware revision.
PID	Entity product identifier. Equivalent to the entPhysicalModelName MIB variable in RFC 2737.
VID	Entity version identifier. Equivalent to the entPhysicalHardwareRev MIB variable in RFC 2737.
SN	Entity serial number. Equivalent to the entPhysicalSerialNum MIB variable in RFC 2737.

For diagnostic purposes, the **show inventory**command can be used with the **raw** keyword to display every RFC 2737 entity including those without a PID, UDI, or other physical identification.

Note The **raw** keyword option is primarily intended for troubleshooting problems with the **show inventory** command itself.

Enter the **show inventory** command with an *entity* argument value to display the UDI information for a specific type of Cisco entity installed in the networking device. In this example, a list of Cisco entities that match the sfslot argument string is displayed.

```
Device#show inventory "c93xx Stack"
NAME: "c93xx Stack", DESCR: "c93xx Stack"
PID: C9300-48UXM       , VID: P2B  , SN: FCW2117G00C

NAME: "Switch 2", DESCR: "C9300-48UXM"
PID: C9300-48UXM       , VID: P2B  , SN: FCW2117G00C

NAME: "Switch 2 - Power Supply A", DESCR: "Switch 2 - Power Supply A"
PID: PWR-C1-1100WAC    , VID: V02  , SN: LIT211227NZ

NAME: "Switch 2 FRU Uplink Module 1", DESCR: "8x10G Uplink Module"
PID: C3850-NM-8-10G    , VID: V01  , SN: FOC20153M58

NAME: "Te2/1/1", DESCR: "SFP-10GBase-CX1"
PID: SFP-H10GB-CU2M      , VID: V02  , SN: TED2132H0SU

NAME: "Te2/1/3", DESCR: "SFP-10GBase-CX1"
PID: SFP-H10GB-CU2M      , VID: V02  , SN: TED2132H0A8

NAME: "Te2/1/5", DESCR: "SFP-10GBase-CX1"
PID: SFP-H10GB-CU2M      , VID: V02  , SN: TED2132H1G8

NAME: "usbflash1", DESCR: "usbflash1"
PID: SSD-120G          , VID: STP21460FNA, SN: V01
```

You can request even more specific UDI information with the *entity* argument value enclosed in quotation marks.

show memory platform

To display memory statistics of a platform, use the **show memory platform** command in privileged EXEC mode.

show memory platform [**compressed-swap** | **information** | **page-merging**]

Syntax Description

compressed-swap	(Optional) Displays platform memory compressed-swap information.
information	(Optional) Displays general information about the platform.
page-merging	(Optional) Displays platform memory page-merging information.

Command Modes

Privileged EXEC (#)

Command History

Release	Modification
Cisco IOS XE Everest 16.5.1a	This command was introduced.

Usage Guidelines

Free memory is accurately computed and displayed in the Free Memory field of the command output.

Examples

The following is sample output from the **show memory platform** command:

```
Switch# show memory platform

 Virtual memory   : 12874653696
  Pages resident   : 627041
  Major page faults: 2220
  Minor page faults: 2348631

  Architecture     : mips64
  Memory (kB)
    Physical       : 3976852
    Total          : 3976852
    Used           : 2761276
    Free           : 1215576
    Active         : 2128196
    Inactive       : 1581856
    Inact-dirty    : 0
    Inact-clean    : 0
    Dirty          : 0
    AnonPages      : 1294984
    Bounce         : 0
    Cached         : 1978168
    Commit Limit   : 1988424
    Committed As   : 3343324
    High Total     : 0
    High Free      : 0
    Low Total      : 3976852
    Low Free       : 1215576
    Mapped         : 516316
    NFS Unstable   : 0
    Page Tables    : 17124
    Slab           : 0
```

```
  VMmalloc Chunk : 1069542588
  VMmalloc Total : 1069547512
  VMmalloc Used  : 2588
  Writeback      : 0
  HugePages Total: 0
  HugePages Free : 0
  HugePages Rsvd : 0
  HugePage Size  : 2048

Swap (kB)
  Total          : 0
  Used           : 0
  Free           : 0
  Cached         : 0

Buffers (kB)     : 437136

Load Average
  1-Min          : 1.04
  5-Min          : 1.16
  15-Min         : 0.94
```

The following is sample output from the **show memory platform information** command:

```
Device# show memory platform information

Virtual memory   : 12870438912
 Pages resident   : 626833
 Major page faults: 2222
 Minor page faults: 2362455

 Architecture     : mips64
 Memory (kB)
   Physical       : 3976852
   Total          : 3976852
   Used           : 2761224
   Free           : 1215628
   Active         : 2128060
   Inactive       : 1584444
   Inact-dirty    : 0
   Inact-clean    : 0
   Dirty          : 284
   AnonPages      : 1294656
   Bounce         : 0
   Cached         : 1979644
   Commit Limit   : 1988424
   Committed As   : 3342184
   High Total     : 0
   High Free      : 0
   Low Total      : 3976852
   Low Free       : 1215628
   Mapped         : 516212
   NFS Unstable   : 0
   Page Tables    : 17096
   Slab           : 0
   VMmalloc Chunk : 1069542588
   VMmalloc Total : 1069547512
   VMmalloc Used  : 2588
   Writeback      : 0
   HugePages Total: 0
   HugePages Free : 0
   HugePages Rsvd : 0
   HugePage Size  : 2048
```

```
Swap (kB)
  Total          : 0
  Used           : 0
  Free           : 0
  Cached         : 0

Buffers (kB)     : 438228

Load Average
  1-Min          : 1.54
  5-Min          : 1.27
  15-Min         : 0.99
```

show module

To display module information such as switch number, model number, serial number, hardware revision number, software version, MAC address and so on, use this command in user EXEC or privileged EXEC mode.

`show module` [*switch-num*]

Syntax Description

switch-num	(Optional) Number of the switch.

Command Default

None

Command Modes

User EXEC (>)

Privileged EXEC (#)

Command History

Release	Modification
Cisco IOS XE Everest 16.5.1a	This command was introduced.

Usage Guidelines

Entering the **show module** command without the *switch-num* argument is the same as entering the show module all command.

Examples

This example shows how to display information for all the modules on a Cisco Catalyst 3850 Series switch:

show mgmt-infra trace messages ilpower

To display inline power messages within a trace buffer, use the **show mgmt-infra trace messages ilpower** command in privileged EXEC mode.

show mgmt-infra trace messages ilpower [**switch** *stack-member-number*]

Syntax Description

switch *stack-member-number*	(Optional) Specifies the stack member number for which to display inline power messages within a trace buffer.

Command Default

None

Command Modes

Privileged EXEC

Command History

Release	Modification
Cisco IOS XE Everest 16.5.1a	This command was introduced.

This is an output example from the **show mgmt-infra trace messages ilpower** command:

```
Device# show mgmt-infra trace messages ilpower
[10/23/12 14:05:10.984 UTC 1 3] Initialized inline power system configuration fo
r slot 1.
[10/23/12 14:05:10.984 UTC 2 3] Initialized inline power system configuration fo
r slot 2.
[10/23/12 14:05:10.984 UTC 3 3] Initialized inline power system configuration fo
r slot 3.
[10/23/12 14:05:10.984 UTC 4 3] Initialized inline power system configuration fo
r slot 4.
[10/23/12 14:05:10.984 UTC 5 3] Initialized inline power system configuration fo
r slot 5.
[10/23/12 14:05:10.984 UTC 6 3] Initialized inline power system configuration fo
r slot 6.
[10/23/12 14:05:10.984 UTC 7 3] Initialized inline power system configuration fo
r slot 7.
[10/23/12 14:05:10.984 UTC 8 3] Initialized inline power system configuration fo
r slot 8.
[10/23/12 14:05:10.984 UTC 9 3] Initialized inline power system configuration fo
r slot 9.
[10/23/12 14:05:10.984 UTC a 3] Inline power subsystem initialized.
[10/23/12 14:05:18.908 UTC b 264] Create new power pool for slot 1
[10/23/12 14:05:18.909 UTC c 264] Set total inline power to 450 for slot 1
[10/23/12 14:05:20.273 UTC d 3] PoE is not supported on .
[10/23/12 14:05:20.288 UTC e 3] PoE is not supported on .
[10/23/12 14:05:20.299 UTC f 3] PoE is not supported on .
[10/23/12 14:05:20.311 UTC 10 3] PoE is not supported on .
[10/23/12 14:05:20.373 UTC 11 98] Inline power process post for switch 1
[10/23/12 14:05:20.373 UTC 12 98] PoE post passed on switch 1
[10/23/12 14:05:20.379 UTC 13 3] Slot #1: PoE initialization for board id 16387
[10/23/12 14:05:20.379 UTC 14 3] Set total inline power to 450 for slot 1
[10/23/12 14:05:20.379 UTC 15 3] Gi1/0/1 port config Initialized
[10/23/12 14:05:20.379 UTC 16 3] Interface Gi1/0/1 initialization done.
[10/23/12 14:05:20.380 UTC 17 3] Gi1/0/24 port config Initialized
[10/23/12 14:05:20.380 UTC 18 3] Interface Gi1/0/24 initialization done.
[10/23/12 14:05:20.380 UTC 19 3] Slot #1: initialization done.
```

```
[10/23/12 14:05:50.440 UTC 1a 3] Slot #1: PoE initialization for board id 16387
[10/23/12 14:05:50.440 UTC 1b 3] Duplicate init event
```

show mgmt-infra trace messages ilpower-ha

To display inline power high availability messages within a trace buffer, use the **show mgmt-infra trace messages ilpower-ha** command in privileged EXEC mode.

show mgmt-infra trace messages ilpower-ha [**switch** *stack-member-number*]

Syntax Description

switch *stack-member-number*	(Optional) Specifies the stack member number for which to display inline power messages within a trace buffer.

Command Default

None

Command Modes

Privileged EXEC

Command History

Release	Modification
Cisco IOS XE Everest 16.5.1a	This command was introduced.

This is an output example from the **show mgmt-infra trace messages ilpower-ha** command:

```
Device# show mgmt-infra trace messages ilpower-ha
[10/23/12 14:04:48.087 UTC 1 3] NG3K_ILPOWER_HA: Created NGWC ILP CF client succ
essfully.
```

show mgmt-infra trace messages platform-mgr-poe

To display platform manager Power over Ethernet (PoE) messages within a trace buffer, use the **show mgmt-infra trace messages platform-mgr-poe** privileged EXEC command.

show mgmt-infra trace messages platform-mgr-poe [**switch** *stack-member-number*]

Syntax Description

switch *stack-member-number*	(Optional) Specifies the stack member number for which to display messages within a trace buffer.

Command Default

None

Command Modes

Privileged EXEC

Command History

Release	Modification
Cisco IOS XE Everest 16.5.1a	This command was introduced.

This is an example of partial output from the **show mgmt-infra trace messages platform-mgr-poe** command:

```
Device# show mgmt-infra trace messages platform-mgr-poe
[10/23/12 14:04:06.431 UTC 1 5495] PoE Info: get power controller param sent:
[10/23/12 14:04:06.431 UTC 2 5495] PoE Info: POE_SHUT sent for port 1 (0:0)
[10/23/12 14:04:06.431 UTC 3 5495] PoE Info: POE_SHUT sent for port 2 (0:1)
[10/23/12 14:04:06.431 UTC 4 5495] PoE Info: POE_SHUT sent for port 3 (0:2)
[10/23/12 14:04:06.431 UTC 5 5495] PoE Info: POE_SHUT sent for port 4 (0:3)
[10/23/12 14:04:06.431 UTC 6 5495] PoE Info: POE_SHUT sent for port 5 (0:4)
[10/23/12 14:04:06.431 UTC 7 5495] PoE Info: POE_SHUT sent for port 6 (0:5)
[10/23/12 14:04:06.431 UTC 8 5495] PoE Info: POE_SHUT sent for port 7 (0:6)
[10/23/12 14:04:06.431 UTC 9 5495] PoE Info: POE_SHUT sent for port 8 (0:7)
[10/23/12 14:04:06.431 UTC a 5495] PoE Info: POE_SHUT sent for port 9 (0:8)
[10/23/12 14:04:06.431 UTC b 5495] PoE Info: POE_SHUT sent for port 10 (0:9)
[10/23/12 14:04:06.431 UTC c 5495] PoE Info: POE_SHUT sent for port 11 (0:10)
[10/23/12 14:04:06.431 UTC d 5495] PoE Info: POE_SHUT sent for port 12 (0:11)
[10/23/12 14:04:06.431 UTC e 5495] PoE Info: POE_SHUT sent for port 13 (e:0)
[10/23/12 14:04:06.431 UTC f 5495] PoE Info: POE_SHUT sent for port 14 (e:1)
[10/23/12 14:04:06.431 UTC 10 5495] PoE Info: POE_SHUT sent for port 15 (e:2)
[10/23/12 14:04:06.431 UTC 11 5495] PoE Info: POE_SHUT sent for port 16 (e:3)
[10/23/12 14:04:06.431 UTC 12 5495] PoE Info: POE_SHUT sent for port 17 (e:4)
[10/23/12 14:04:06.431 UTC 13 5495] PoE Info: POE_SHUT sent for port 18 (e:5)
[10/23/12 14:04:06.431 UTC 14 5495] PoE Info: POE_SHUT sent for port 19 (e:6)
[10/23/12 14:04:06.431 UTC 15 5495] PoE Info: POE_SHUT sent for port 20 (e:7)
[10/23/12 14:04:06.431 UTC 16 5495] PoE Info: POE_SHUT sent for port 21 (e:8)
[10/23/12 14:04:06.431 UTC 17 5495] PoE Info: POE_SHUT sent for port 22 (e:9)
[10/23/12 14:04:06.431 UTC 18 5495] PoE Info: POE_SHUT sent for port 23 (e:10)
```

show network-policy profile

To display the network-policy profiles, use the **show network policy profile** command in privileged EXEC mode.

show network-policy profile [*profile-number*] [**detail**]

Syntax Description

profile-number	(Optional) Displays the network-policy profile number. If no profile is entered, all network-policy profiles appear.
detail	(Optional) Displays detailed status and statistics information.

Command Default

None

Command Modes

Privileged EXEC

Command History

Release	Modification
Cisco IOS XE Everest 16.5.1a	This command was introduced.

This is an example of output from the **show network-policy profile** command:

```
Device# show network-policy profile
Network Policy Profile 10
   voice vlan 17 cos 4
  Interface:
   none
Network Policy Profile 30
   voice vlan 30 cos 5
  Interface:
   none
Network Policy Profile 36
   voice vlan 4 cos 3
  Interface:
   Interface_id
```

show platform hardware capacity

Note This command is not supported on the C9500-12Q-E, C9500-12Q-A, C9500-24Q-E, C9500-24Q-A, C9500-40X-E, and C9500-40X-A models of the Cisco Catalyst 9500 Series Switches.

To determine system hardware capacity, use the **show platform hardware capacity** command in privileged EXEC mode.

show platform hardware capacity

Syntax Description

This command has no arguments or keywords.

Command Default

This command has no default settings.

Command Modes

Privileged EXEC (#)

Command History

Release	Modification
Cisco IOS XE Fuji 16.8.1a	This command was introduced.

Example

This example shows how to determine the system hardware capacity

```
Device# show platform hardware capacity

Module        Model                Operational Status
------------- -------------------- ------------------------
subslot 1/0   C9500H-32QC          ok

Load Average
 Slot  Status  1-Min  5-Min 15-Min
  RP0 Healthy   0.07   0.16   0.13

Memory (kB)
 Slot  Status    Total     Used (Pct)     Free (Pct) Committed (Pct)
  RP0 Healthy 15958108  3060492 (19%) 12897616 (81%)  25941080 (163%)

CPU Utilization
 Slot  CPU   User System   Nice   Idle    IRQ   SIRQ IOwait
  RP0    0   0.70   0.20   0.00  99.10   0.00   0.00   0.00
         1   0.39   0.09   0.00  99.50   0.00   0.00   0.00
         2   0.80   0.40   0.00  98.80   0.00   0.00   0.00
         3   1.10   0.20   0.00  98.69   0.00   0.00   0.00
         4   0.00   0.00   0.00 100.00   0.00   0.00   0.00
         5   2.20   0.00   0.00  97.80   0.00   0.00   0.00
         6   0.10   3.20   0.00  96.70   0.00   0.00   0.00
         7   0.00   0.00   0.00 100.00   0.00   0.00   0.00


 *: interface is up
 IHQ: pkts in input hold queue     IQD: pkts dropped from input queue
```

```
 OHQ: pkts in output hold queue    OQD: pkts dropped from output queue
 RXBS: rx rate (bits/sec)          RXPS: rx rate (pkts/sec)
 TXBS: tx rate (bits/sec)          TXPS: tx rate (pkts/sec)
 TRTL: throttle count

  Interface                   IHQ       IQD       OHQ       OQD       RXBS       RXPS
TXBS      TXPS      TRTL
------------------------------------------------------------------------------------------------------------------

  Vlan1                         0         0         0         0          0          0
  0         0         0
* GigabitEthernet0/0            0         0         0         0          0          0
  0         0         0
  Fo1/0/1                       0         0         0         0          0          0
  0         0         0
  Fo1/0/2                       0         0         0         0          0          0
  0         0         0
  Fo1/0/3                       0         0         0         0          0          0
  0         0         0
  Fo1/0/4                       0         0         0         0          0          0
  0         0         0
  Fo1/0/5                       0         0         0         0          0          0
  0         0         0
  Fo1/0/6                       0         0         0         0          0          0
  0         0         0
  Fo1/0/7                       0         0         0         0          0          0
  0         0         0
  Fo1/0/8                       0         0         0         0          0          0
  0         0         0
  Fo1/0/9                       0         0         0         0          0          0
  0         0         0
  Fo1/0/10                      0         0         0         0          0          0
  0         0         0
  Fo1/0/11                      0         0         0         0          0          0
  0         0         0
  Fo1/0/12                      0         0         0         0          0          0
  0         0         0
  Fo1/0/13                      0         0         0         0          0          0
  0         0         0
  Fo1/0/14                      0         0         0         0          0          0
  0         0         0
  Fo1/0/15                      0         0         0         0          0          0
  0         0         0
  Fo1/0/16                      0         0         0         0          0          0
  0         0         0
  Fo1/0/17                      0         0         0         0          0          0
  0         0         0
  Fo1/0/18                      0         0         0         0          0          0
  0         0         0
  Fo1/0/19                      0         0         0         0          0          0
  0         0         0
  Fo1/0/20                      0         0         0         0          0          0
  0         0         0
  Fo1/0/21                      0         0         0         0          0          0
  0         0         0
  Fo1/0/22                      0         0         0         0          0          0
  0         0         0
  Fo1/0/23                      0         0         0         0          0          0
  0         0         0
* Fo1/0/24                      0         0         0         0          0          0
  0         0         0
* Fo1/0/25                      0         0         0         0          0          0
  0         0         0
* Fo1/0/26                      0         0         0         0          0          0
```

```
  0         0         0
* Fo1/0/27                      0         0         0         0         0         0
  0         0         0
* Fo1/0/28                      0         0         0         0         0         0
  0         0         0
* Fo1/0/29                      0         0         0         0         0         0
  0         0         0
* Fo1/0/30                      0         0         0         0         0         0
  0         0         0
* Fo1/0/31                      0         0         0         0         0         0
  0         0         0
  Fo1/0/32                      0         0         0         0         0         0
  0         0         0
  HundredGigE1/0/33             0         0         0         0         0         0
  0         0         0
  HundredGigE1/0/34             0         0         0         0         0         0
  0         0         0
  HundredGigE1/0/35             0         0         0         0         0         0
  0         0         0
  HundredGigE1/0/36             0         0         0         0         0         0
  0         0         0
  HundredGigE1/0/37             0         0         0         0         0         0
  0         0         0
  HundredGigE1/0/38             0         0         0         0         0         0
  0         0         0
  HundredGigE1/0/39             0         0         0         0         0         0
  0         0         0
  HundredGigE1/0/40             0         0         0         0         0         0
  0         0         0
  HundredGigE1/0/41             0         0         0         0         0         0
  0         0         0
  HundredGigE1/0/42             0         0         0         0         0         0
  0         0         0
  HundredGigE1/0/43             0         0         0         0         0         0
  0         0         0
  HundredGigE1/0/44             0         0         0         0         0         0
  0         0         0
  HundredGigE1/0/45             0         0         0         0         0         0
  0         0         0
  HundredGigE1/0/46             0         0         0         0         0         0
  0         0         0
  HundredGigE1/0/47             0         0         0         0         0         0
  0         0         0
  HundredGigE1/0/48             0         0         0         0         0         0
  0         0         0
ASIC 0 Info
------------
ASIC 0 HSN Table 0 Software info:       FSE 255
        TILE 0: (null)          srip
        TILE 1: (null)          srip
ASIC 0 HSN Table 1 Software info:       FSE 255
        TILE 0: (null)          srip
        TILE 1: (null)          srip
ASIC 0 HSN Table 2 Software info:       FSE 0
        TILE 0: Unicast MAC addresses srip 0 1 2 3
        TILE 1: Unicast MAC addresses srip 0 1 2 3
ASIC 0 HSN Table 3 Software info:       FSE 0
        TILE 0: Unicast MAC addresses srip 0 1 2 3
        TILE 1: Unicast MAC addresses srip 0 1 2 3
ASIC 0 HSN Table 4 Software info:       FSE 255
        TILE 0: (null)          srip
        TILE 1: (null)          srip
ASIC 0 HSN Table 5 Software info:       FSE 255
        TILE 0: (null)          srip
```

```
        TILE 1: (null)          srip
ASIC 0 HSN Table 6 Software info:       FSE 1
        TILE 0: Directly or indirectly connected routes srip 0 1 2 3
        TILE 1: Directly or indirectly connected routes srip 0 1 2 3
ASIC 0 HSN Table 7 Software info:       FSE 2
        TILE 0: SGT_DGT         srip 0 1 2 3
        TILE 1: SGT_DGT         srip 0 1 2 3
ASIC 0 HSF Table 0 Software info:       FSE 1
        TILE 0: Directly or indirectly connected routes srip 0 1 2 3
        TILE 1: Directly or indirectly connected routes srip 0 1 2 3
        TILE 2: Directly or indirectly connected routes srip 0 1 2 3
        TILE 3: Directly or indirectly connected routes srip 0 1 2 3
        TILE 4: Directly or indirectly connected routes srip 0 1 2 3
        TILE 5: Directly or indirectly connected routes srip 0 1 2 3
        TILE 6: Directly or indirectly connected routes srip 0 1 2 3
        TILE 7: Directly or indirectly connected routes srip 0 1 2 3
ASIC 0 HSF Table 1 Software info:       FSE 1
        TILE 0: Directly or indirectly connected routes srip 0 1 2 3
        TILE 1: Directly or indirectly connected routes srip 0 1 2 3
        TILE 2: Directly or indirectly connected routes srip 0 1 2 3
        TILE 3: Directly or indirectly connected routes srip 0 1 2 3
        TILE 4: Directly or indirectly connected routes srip 0 1 2 3
        TILE 5: Directly or indirectly connected routes srip 0 1 2 3
        TILE 6: Directly or indirectly connected routes srip 0 1 2 3
        TILE 7: Directly or indirectly connected routes srip 0 1 2 3
ASIC 0 HSF Table 2 Software info:       FSE 1
        TILE 0: Directly or indirectly connected routes srip 0 1 2 3
        TILE 1: Directly or indirectly connected routes srip 0 1 2 3
        TILE 2: Directly or indirectly connected routes srip 0 1 2 3
        TILE 3: Directly or indirectly connected routes srip 0 1 2 3
        TILE 4: Directly or indirectly connected routes srip 0 1 2 3
        TILE 5: Directly or indirectly connected routes srip 0 1 2 3
        TILE 6: Directly or indirectly connected routes srip 0 1 2 3
        TILE 7: Directly or indirectly connected routes srip 0 1 2 3
ASIC 0 HSF Table 3 Software info:       FSE 1
        TILE 0: Directly or indirectly connected routes srip 0 1 2 3
        TILE 1: Directly or indirectly connected routes srip 0 1 2 3
        TILE 2: Directly or indirectly connected routes srip 0 1 2 3
        TILE 3: Directly or indirectly connected routes srip 0 1 2 3
        TILE 4: Directly or indirectly connected routes srip 0 1 2 3
        TILE 5: Directly or indirectly connected routes srip 0 1 2 3
        TILE 6: Directly or indirectly connected routes srip 0 1 2 3
        TILE 7: Directly or indirectly connected routes srip 0 1 2 3
ASIC 0 HSF Table 4 Software info:       FSE 1
        TILE 0: Directly or indirectly connected routes srip 0 1 2 3
        TILE 1: Directly or indirectly connected routes srip 0 1 2 3
        TILE 2: Directly or indirectly connected routes srip 0 1 2 3
        TILE 3: Directly or indirectly connected routes srip 0 1 2 3
        TILE 4: Directly or indirectly connected routes srip 0 1 2 3
        TILE 5: Directly or indirectly connected routes srip 0 1 2 3
        TILE 6: Directly or indirectly connected routes srip 0 1 2 3
        TILE 7: Directly or indirectly connected routes srip 0 1 2 3
OVF Info
--------
Table 0 info:   FSE0: 0, FSE1: 255      #hwmabs: 24, #swmabs: 24
        MAB  0: Unicast MAC addresses srip 0 1 2 3      MAB  1: Unicast MAC addresses srip
 0 1 2 3
        MAB  2: Unicast MAC addresses srip 0 1 2 3      MAB  3: Unicast MAC addresses srip
 0 1 2 3
        MAB  4: Unicast MAC addresses srip 0 1 2 3      MAB  5: Unicast MAC addresses srip
 0 1 2 3
        MAB  6: Unicast MAC addresses srip 0 1 2 3      MAB  7: Unicast MAC addresses srip
 0 1 2 3
        MAB  8: Unicast MAC addresses srip 0 1 2 3      MAB  9: Unicast MAC addresses srip
```

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 0 1 2 3
       MAB 10: Unicast MAC addresses srip 0 1 2 3      MAB 11: Unicast MAC addresses srip
 0 1 2 3
       MAB 12: Unicast MAC addresses srip 0 1 2 3      MAB 13: Unicast MAC addresses srip
 0 1 2 3
       MAB 14: Unicast MAC addresses srip 0 1 2 3      MAB 15: Unicast MAC addresses srip
 0 1 2 3
       MAB 16: Unicast MAC addresses srip 0 1 2 3      MAB 17: Unicast MAC addresses srip
 0 1 2 3
       MAB 18: Unicast MAC addresses srip 0 1 2 3      MAB 19: Unicast MAC addresses srip
 0 1 2 3
       MAB 20: Unicast MAC addresses srip 0 1 2 3      MAB 21: Unicast MAC addresses srip
 0 1 2 3
       MAB 22: Unicast MAC addresses srip 0 1 2 3      MAB 23: Unicast MAC addresses srip
 0 1 2 3
Table 1 info:   FSE0: 1, FSE1: 255      #hwmabs: 24, #swmabs: 24
       MAB  0: Directly or indirectly connected routes srip 0 1 2 3    MAB  1: Directly
or indirectly connected routes srip 0 1 2 3
       MAB  2: Directly or indirectly connected routes srip 0 1 2 3    MAB  3: Directly
or indirectly connected routes srip 0 1 2 3
       MAB  4: Directly or indirectly connected routes srip 0 1 2 3    MAB  5: Directly
or indirectly connected routes srip 0 1 2 3
       MAB  6: Directly or indirectly connected routes srip 0 1 2 3    MAB  7: Directly
or indirectly connected routes srip 0 1 2 3
       MAB  8: Directly or indirectly connected routes srip 0 1 2 3    MAB  9: Directly
or indirectly connected routes srip 0 1 2 3
       MAB 10: Directly or indirectly connected routes srip 0 1 2 3    MAB 11: Directly
or indirectly connected routes srip 0 1 2 3
       MAB 12: Directly or indirectly connected routes srip 0 1 2 3    MAB 13: Directly
or indirectly connected routes srip 0 1 2 3
       MAB 14: Directly or indirectly connected routes srip 0 1 2 3    MAB 15: Directly
or indirectly connected routes srip 0 1 2 3
       MAB 16: Directly or indirectly connected routes srip 0 1 2 3    MAB 17: Directly
or indirectly connected routes srip 0 1 2 3
       MAB 18: Directly or indirectly connected routes srip 0 1 2 3    MAB 19: Directly
or indirectly connected routes srip 0 1 2 3
       MAB 20: Directly or indirectly connected routes srip 0 1 2 3    MAB 21: Directly
or indirectly connected routes srip 0 1 2 3
       MAB 22: Directly or indirectly connected routes srip 0 1 2 3    MAB 23: Directly
or indirectly connected routes srip 0 1 2 3
Table 2 info:   FSE0: 1, FSE1: 255      #hwmabs: 24, #swmabs: 24
       MAB  0: Directly or indirectly connected routes srip 0 1 2 3    MAB  1: Directly
or indirectly connected routes srip 0 1 2 3
       MAB  2: Directly or indirectly connected routes srip 0 1 2 3    MAB  3: Directly
or indirectly connected routes srip 0 1 2 3
       MAB  4: Directly or indirectly connected routes srip 0 1 2 3    MAB  5: Directly
or indirectly connected routes srip 0 1 2 3
       MAB  6: Directly or indirectly connected routes srip 0 1 2 3    MAB  7: Directly
or indirectly connected routes srip 0 1 2 3
       MAB  8: Directly or indirectly connected routes srip 0 1 2 3    MAB  9: Directly
or indirectly connected routes srip 0 1 2 3
       MAB 10: Directly or indirectly connected routes srip 0 1 2 3    MAB 11: Directly
or indirectly connected routes srip 0 1 2 3
       MAB 12: Directly or indirectly connected routes srip 0 1 2 3    MAB 13: Directly
or indirectly connected routes srip 0 1 2 3
       MAB 14: Directly or indirectly connected routes srip 0 1 2 3    MAB 15: Directly
or indirectly connected routes srip 0 1 2 3
       MAB 16: Directly or indirectly connected routes srip 0 1 2 3    MAB 17: Directly
or indirectly connected routes srip 0 1 2 3
       MAB 18: Directly or indirectly connected routes srip 0 1 2 3    MAB 19: Directly
or indirectly connected routes srip 0 1 2 3
       MAB 20: Directly or indirectly connected routes srip 0 1 2 3    MAB 21: Directly
or indirectly connected routes srip 0 1 2 3
       MAB 22: Directly or indirectly connected routes srip 0 1 2 3    MAB 23: Directly
```

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or indirectly connected routes srip 0 1 2 3
Table 3 info:   FSE0: 2, FSE1: 255      #hwmabs: 24, #swmabs: 24
        MAB  0: SGT_DGT         srip 0 1 2 3    MAB  1: SGT_DGT         srip 0 1 2 3
        MAB  2: SGT_DGT         srip 0 1 2 3    MAB  3: SGT_DGT         srip 0 1 2 3
        MAB  4: SGT_DGT         srip 0 1 2 3    MAB  5: SGT_DGT         srip 0 1 2 3
        MAB  6: SGT_DGT         srip 0 1 2 3    MAB  7: SGT_DGT         srip 0 1 2 3
        MAB  8: SGT_DGT         srip 0 1 2 3    MAB  9: SGT_DGT         srip 0 1 2 3
        MAB 10: SGT_DGT         srip 0 1 2 3    MAB 11: SGT_DGT         srip 0 1 2 3
        MAB 12: SGT_DGT         srip 0 1 2 3    MAB 13: SGT_DGT         srip 0 1 2 3
        MAB 14: SGT_DGT         srip 0 1 2 3    MAB 15: SGT_DGT         srip 0 1 2 3
        MAB 16: SGT_DGT         srip 0 1 2 3    MAB 17: SGT_DGT         srip 0 1 2 3
        MAB 18: SGT_DGT         srip 0 1 2 3    MAB 19: SGT_DGT         srip 0 1 2 3
        MAB 20: SGT_DGT         srip 0 1 2 3    MAB 21: SGT_DGT         srip 0 1 2 3
        MAB 22: SGT_DGT         srip 0 1 2 3    MAB 23: SGT_DGT         srip 0 1 2 3
TLQ Info
--------
Table 0 info:   FSE0: 255, FSE1: 255    #hwmabs: 4, #swmabs: 4
        MAB  0: (null)          srip    MAB  1: (null)          srip
        MAB  2: (null)          srip    MAB  3: (null)          srip
Table 1 info:   FSE0: 255, FSE1: 255    #hwmabs: 4, #swmabs: 4
        MAB  0: (null)          srip    MAB  1: (null)          srip
        MAB  2: (null)          srip    MAB  3: (null)          srip
TAQ Info
--------
Table 0 (TAQ) info:     ASE: 0  #hwmabs: 4
        MAB 0: Input Ipv4 Security Access Control Entries srip 0 2      MAB 1: Input Ipv4
Security Access Control Entries srip 0 2
        MAB 2: Input Ipv4 Security Access Control Entries srip 0 2      MAB 3: Input Ipv4
Security Access Control Entries srip 0 2
Table 1 (TAQ) info:     ASE: 0  #hwmabs: 4
        MAB 0: Input Ipv4 Security Access Control Entries srip 0 2      MAB 1: Input Ipv4
Security Access Control Entries srip 0 2
        MAB 2: Input Ipv4 Security Access Control Entries srip 0 2      MAB 3: Input Ipv4
Security Access Control Entries srip 0 2
Table 2 (TAQ) info:     ASE: 0  #hwmabs: 4
        MAB 0: Output Ipv4 Security Access Control Entries srip 1 3     MAB 1: Output Ipv4
 Security Access Control Entries srip 1 3
        MAB 2: Output Ipv4 Security Access Control Entries srip 1 3     MAB 3: Output Ipv4
 Security Access Control Entries srip 1 3
Table 3 (TAQ) info:     ASE: 0  #hwmabs: 4
        MAB 0: Output Ipv4 Security Access Control Entries srip 1 3     MAB 1: Output Ipv4
 Security Access Control Entries srip 1 3
        MAB 2: Output Ipv4 Security Access Control Entries srip 1 3     MAB 3: Output Ipv4
 Security Access Control Entries srip 1 3
Table 4 (TAQ) info:     ASE: 0  #hwmabs: 4
        MAB 0: Output Ipv4 Security Access Control Entries srip 1 3     MAB 1: Output Ipv4
 Security Access Control Entries srip 1 3
        MAB 2: Output Ipv4 Security Access Control Entries srip 1 3     MAB 3: Output Ipv4
 Security Access Control Entries srip 1 3
Table 5 (TAQ) info:     ASE: 0  #hwmabs: 4
        MAB 0: Output Non Ipv4 Security Access Control Entries srip 1 3         MAB 1:
Output Non Ipv4 Security Access Control Entries srip 1 3
        MAB 2: Output Non Ipv4 Security Access Control Entries srip 1 3         MAB 3:
Output Non Ipv4 Security Access Control Entries srip 1 3
Table 6 (TAQ) info:     ASE: 0  #hwmabs: 4
        MAB 0: Output Non Ipv4 Security Access Control Entries srip 1 3         MAB 1:
Output Non Ipv4 Security Access Control Entries srip 1 3
        MAB 2: Output Non Ipv4 Security Access Control Entries srip 1 3         MAB 3:
Output Non Ipv4 Security Access Control Entries srip 1 3
Table 7 (TAQ) info:     ASE: 0  #hwmabs: 4
        MAB 0: Output Non Ipv4 Security Access Control Entries srip 1 3         MAB 1:
Output Non Ipv4 Security Access Control Entries srip 1 3
        MAB 2: Output Non Ipv4 Security Access Control Entries srip 1 3         MAB 3:
Output Non Ipv4 Security Access Control Entries srip 1 3
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Table 8 (TAQ) info:     ASE: 0  #hwmabs: 4
        MAB 0: Output Non Ipv4 Security Access Control Entries srip 1 3         MAB 1:
Output Non Ipv4 Security Access Control Entries srip 1 3
        MAB 2: Output Non Ipv4 Security Access Control Entries srip 1 3         MAB 3:
Output Non Ipv4 Security Access Control Entries srip 1 3
Table 9 (TAQ) info:     ASE: 0  #hwmabs: 32
        MAB 0: Input Ipv4 Security Access Control Entries srip 0 2      MAB 1: Input Ipv4
Security Access Control Entries srip 0 2
        MAB 2: Input Ipv4 Security Access Control Entries srip 0 2      MAB 3: Input Ipv4
Security Access Control Entries srip 0 2
        MAB 4: Input Ipv4 Security Access Control Entries srip 0 2      MAB 5: Input Ipv4
Security Access Control Entries srip 0 2
        MAB 6: Input Ipv4 Security Access Control Entries srip 0 2      MAB 7: Input Ipv4
Security Access Control Entries srip 0 2
        MAB 8: Input Ipv4 Security Access Control Entries srip 0 2      MAB 9: Input Ipv4
Security Access Control Entries srip 0 2
        MAB 10: Input Ipv4 Security Access Control Entries srip 0 2     MAB 11: Input Ipv4
 Security Access Control Entries srip 0 2
        MAB 12: Input Ipv4 Security Access Control Entries srip 0 2     MAB 13: Input Ipv4
 Security Access Control Entries srip 0 2
        MAB 14: Input Ipv4 Security Access Control Entries srip 0 2     MAB 15: Input Ipv4
 Security Access Control Entries srip 0 2
        MAB 16: Input Ipv4 Security Access Control Entries srip 0 2     MAB 17: Input Ipv4
 Security Access Control Entries srip 0 2
        MAB 18: Input Non Ipv4 Security Access Control Entries srip 0 2         MAB 19:
Input Non Ipv4 Security Access Control Entries srip 0 2
        MAB 20: Input Non Ipv4 Security Access Control Entries srip 0 2         MAB 21:
Input Non Ipv4 Security Access Control Entries srip 0 2
        MAB 22: Input Non Ipv4 Security Access Control Entries srip 0 2         MAB 23:
Input Non Ipv4 Security Access Control Entries srip 0 2
        MAB 24: Input Non Ipv4 Security Access Control Entries srip 0 2         MAB 25:
Input Non Ipv4 Security Access Control Entries srip 0 2
        MAB 26: Input Non Ipv4 Security Access Control Entries srip 0 2         MAB 27:
Input Non Ipv4 Security Access Control Entries srip 0 2
        MAB 28: Input Non Ipv4 Security Access Control Entries srip 0 2         MAB 29:
Input Non Ipv4 Security Access Control Entries srip 0 2
        MAB 30: Input Non Ipv4 Security Access Control Entries srip 0 2         MAB 31:
Input Non Ipv4 Security Access Control Entries srip 0 2
Table 10 (TAQ) info:    ASE: 0  #hwmabs: 32
        MAB 0: Output Ipv4 Security Access Control Entries srip 1 3     MAB 1: Output Ipv4
 Security Access Control Entries srip 1 3
        MAB 2: Output Ipv4 Security Access Control Entries srip 1 3     MAB 3: Output Ipv4
 Security Access Control Entries srip 1 3
        MAB 4: Output Ipv4 Security Access Control Entries srip 1 3     MAB 5: Output Ipv4
 Security Access Control Entries srip 1 3
        MAB 6: Output Ipv4 Security Access Control Entries srip 1 3     MAB 7: Output Ipv4
 Security Access Control Entries srip 1 3
        MAB 8: Output Ipv4 Security Access Control Entries srip 1 3     MAB 9: Output Ipv4
 Security Access Control Entries srip 1 3
       MAB 10: Output Ipv4 Security Access Control Entries srip 1 3    MAB 11: Output Ipv4
 Security Access Control Entries srip 1 3
       MAB 12: Output Ipv4 Security Access Control Entries srip 1 3    MAB 13: Output Ipv4
 Security Access Control Entries srip 1 3
        MAB 14: Output Non Ipv4 Security Access Control Entries srip 1 3        MAB 15:
Output Non Ipv4 Security Access Control Entries srip 1 3
        MAB 16: Output Non Ipv4 Security Access Control Entries srip 1 3        MAB 17:
Output Non Ipv4 Security Access Control Entries srip 1 3
        MAB 18: Output Non Ipv4 Security Access Control Entries srip 1 3        MAB 19:
Output Non Ipv4 Security Access Control Entries srip 1 3
        MAB 20: Output Non Ipv4 Security Access Control Entries srip 1 3        MAB 21:
Output Non Ipv4 Security Access Control Entries srip 1 3
        MAB 22: Output Non Ipv4 Security Access Control Entries srip 1 3        MAB 23:
Output Non Ipv4 Security Access Control Entries srip 1 3
        MAB 24: Output Non Ipv4 Security Access Control Entries srip 1 3        MAB 25:
```

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Output Non Ipv4 Security Access Control Entries srip 1 3
        MAB 26: Output Non Ipv4 Security Access Control Entries srip 1 3        MAB 27:
Output Non Ipv4 Security Access Control Entries srip 1 3
        MAB 28: Output Non Ipv4 Security Access Control Entries srip 1 3        MAB 29:
Output Non Ipv4 Security Access Control Entries srip 1 3
        MAB 30: Output Non Ipv4 Security Access Control Entries srip 1 3        MAB 31:
Output Non Ipv4 Security Access Control Entries srip 1 3
Table 11 (TAQ) info:    ASE: 0  #hwmabs: 4
        MAB 0: Input Non Ipv4 Security Access Control Entries srip 0 2  MAB 1: Input Non
Ipv4 Security Access Control Entries srip 0 2
        MAB 2: Input Non Ipv4 Security Access Control Entries srip 0 2  MAB 3: Input Non
Ipv4 Security Access Control Entries srip 0 2
Table 12 (TAQ) info:    ASE: 0  #hwmabs: 4
        MAB 0: Input Non Ipv4 Security Access Control Entries srip 0 2  MAB 1: Input Non
Ipv4 Security Access Control Entries srip 0 2
        MAB 2: Input Non Ipv4 Security Access Control Entries srip 0 2  MAB 3: Input Non
Ipv4 Security Access Control Entries srip 0 2
ASIC 1 Info
------------
ASIC 1 HSN Table 0 Software info:       FSE 255
        TILE 0: (null)          srip
        TILE 1: (null)          srip
ASIC 1 HSN Table 1 Software info:       FSE 255
        TILE 0: (null)          srip
        TILE 1: (null)          srip
ASIC 1 HSN Table 2 Software info:       FSE 2
        TILE 0: L3 Multicast entries srip 0 1 2 3
        TILE 1: L3 Multicast entries srip 0 1 2 3
ASIC 1 HSN Table 3 Software info:       FSE 2
        TILE 0: L3 Multicast entries srip 0 1 2 3
        TILE 1: L3 Multicast entries srip 0 1 2 3
ASIC 1 HSN Table 4 Software info:       FSE 255
        TILE 0: (null)          srip
        TILE 1: (null)          srip
ASIC 1 HSN Table 5 Software info:       FSE 255
        TILE 0: (null)          srip
        TILE 1: (null)          srip
ASIC 1 HSN Table 6 Software info:       FSE 1
        TILE 0: Directly or indirectly connected routes srip 0 1 2 3
        TILE 1: Directly or indirectly connected routes srip 0 1 2 3
ASIC 1 HSN Table 7 Software info:       FSE 1
        TILE 0: Directly or indirectly connected routes srip 0 1 2 3
        TILE 1: Directly or indirectly connected routes srip 0 1 2 3
ASIC 1 HSF Table 0 Software info:       FSE 1
        TILE 0: Directly or indirectly connected routes srip 0 1 2 3
        TILE 1: Directly or indirectly connected routes srip 0 1 2 3
        TILE 2: Directly or indirectly connected routes srip 0 1 2 3
        TILE 3: Directly or indirectly connected routes srip 0 1 2 3
        TILE 4: Directly or indirectly connected routes srip 0 1 2 3
        TILE 5: Directly or indirectly connected routes srip 0 1 2 3
        TILE 6: Directly or indirectly connected routes srip 0 1 2 3
        TILE 7: Directly or indirectly connected routes srip 0 1 2 3
ASIC 1 HSF Table 1 Software info:       FSE 1
        TILE 0: Directly or indirectly connected routes srip 0 1 2 3
        TILE 1: Directly or indirectly connected routes srip 0 1 2 3
        TILE 2: Directly or indirectly connected routes srip 0 1 2 3
        TILE 3: Directly or indirectly connected routes srip 0 1 2 3
        TILE 4: Directly or indirectly connected routes srip 0 1 2 3
        TILE 5: Directly or indirectly connected routes srip 0 1 2 3
        TILE 6: Directly or indirectly connected routes srip 0 1 2 3
        TILE 7: Directly or indirectly connected routes srip 0 1 2 3
ASIC 1 HSF Table 2 Software info:       FSE 1
        TILE 0: Directly or indirectly connected routes srip 0 1 2 3
        TILE 1: Directly or indirectly connected routes srip 0 1 2 3
```

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        TILE 2: Directly or indirectly connected routes srip 0 1 2 3
        TILE 3: Directly or indirectly connected routes srip 0 1 2 3
        TILE 4: Directly or indirectly connected routes srip 0 1 2 3
        TILE 5: Directly or indirectly connected routes srip 0 1 2 3
        TILE 6: Directly or indirectly connected routes srip 0 1 2 3
        TILE 7: Directly or indirectly connected routes srip 0 1 2 3
ASIC 1 HSF Table 3 Software info:       FSE 1
        TILE 0: Directly or indirectly connected routes srip 0 1 2 3
        TILE 1: Directly or indirectly connected routes srip 0 1 2 3
        TILE 2: Directly or indirectly connected routes srip 0 1 2 3
        TILE 3: Directly or indirectly connected routes srip 0 1 2 3
        TILE 4: Directly or indirectly connected routes srip 0 1 2 3
        TILE 5: Directly or indirectly connected routes srip 0 1 2 3
        TILE 6: Directly or indirectly connected routes srip 0 1 2 3
        TILE 7: Directly or indirectly connected routes srip 0 1 2 3
ASIC 1 HSF Table 4 Software info:       FSE 1
        TILE 0: Directly or indirectly connected routes srip 0 1 2 3
        TILE 1: Directly or indirectly connected routes srip 0 1 2 3
        TILE 2: Directly or indirectly connected routes srip 0 1 2 3
        TILE 3: Directly or indirectly connected routes srip 0 1 2 3
        TILE 4: Directly or indirectly connected routes srip 0 1 2 3
        TILE 5: Directly or indirectly connected routes srip 0 1 2 3
        TILE 6: Directly or indirectly connected routes srip 0 1 2 3
        TILE 7: Directly or indirectly connected routes srip 0 1 2 3
OVF Info
--------
Table 0 info:   FSE0: 2, FSE1: 255      #hwmabs: 24, #swmabs: 24
        MAB  0: L3 Multicast entries srip 0 1 2 3       MAB  1: L3 Multicast entries srip
0 1 2 3
        MAB  2: L3 Multicast entries srip 0 1 2 3       MAB  3: L3 Multicast entries srip
0 1 2 3
        MAB  4: L3 Multicast entries srip 0 1 2 3       MAB  5: L3 Multicast entries srip
0 1 2 3
        MAB  6: L3 Multicast entries srip 0 1 2 3       MAB  7: L3 Multicast entries srip
0 1 2 3
        MAB  8: L3 Multicast entries srip 0 1 2 3       MAB  9: L3 Multicast entries srip
0 1 2 3
        MAB 10: L3 Multicast entries srip 0 1 2 3       MAB 11: L3 Multicast entries srip
0 1 2 3
        MAB 12: L3 Multicast entries srip 0 1 2 3       MAB 13: L3 Multicast entries srip
0 1 2 3
        MAB 14: L3 Multicast entries srip 0 1 2 3       MAB 15: L3 Multicast entries srip
0 1 2 3
        MAB 16: L3 Multicast entries srip 0 1 2 3       MAB 17: L3 Multicast entries srip
0 1 2 3
        MAB 18: L3 Multicast entries srip 0 1 2 3       MAB 19: L3 Multicast entries srip
0 1 2 3
        MAB 20: L3 Multicast entries srip 0 1 2 3       MAB 21: L3 Multicast entries srip
0 1 2 3
        MAB 22: L3 Multicast entries srip 0 1 2 3       MAB 23: L3 Multicast entries srip
0 1 2 3
Table 1 info:   FSE0: 1, FSE1: 255      #hwmabs: 24, #swmabs: 24
        MAB  0: L2 Multicast entries srip 1 3   MAB  1: L2 Multicast entries srip 1 3
        MAB  2: L2 Multicast entries srip 1 3   MAB  3: L2 Multicast entries srip 1 3
        MAB  4: L2 Multicast entries srip 1 3   MAB  5: L2 Multicast entries srip 1 3
        MAB  6: L2 Multicast entries srip 1 3   MAB  7: L2 Multicast entries srip 1 3
        MAB  8: L2 Multicast entries srip 1 3   MAB  9: L2 Multicast entries srip 1 3
        MAB 10: L2 Multicast entries srip 1 3   MAB 11: L2 Multicast entries srip 1 3
        MAB 12: L2 Multicast entries srip 1 3   MAB 13: L2 Multicast entries srip 1 3
        MAB 14: L2 Multicast entries srip 1 3   MAB 15: L2 Multicast entries srip 1 3
        MAB 16: L2 Multicast entries srip 1 3   MAB 17: L2 Multicast entries srip 1 3
        MAB 18: L2 Multicast entries srip 1 3   MAB 19: L2 Multicast entries srip 1 3
        MAB 20: L2 Multicast entries srip 1 3   MAB 21: L2 Multicast entries srip 1 3
        MAB 22: L2 Multicast entries srip 1 3   MAB 23: L2 Multicast entries srip 1 3
```

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Table 2 info:   FSE0: 1, FSE1: 255      #hwmabs: 24, #swmabs: 24
        MAB  0: L2 Multicast entries srip 1 3   MAB  1: L2 Multicast entries srip 1 3
        MAB  2: L2 Multicast entries srip 1 3   MAB  3: L2 Multicast entries srip 1 3
        MAB  4: L2 Multicast entries srip 1 3   MAB  5: L2 Multicast entries srip 1 3
        MAB  6: L2 Multicast entries srip 1 3   MAB  7: L2 Multicast entries srip 1 3
        MAB  8: L2 Multicast entries srip 1 3   MAB  9: L2 Multicast entries srip 1 3
        MAB 10: L2 Multicast entries srip 1 3   MAB 11: L2 Multicast entries srip 1 3
        MAB 12: L2 Multicast entries srip 1 3   MAB 13: L2 Multicast entries srip 1 3
        MAB 14: L2 Multicast entries srip 1 3   MAB 15: L2 Multicast entries srip 1 3
        MAB 16: L2 Multicast entries srip 1 3   MAB 17: L2 Multicast entries srip 1 3
        MAB 18: L2 Multicast entries srip 1 3   MAB 19: L2 Multicast entries srip 1 3
        MAB 20: L2 Multicast entries srip 1 3   MAB 21: L2 Multicast entries srip 1 3
        MAB 22: L2 Multicast entries srip 1 3   MAB 23: L2 Multicast entries srip 1 3
Table 3 info:   FSE0: 1, FSE1: 255      #hwmabs: 24, #swmabs: 24
        MAB  0: L2 Multicast entries srip 1 3   MAB  1: L2 Multicast entries srip 1 3
        MAB  2: L2 Multicast entries srip 1 3   MAB  3: L2 Multicast entries srip 1 3
        MAB  4: L2 Multicast entries srip 1 3   MAB  5: L2 Multicast entries srip 1 3
        MAB  6: L2 Multicast entries srip 1 3   MAB  7: L2 Multicast entries srip 1 3
        MAB  8: L2 Multicast entries srip 1 3   MAB  9: L2 Multicast entries srip 1 3
        MAB 10: L2 Multicast entries srip 1 3   MAB 11: L2 Multicast entries srip 1 3
        MAB 12: L2 Multicast entries srip 1 3   MAB 13: L2 Multicast entries srip 1 3
        MAB 14: L2 Multicast entries srip 1 3   MAB 15: L2 Multicast entries srip 1 3
        MAB 16: L2 Multicast entries srip 1 3   MAB 17: L2 Multicast entries srip 1 3
        MAB 18: L2 Multicast entries srip 1 3   MAB 19: L2 Multicast entries srip 1 3
        MAB 20: L2 Multicast entries srip 1 3   MAB 21: L2 Multicast entries srip 1 3
        MAB 22: L2 Multicast entries srip 1 3   MAB 23: L2 Multicast entries srip 1 3
TLQ Info
--------
Table 0 info:   FSE0: 255, FSE1: 255    #hwmabs: 4, #swmabs: 4
        MAB  0: (null)          srip    MAB  1: (null)          srip
        MAB  2: (null)          srip    MAB  3: (null)          srip
Table 1 info:   FSE0: 255, FSE1: 255    #hwmabs: 4, #swmabs: 4
        MAB  0: (null)          srip    MAB  1: (null)          srip
        MAB  2: (null)          srip    MAB  3: (null)          srip
TAQ Info
--------
Table 0 (TAQ) info:     ASE: 1  #hwmabs: 4
        MAB 0: Ingress Netflow ACEs srip 0 2    MAB 1: Ingress Netflow ACEs srip 0 2
        MAB 2: Ingress Netflow ACEs srip 0 2    MAB 3: Ingress Netflow ACEs srip 0 2
Table 1 (TAQ) info:     ASE: 0  #hwmabs: 4
        MAB 0: Policy Based Routing ACEs srip 0 2       MAB 1: Policy Based Routing ACEs
srip 0 2
        MAB 2: Policy Based Routing ACEs srip 0 2       MAB 3: Policy Based Routing ACEs
srip 0 2
Table 2 (TAQ) info:     ASE: 0  #hwmabs: 4
        MAB 0: Policy Based Routing ACEs srip 0 2       MAB 1: Policy Based Routing ACEs
srip 0 2
        MAB 2: Policy Based Routing ACEs srip 0 2       MAB 3: Policy Based Routing ACEs
srip 0 2
Table 3 (TAQ) info:     ASE: 0  #hwmabs: 4
        MAB 0: Policy Based Routing ACEs srip 0 2       MAB 1: Policy Based Routing ACEs
srip 0 2
        MAB 2: Policy Based Routing ACEs srip 0 2       MAB 3: Policy Based Routing ACEs
srip 0 2
Table 4 (TAQ) info:     ASE: 1  #hwmabs: 4
        MAB 0: Egress Netflow ACEs srip 1 3     MAB 1: Egress Netflow ACEs srip 1 3
        MAB 2: Egress Netflow ACEs srip 1 3     MAB 3: Egress Netflow ACEs srip 1 3
Table 5 (TAQ) info:     ASE: 2  #hwmabs: 4
        MAB 0: Flow SPAN ACEs  srip 0 2         MAB 1: Flow SPAN ACEs  srip 0 2
        MAB 2: Flow Egress SPAN ACEs srip 1 3   MAB 3: Flow Egress SPAN ACEs srip 1 3
Table 6 (TAQ) info:     ASE: 7  #hwmabs: 4
        MAB 0: Control Plane Entries srip 1 3   MAB 1: Control Plane Entries srip 1 3
        MAB 2: Control Plane Entries srip 1 3   MAB 3: Control Plane Entries srip 1 3
Table 7 (TAQ) info:     ASE: 6  #hwmabs: 4
```

```
        MAB 0: Tunnels         srip 0 2         MAB 1: Tunnels         srip 0 2
        MAB 2: Tunnels         srip 0 2         MAB 3: Tunnels         srip 0 2
Table 8 (TAQ) info:     ASE: 6  #hwmabs: 4
        MAB 0: Tunnels         srip 0 2         MAB 1: Tunnels         srip 0 2
        MAB 2: Tunnels         srip 0 2         MAB 3: Tunnels         srip 0 2
Table 9 (TAQ) info:     ASE: 3  #hwmabs: 32
       MAB 0: Input Ipv4 QoS Access Control Entries srip 0 2   MAB 1: Input Ipv4 QoS Access
 Control Entries srip 0 2
       MAB 2: Input Ipv4 QoS Access Control Entries srip 0 2   MAB 3: Input Ipv4 QoS Access
 Control Entries srip 0 2
       MAB 4: Input Ipv4 QoS Access Control Entries srip 0 2   MAB 5: Input Ipv4 QoS Access
 Control Entries srip 0 2
       MAB 6: Input Ipv4 QoS Access Control Entries srip 0 2   MAB 7: Input Ipv4 QoS Access
 Control Entries srip 0 2
       MAB 8: Input Ipv4 QoS Access Control Entries srip 0 2   MAB 9: Input Ipv4 QoS Access
 Control Entries srip 0 2
        MAB 10: Input Ipv4 QoS Access Control Entries srip 0 2  MAB 11: Input Ipv4 QoS
Access Control Entries srip 0 2
        MAB 12: Input Ipv4 QoS Access Control Entries srip 0 2  MAB 13: Input Ipv4 QoS
Access Control Entries srip 0 2
        MAB 14: Input Ipv4 QoS Access Control Entries srip 0 2  MAB 15: Input Ipv4 QoS
Access Control Entries srip 0 2
        MAB 16: Input Ipv4 QoS Access Control Entries srip 0 2  MAB 17: Input Ipv4 QoS
Access Control Entries srip 0 2
        MAB 18: Input Non Ipv4 QoS Access Control Entries srip 0 2      MAB 19: Input Non
Ipv4 QoS Access Control Entries srip 0 2
        MAB 20: Input Non Ipv4 QoS Access Control Entries srip 0 2      MAB 21: Input Non
Ipv4 QoS Access Control Entries srip 0 2
        MAB 22: Input Non Ipv4 QoS Access Control Entries srip 0 2      MAB 23: Input Non
Ipv4 QoS Access Control Entries srip 0 2
        MAB 24: Input Non Ipv4 QoS Access Control Entries srip 0 2      MAB 25: Input Non
Ipv4 QoS Access Control Entries srip 0 2
        MAB 26: Input Non Ipv4 QoS Access Control Entries srip 0 2      MAB 27: Input Non
Ipv4 QoS Access Control Entries srip 0 2
        MAB 28: Input Non Ipv4 QoS Access Control Entries srip 0 2      MAB 29: Input Non
Ipv4 QoS Access Control Entries srip 0 2
        MAB 30: Input Non Ipv4 QoS Access Control Entries srip 0 2      MAB 31: Input Non
Ipv4 QoS Access Control Entries srip 0 2
Table 10 (TAQ) info:    ASE: 3  #hwmabs: 32
        MAB 0: Output Ipv4 QoS Access Control Entries srip 1 3  MAB 1: Output Ipv4 QoS
Access Control Entries srip 1 3
        MAB 2: Output Ipv4 QoS Access Control Entries srip 1 3  MAB 3: Output Ipv4 QoS
Access Control Entries srip 1 3
        MAB 4: Output Ipv4 QoS Access Control Entries srip 1 3  MAB 5: Output Ipv4 QoS
Access Control Entries srip 1 3
        MAB 6: Output Ipv4 QoS Access Control Entries srip 1 3  MAB 7: Output Ipv4 QoS
Access Control Entries srip 1 3
        MAB 8: Output Ipv4 QoS Access Control Entries srip 1 3  MAB 9: Output Ipv4 QoS
Access Control Entries srip 1 3
        MAB 10: Output Ipv4 QoS Access Control Entries srip 1 3         MAB 11: Output Ipv4
 QoS Access Control Entries srip 1 3
        MAB 12: Output Ipv4 QoS Access Control Entries srip 1 3         MAB 13: Output Ipv4
 QoS Access Control Entries srip 1 3
        MAB 14: Output Ipv4 QoS Access Control Entries srip 1 3         MAB 15: Output Ipv4
 QoS Access Control Entries srip 1 3
        MAB 16: Output Ipv4 QoS Access Control Entries srip 1 3         MAB 17: Output Ipv4
 QoS Access Control Entries srip 1 3
        MAB 18: Output Non Ipv4 QoS Access Control Entries srip 1 3     MAB 19: Output Non
 Ipv4 QoS Access Control Entries srip 1 3
        MAB 20: Output Non Ipv4 QoS Access Control Entries srip 1 3     MAB 21: Output Non
 Ipv4 QoS Access Control Entries srip 1 3
        MAB 22: Output Non Ipv4 QoS Access Control Entries srip 1 3     MAB 23: Output Non
 Ipv4 QoS Access Control Entries srip 1 3
        MAB 24: Output Non Ipv4 QoS Access Control Entries srip 1 3     MAB 25: Output Non
```

```
 Ipv4 QoS Access Control Entries srip 1 3
        MAB 26: Output Non Ipv4 QoS Access Control Entries srip 1 3     MAB 27: Output Non
 Ipv4 QoS Access Control Entries srip 1 3
        MAB 28: Output Non Ipv4 QoS Access Control Entries srip 1 3     MAB 29: Output Non
 Ipv4 QoS Access Control Entries srip 1 3
        MAB 30: Output Non Ipv4 QoS Access Control Entries srip 1 3     MAB 31: Output Non
 Ipv4 QoS Access Control Entries srip 1 3
Table 11 (TAQ) info:    ASE: 6  #hwmabs: 4
        MAB 0: Tunnels          srip 0 2         MAB 1: Tunnels          srip 0 2
        MAB 2: Tunnels          srip 0 2         MAB 3: Macsec SPD       srip 1 3
Table 12 (TAQ) info:    ASE: 5  #hwmabs: 4
       MAB 0: Lisp Instance Mapping Entries srip 0 2   MAB 1: Lisp Instance Mapping Entries
 srip 0 2
       MAB 2: Lisp Instance Mapping Entries srip 0 2   MAB 3: Lisp Instance Mapping Entries
 srip 0 2
```

show platform hardware fed switch forward

To display device-specific hardware information, use the **show platform hardware fed switch** *switch_number* command.

This topic elaborates only the forwarding-specific options, that is, the options available with the **show platform hardware fed switch** {*switch_num* | **active** | **standby** } **forward summary** command.

The output of the **show platform hardware fed switch** *switch_number* **forward summary** displays all the details about the forwarding decision taken for the packet.

show platform hardware fed switch *switch_num* | **active** | **standby** **forward summary**

Syntax Description

switch {*switch_num* | **active** | **standby** }	The switch for which you want to display information. You have the following options : • *switch_num*—ID of the switch. • **active**—Displays information relating to the active switch. • **standby**—Displays information relating to the standby switch, if available.
forward summary	Displays packet forwarding information. **Note** Support for the keyword **summary** has been discontinued in the Cisco IOS XE Everest 16.6.1 release and later releases.

Command Modes

Privileged EXEC

Command History

Release	Modification
Cisco IOS XE Everest 16.5.1a	This command was introduced.
Cisco IOS XE Everest 16.6.1 and later releases	Supprort for the keyword **summary** was discontinued.

Usage Guidelines

Do not use this command unless a technical support representative asks you to. Use this command only when you are working directly with a technical support representative while troubleshooting a problem.

Fields displayed in the command output are explained below.

- Station Index : The Station Index is the result of the layer 2 lookup and points to a station descriptor which provides the following:
  - Destination Index : Determines the egress port(s) to which the packets should be sent to. Global Port Number(GPN) can be used as the destination index. A destination index with15 down to 12 bits set indicates the GPN to be used. For example, destination index - 0xF04E corresponds to GPN - 78 (0x4e).
  - Rewrite Index : Determines what needs to be done with the packets. For layer 2 switching, this is typically a bridging action

- Flexible Lookup Pipeline Stages(FPS) : Indicates the forwarding decision that was taken for the packet - routing or bridging
- Replication Bit Map : Determines if the packets should be sent to CPU or stack
  - Local Data Copy = 1
  - Remote Data copy = 0
  - Local CPU Copy = 0
  - Remote CPU Copy = 0

Example

This is an example of output from the **show platform hardware fed switch** {*switch_num* | **active** | **standby** } **forward summary** command.

```
Device#show platform hardware fed switch 1 forward summary
Time: Fri Sep 16 08:25:00 PDT 2016

Incomming Packet Details:

###[ Ethernet ]###
  dst       = 00:51:0f:f2:0e:11
  src       = 00:1d:01:85:ba:22
  type      = ARP
###[ ARP ]###
     hwtype    = 0x1
     ptype     = IPv4
     hwlen     = 6
     plen      = 4
     op        = is-at
     hwsrc     = 00:1d:01:85:ba:22
     psrc      = 10.10.1.33
     hwdst     = 00:51:0f:f2:0e:11
     pdst      = 10.10.1.1

Ingress:
Switch             : 1
Port               : GigabitEthernet1/0/1
Global Port Number : 1
Local Port Number  : 1
Asic Port Number   : 21
ASIC Number        : 0
STP state          :
                     blkLrn31to0: 0xffdfffdf
                     blkFwd31to0: 0xffdfffdf
Vlan               : 1
Station Descriptor : 170
DestIndex          : 0xF009
DestModIndex       : 2
RewriteIndex       : 2
Forwarding Decision: FPS 2A L2 Destination

Replication Bitmap:
Local CPU copy     : 0
Local Data copy    : 1
Remote CPU copy    : 0
Remote Data copy   : 0
```

```
Egress:
Switch             : 1
Outgoing Port      : GigabitEthernet1/0/9
Global Port Number : 9
ASIC Number        : 0
Vlan               : 1
```

show platform resources

To display platform resource information, use the **show platform reources** command in privileged EXEC mode.

show platform resources

This command has no arguments or keywords.

Command Modes

Privileged EXEC (#)

Command History

Release	Modification
Cisco IOS XE Everest 16.5.1a	This command was introduced.

Usage Guidelines

The output of this command displays the used memory, which is total memory minus the accurate free memory.

Example

The following is sample output from the **show platform resources** command:

```
Switch# show platform resources

**State Acronym: H - Healthy, W - Warning, C - Critical

Resource                Usage                Max            Warning         Critical
     State
------------------------------------------------------------------------------------------------

 Control Processor      7.20%                100%           90%             95%
     H
  DRAM                  2701MB(69%)          3883MB         90%             95%
     H
```

show platform software ilpower

To display the inline power details of all the PoE ports on the device, use the **show platform software ilpower** command in privileged EXEC mode.

show platform software ilpower {**details** | **port** {**GigabitEthernet** *interface-number* } | **system** *slot-number* }

Syntax Description

details	Displays inline power details for all the interfaces.
port	Displays inline power port configuration.
GigabitEthernet *interface-number*	The GigabitEthernet interface number. Values range from 0 to 9.
system *slot-number*	Displays inline power system configuration.

Command Modes

Privileged EXEC (#)

Command History

Release	Modification
Cisco IOS XE Everest 16.5.1a	The command was introduced.

Examples

The following is sample output from the **show platform software ilpower details** command:

```
Device# show platform software ilpower details
ILP Port Configuration for interface Gi1/0/1
    Initialization Done:   Yes
    ILP Supported:         Yes
    ILP Enabled:           Yes
    POST:                  Yes
    Detect On:             No
    Powered Device Detected            No
    Powered Device Class Done          No
    Cisco Powered Device:              No
    Power is On:           No
    Power Denied:          No
    Powered Device Type:               Null
    Powerd Device Class:              Null
    Power State:           NULL
    Current State:         NGWC_ILP_DETECTING_S
    Previous State:        NGWC_ILP_SHUT_OFF_S
    Requested Power in milli watts:       0
    Short Circuit Detected:                 0
    Short Circuit Count:             0
    Cisco Powerd Device Detect Count: 0
    Spare Pair mode:       0
        IEEE Detect:       Stopped
        IEEE Short:        Stopped
        Link Down:         Stopped
        Voltage sense:            Stopped
    Spare Pair Architecture:       1
    Signal Pair Power allocation in milli watts: 0
    Spare Pair Power On:   0
    Powered Device power state:        0
    Timer:
```

```
Power Good:        Stopped
Power Denied:      Stopped
Cisco Powered Device Detect:   Stopped
```

show platform software process list

To display the list of running processes on a platform, use the **show platform software process list** command in privileged EXEC mode.

show platform software process list switch *switch-number* | **active** | **standby 0** | **F0** | **R0** [**name** *process-name* | **process-id** *process-ID* | **sort memory** | **summary**]

Syntax Description

switch *switch-number*	Displays information about the switch. Valid values for *switch-number* argument are from 0 to 9.
active	Displays information about the active instance of the switch.
standby	Displays information about the standby instance of the switch.
0	Displays information about the shared port adapters (SPA) Interface Processor slot 0.
F0	Displays information about the Embedded Service Processor (ESP) slot 0.
R0	Displays information about the Route Processor (RP) slot 0.
name *process-name*	(Optional) Displays information about the specified process.
process-id *process-ID*	(Optional) Displays information about the specified process ID.
sort	(Optional) Displays information sorted according to processes.
memory	(Optional) Displays information sorted according to memory.
summary	(Optional) Displays a summary of the process memory of the host device.

Command Modes

Privileged EXE (#)

Command History

Release	Modification
Cisco IOS XE Everest 16.5.1a	The command was introduced.

Usage Guidelines

Prior to Cisco IOS XE Denali 16.3.1, the Free Memory displayed in the command output was obtained from the underlying Linux kernel. This value was not accurate because some memory chunks that was available for use was not considered as free memory.

In Cisco IOS XE Denali 16.3.1, the free memory is accurately computed and displayed in the Free Memory field of the command output.

Examples

The following is sample output from the **show platform software process list switch active R0** command:

```
Switch# show platform software process list switch active R0 summary

Total number of processes: 278
  Running          : 2
```

```
Sleeping         : 276
Disk sleeping    : 0
Zombies          : 0
Stopped          : 0
Paging           : 0

Up time          : 8318
Idle time        : 0
User time        : 216809
Kernel time      : 78931

Virtual memory   : 12933324800
Pages resident   : 634061
Major page faults: 2228
Minor page faults: 3491744

Architecture     : mips64
Memory (kB)
  Physical       : 3976852
  Total          : 3976852
  Used           : 2766952
  Free           : 1209900
  Active         : 2141344
  Inactive       : 1589672
  Inact-dirty    : 0
  Inact-clean    : 0
  Dirty          : 4
  AnonPages      : 1306800
  Bounce         : 0
  Cached         : 1984688
  Commit Limit   : 1988424
  Committed As   : 3358528
  High Total     : 0
  High Free      : 0
  Low Total      : 3976852
  Low Free       : 1209900
  Mapped         : 520528
  NFS Unstable   : 0
  Page Tables    : 17328
  Slab           : 0
  VMmalloc Chunk : 1069542588
  VMmalloc Total : 1069547512
  VMmalloc Used  : 2588
  Writeback      : 0
  HugePages Total: 0
  HugePages Free : 0
  HugePages Rsvd : 0
  HugePage Size  : 2048

Swap (kB)
  Total          : 0
  Used           : 0
  Free           : 0
  Cached         : 0

Buffers (kB)     : 439528

Load Average
  1-Min          : 1.13
  5-Min          : 1.18
  15-Min         : 0.92
```

show platform software process slot switch

To display platform software process switch information, use the **show platform software process slot switch** command in privileged EXEC mode.

show platform software process slot switch *switch-number* | **active** | **standby 0** | **F0** | **R0 monitor** [**cycles** *no-of-times* [**interval** *delay* [**lines** *number*]]]

Syntax Description

switch-number	Switch number.
active	Specifies the active instance.
standby	Specifies the standby instance.
0	Specifies the shared port adapter (SPA) interface processor slot 0.
F0	Specifies the Embedded Service Processor (ESP) slot 0.
R0	Specifies the Route Processor (RP) slot 0.
monitor	Monitors the running processes.
cycles *no-of-tmes*	(Optional) Sets the number of times to run monitor command. Valid values are from 1 to 4294967295. The default is 5.
interval *delay*	(Optional) Sets a delay after each . Valid values are from 0 to 300. The default is 3.
lines *number*	(Optional) Sets the number of lines of output displayed. Valid values are from 0 to 512. The default is 0.

Command Modes

Privileged EXEC (#)

Command History

Release	Modification
Cisco IOS XE Denali 16.1.1	This command was introduced.

Usage Guidelines

The output of the **show platform software process slot switch** and **show processes cpu platform monitor location** commands display the output of the Linux **top** command. The output of these commands display Free memory and Used memory as displayed by the Linux **top** command. The values displayed for the Free memory and Used memory by these commands do not match the values displayed by the output of other platform-memory related CLIs.

Examples

The following is sample output from the **show platform software process slot switch active R0 monitor** command:

```
Switch# show platform software process slot switch active R0 monitor

top - 00:01:52 up 1 day, 11:20,  0 users,  load average: 0.50, 0.68, 0.83
Tasks: 311 total,   2 running, 309 sleeping,   0 stopped,   0 zombie
Cpu(s):  7.4%us,  3.3%sy,  0.0%ni, 89.2%id,  0.0%wa,  0.0%hi,  0.1%si,  0.0%st
Mem:   3976844k total,  3955036k used,    21808k free,   419312k buffers
Swap:        0k total,        0k used,        0k free,  1946764k cached

  PID USER      PR  NI  VIRT  RES  SHR S %CPU %MEM    TIME+  COMMAND
 5693 root      20   0  3448 1368  912 R    7  0.0   0:00.07 top
17546 root      20   0 2044m 244m  79m S    7  6.3 186:49.08 fed main event
18662 root      20   0 1806m 678m 263m S    5 17.5 215:32.38 linux_iosd-imag
30276 root      20   0  171m  42m  33m S    5  1.1 125:06.77 repm
17835 root      20   0  935m  74m  63m S    4  1.9  82:28.31 sif_mgr
18534 root      20   0  182m 150m  10m S    2  3.9   8:12.08 smand
    1 root      20   0  8440 4740 2184 S    0  0.1   0:09.52 systemd
    2 root      20   0     0    0    0 S    0  0.0   0:00.00 kthreadd
    3 root      20   0     0    0    0 S    0  0.0   0:02.86 ksoftirqd/0
    5 root       0 -20     0    0    0 S    0  0.0   0:00.00 kworker/0:0H
    7 root      RT   0     0    0    0 S    0  0.0   0:01.44 migration/0
    8 root      20   0     0    0    0 S    0  0.0   0:00.00 rcu_bh
    9 root      20   0     0    0    0 S    0  0.0   0:23.08 rcu_sched
   10 root      20   0     0    0    0 S    0  0.0   0:58.04 rcuc/0
   11 root      20   0     0    0    0 S    0  0.0  21:35.60 rcuc/1
   12 root      RT   0     0    0    0 S    0  0.0   0:01.33 migration/1
```

Related Commands

Command	Description
show processes cpu platform monitor location	Displays information about the CPU utilization of the IOS-XE processes.

show platform software status control-processor

To display platform software control-processor status, use the **show platform software status control-processor** command in privileged EXEC mode.

show platform software status control-processor [**brief**]

Syntax Description

brief	(Optional) Displays a summary of the platform control-processor status.

Command Modes

Privileged EXEC (#)

Command History

Release	Modification
Cisco IOS XE Denali 16.1.1	This command was introduced.

Usage Guidelines

Prior to Cisco IOS XE Denali 16.3.1, the Free Memory displayed in the command output was obtained from the underlying Linux kernel. This value was not accurate because some memory chunks that was available for use was not considered as free memory.

In Cisco IOS XE Denali 16.3.1, the free memory is accurately computed and displayed in the Free Memory field of the command output.

Examples

The following is sample output from the **show platform memory software status control-processor** command:

```
Switch# show platform software status control-processor

2-RP0: online, statistics updated 7 seconds ago
Load Average: healthy
  1-Min: 1.00, status: healthy, under 5.00
  5-Min: 1.21, status: healthy, under 5.00
  15-Min: 0.90, status: healthy, under 5.00
Memory (kb): healthy
  Total: 3976852
  Used: 2766284 (70%), status: healthy
  Free: 1210568 (30%)
  Committed: 3358008 (84%), under 95%
Per-core Statistics
CPU0: CPU Utilization (percentage of time spent)
  User:  4.40, System:  1.70, Nice:  0.00, Idle: 93.80
  IRQ:  0.00, SIRQ:  0.10, IOwait:  0.00
CPU1: CPU Utilization (percentage of time spent)
  User:  3.80, System:  1.20, Nice:  0.00, Idle: 94.90
  IRQ:  0.00, SIRQ:  0.10, IOwait:  0.00
CPU2: CPU Utilization (percentage of time spent)
  User:  7.00, System:  1.10, Nice:  0.00, Idle: 91.89
  IRQ:  0.00, SIRQ:  0.00, IOwait:  0.00
CPU3: CPU Utilization (percentage of time spent)
  User:  4.49, System:  0.69, Nice:  0.00, Idle: 94.80
  IRQ:  0.00, SIRQ:  0.00, IOwait:  0.00

3-RP0: unknown, statistics updated 2 seconds ago
Load Average: healthy
  1-Min: 0.24, status: healthy, under 5.00
  5-Min: 0.27, status: healthy, under 5.00
```

```
  15-Min: 0.32, status: healthy, under 5.00
Memory (kb): healthy
  Total: 3976852
  Used: 2706768 (68%), status: healthy
  Free: 1270084 (32%)
  Committed: 3299332 (83%), under 95%
Per-core Statistics
CPU0: CPU Utilization (percentage of time spent)
  User:  4.50, System:  1.20, Nice:  0.00, Idle: 94.20
  IRQ:  0.00, SIRQ:  0.10, IOwait:  0.00
CPU1: CPU Utilization (percentage of time spent)
  User:  5.20, System:  0.50, Nice:  0.00, Idle: 94.29
  IRQ:  0.00, SIRQ:  0.00, IOwait:  0.00
CPU2: CPU Utilization (percentage of time spent)
  User:  3.60, System:  0.70, Nice:  0.00, Idle: 95.69
  IRQ:  0.00, SIRQ:  0.00, IOwait:  0.00
CPU3: CPU Utilization (percentage of time spent)
  User:  3.00, System:  0.60, Nice:  0.00, Idle: 96.39
  IRQ:  0.00, SIRQ:  0.00, IOwait:  0.00

4-RP0: unknown, statistics updated 2 seconds ago
Load Average: healthy
  1-Min: 0.21, status: healthy, under 5.00
  5-Min: 0.24, status: healthy, under 5.00
  15-Min: 0.24, status: healthy, under 5.00
Memory (kb): healthy
  Total: 3976852
  Used: 1452404 (37%), status: healthy
  Free: 2524448 (63%)
  Committed: 1675120 (42%), under 95%
Per-core Statistics
CPU0: CPU Utilization (percentage of time spent)
  User:  2.30, System:  0.40, Nice:  0.00, Idle: 97.30
  IRQ:  0.00, SIRQ:  0.00, IOwait:  0.00
CPU1: CPU Utilization (percentage of time spent)
  User:  4.19, System:  0.69, Nice:  0.00, Idle: 95.10
  IRQ:  0.00, SIRQ:  0.00, IOwait:  0.00
CPU2: CPU Utilization (percentage of time spent)
  User:  4.79, System:  0.79, Nice:  0.00, Idle: 94.40
  IRQ:  0.00, SIRQ:  0.00, IOwait:  0.00
CPU3: CPU Utilization (percentage of time spent)
  User:  2.10, System:  0.40, Nice:  0.00, Idle: 97.50
  IRQ:  0.00, SIRQ:  0.00, IOwait:  0.00

9-RP0: unknown, statistics updated 4 seconds ago
Load Average: healthy
  1-Min: 0.20, status: healthy, under 5.00
  5-Min: 0.35, status: healthy, under 5.00
  15-Min: 0.35, status: healthy, under 5.00
Memory (kb): healthy
  Total: 3976852
  Used: 1451328 (36%), status: healthy
  Free: 2525524 (64%)
  Committed: 1675932 (42%), under 95%
Per-core Statistics
CPU0: CPU Utilization (percentage of time spent)
  User:  1.90, System:  0.50, Nice:  0.00, Idle: 97.60
  IRQ:  0.00, SIRQ:  0.00, IOwait:  0.00
CPU1: CPU Utilization (percentage of time spent)
  User:  4.39, System:  0.19, Nice:  0.00, Idle: 95.40
  IRQ:  0.00, SIRQ:  0.00, IOwait:  0.00
CPU2: CPU Utilization (percentage of time spent)
  User:  5.70, System:  1.00, Nice:  0.00, Idle: 93.30
  IRQ:  0.00, SIRQ:  0.00, IOwait:  0.00
```

```
CPU3: CPU Utilization (percentage of time spent)
  User:  1.30, System:  0.60, Nice:  0.00, Idle: 98.00
  IRQ:  0.00, SIRQ:  0.10, IOwait:  0.00
```

The following is sample output from the **show platform memory software status control-processor brief** command:

```
Switch# show platform software status control-processor brief

Load Average
 Slot  Status  1-Min  5-Min 15-Min
2-RP0 Healthy   1.10   1.21   0.91
3-RP0 Healthy   0.23   0.27   0.31
4-RP0 Healthy   0.11   0.21   0.22
9-RP0 Healthy   0.10   0.30   0.34

Memory (kB)
 Slot  Status    Total     Used (Pct)     Free (Pct) Committed (Pct)
2-RP0 Healthy  3976852  2766956 (70%)  1209896 (30%)   3358352 (84%)
3-RP0 Healthy  3976852  2706824 (68%)  1270028 (32%)   3299276 (83%)
4-RP0 Healthy  3976852  1451888 (37%)  2524964 (63%)   1675076 (42%)
9-RP0 Healthy  3976852  1451580 (37%)  2525272 (63%)   1675952 (42%)

CPU Utilization
 Slot  CPU   User System   Nice   Idle    IRQ   SIRQ IOwait
2-RP0    0   4.10   2.00   0.00  93.80   0.00   0.10   0.00
         1   4.60   1.00   0.00  94.30   0.00   0.10   0.00
         2   6.50   1.10   0.00  92.40   0.00   0.00   0.00
         3   5.59   1.19   0.00  93.20   0.00   0.00   0.00
3-RP0    0   2.80   1.20   0.00  95.90   0.00   0.10   0.00
         1   4.49   1.29   0.00  94.20   0.00   0.00   0.00
         2   5.30   1.60   0.00  93.10   0.00   0.00   0.00
         3   5.80   1.20   0.00  93.00   0.00   0.00   0.00
4-RP0    0   1.30   0.80   0.00  97.89   0.00   0.00   0.00
         1   1.30   0.20   0.00  98.50   0.00   0.00   0.00
         2   5.60   0.80   0.00  93.59   0.00   0.00   0.00
         3   5.09   0.19   0.00  94.70   0.00   0.00   0.00
9-RP0    0   3.99   0.69   0.00  95.30   0.00   0.00   0.00
         1   2.60   0.70   0.00  96.70   0.00   0.00   0.00
         2   4.49   0.89   0.00  94.60   0.00   0.00   0.00
         3   2.60   0.20   0.00  97.20   0.00   0.00   0.00
```

show processes cpu platform monitor

To displays information about the CPU utilization of the IOS-XE processes, use the **show processes cpu platform monitor** command in privileged EXEC mode.

show processes cpu platform monitor location switch *switch-number* | **active** | **standby 0** | **F0** | **R0**

Syntax Description

location	Displays information about the Field Replaceable Unit (FRU) location.
switch	Specifies the switch.
switch-number	Switch number.
active	Specifies the active instance.
standby	Specifies the standby instance.
0	Specifies the shared port adapter (SPA) interface processor slot 0.
F0	Specifies the Embedded Service Processor (ESP) slot 0.
R0	Specifies the Route Processor (RP) slot 0.

Command Modes

Privileged EXEC (#)

Command History

Release	Modification
Cisco IOS XE Denali 16.1.1	This command was introduced.

Usage Guidelines

The output of the **show platform software process slot switch** and **show processes cpu platform monitor location** commands display the output of the Linux **top** command. The output of these commands display Free memory and Used memory as displayed by the Linux **top** command. The values displayed for the Free memory and Used memory by these commands do not match the values displayed by the output of other platform-memory related CLIs.

Examples

The following is sample output from the **show processes cpu monitor location switch active R0** command:

```
Switch# show processes cpu platform monitor location switch active R0

top - 00:04:21 up 1 day, 11:22,  0 users,  load average: 0.42, 0.60, 0.78
Tasks: 312 total,   4 running, 308 sleeping,   0 stopped,   0 zombie
Cpu(s):  7.4%us,  3.3%sy,  0.0%ni, 89.2%id,  0.0%wa,  0.0%hi,  0.1%si,  0.0%st
Mem:   3976844k total,  3956928k used,    19916k free,   419312k buffers
Swap:        0k total,        0k used,        0k free,  1947036k cached

  PID USER      PR  NI  VIRT  RES  SHR S %CPU %MEM    TIME+  COMMAND
 6294 root      20   0  3448 1368  912 R    9  0.0   0:00.07 top
17546 root      20   0 2044m 244m  79m S    7  6.3 187:02.07 fed main event
30276 root      20   0  171m  42m  33m S    7  1.1 125:15.54 repm
   16 root      20   0     0    0    0 S    5  0.0  22:07.92 rcuc/2
   21 root      20   0     0    0    0 R    5  0.0  22:13.24 rcuc/3
18662 root      20   0 1806m 678m 263m R    5 17.5 215:47.59 linux_iosd-imag
```

```
   11 root      20   0     0    0    0 S    4  0.0  21:37.41 rcuc/1
10333 root      20   0  6420 3916 1492 S    4  0.1   4:47.03 btrace_rotate.s
   10 root      20   0     0    0    0 S    2  0.0   0:58.13 rcuc/0
 6304 root      20   0   776   12    0 R    2  0.0   0:00.01 ls
17835 root      20   0  935m  74m  63m S    2  1.9  82:34.07 sif_mgr
    1 root      20   0  8440 4740 2184 S    0  0.1   0:09.52 systemd
    2 root      20   0     0    0    0 S    0  0.0   0:00.00 kthreadd
    3 root      20   0     0    0    0 S    0  0.0   0:02.86 ksoftirqd/0
    5 root       0 -20     0    0    0 S    0  0.0   0:00.00 kworker/0:0H
    7 root      RT   0     0    0    0 S    0  0.0   0:01.44 migration/0
```

Related Commands

Command	Description
show platform software process slot switch	Displays platform software process switch information.

show processes memory

To display the amount of memory used by each system process, use the **show processes memory** command in privileged EXEC mode.

show processes memory [*process-id* | **sorted** [**allocated** | **getbufs** | **holding**]]

Syntax Description

process-id	(Optional) Process ID (PID) of a specific process. When you specify a process ID, only details for the specified process will be shown.
sorted	(Optional) Displays memory data sorted by the Allocated, Get Buffers, or Holding column. If the **sorted** keyword is used by itself, data is sorted by the Holding column by default.
allocated	(Optional) Displays memory data sorted by the Allocated column.
getbufs	(Optional) Displays memory data sorted by the Getbufs (Get Buffers) column.
holding	(Optional) Displays memory data sorted by the Holding column. This keyword is the default.

Command Modes

Privileged EXEC (#)

Command History

Release	Modification
Cisco IOS XE Everest 16.5.1a	This command was introduced.

Usage Guidelines

The **show processes memory** command and the **show processes memory sorted** command displays a summary of total, used, and free memory, followed by a list of processes and their memory impact.

If the standard **show processes memory** *process-id* command is used, processes are sorted by their PID. If the **show processes memory sorted** command is used, the default sorting is by the Holding value.

Note Holding memory of a particular process can be allocated by other processes also, and so it can be greater than the allocated memory.

The following is sample output from the **show processes memory** command:

```
Device# show processes memory

Processor Pool Total:   25954228 Used:    8368640 Free:   17585588
 PID TTY  Allocated      Freed    Holding    Getbufs    Retbufs Process
   0   0    8629528     689900    6751716          0          0 *Init*
   0   0      24048      12928      24048          0          0 *Sched*
   0   0        260        328         68     350080          0 *Dead*
   1   0          0          0      12928          0          0 Chunk Manager
   2   0        192        192       6928          0          0 Load Meter
   3   0     214664        304     227288          0          0 Exec
   4   0          0          0      12928          0          0 Check heaps
   5   0          0          0      12928          0          0 Pool Manager
   6   0        192        192      12928          0          0 Timers
   7   0        192        192      12928          0          0 Serial Backgroun
```

```
  8   0        192        192      12928          0          0 AAA high-capacit
  9   0          0          0      24928          0          0 Policy Manager
 10   0          0          0      12928          0          0 ARP Input
 11   0        192        192      12928          0          0 DDR Timers
 12   0          0          0      12928          0          0 Entity MIB API
 13   0          0          0      12928          0          0 MPLS HC Counter
 14   0          0          0      12928          0          0 SERIAL A'detect
.
.
.
 78   0          0          0      12992          0          0 DHCPD Timer
 79   0        160          0      13088          0          0 DHCPD Database
                                 8329440 Total
```

The table below describes the significant fields shown in the display.

Table 5: show processes memory Field Descriptions

Field	Description
Processor Pool Total	Total amount of memory, in kilobytes (KB), held for the Processor memory pool.
Used	Total amount of used memory, in KB, in the Processor memory pool.
Free	Total amount of free memory, in KB, in the Processor memory pool.
PID	Process ID.
TTY	Terminal that controls the process.
Allocated	Bytes of memory allocated by the process.
Freed	Bytes of memory freed by the process, regardless of who originally allocated it.
Holding	Amount of memory, in KB, currently allocated to the process. This includes memory allocated by the process and assigned to the process.
Getbufs	Number of times the process has requested a packet buffer.
Retbufs	Number of times the process has relinquished a packet buffer.
Process	Process name.
Init	System initialization process.
Sched	The scheduler process.
Dead	Processes as a group that are now dead.
<value> Total	Total amount of memory, in KB, held by all processes (sum of the “Holding” column).

The following is sample output from the **show processes memory** command when the **sorted** keyword is used. In this case, the output is sorted by the Holding column, from largest to smallest.

```
Device# show processes memory sorted

Processor Pool Total:   25954228 Used:    8371280 Free:   17582948
 PID TTY  Allocated      Freed    Holding    Getbufs    Retbufs Process
   0   0    8629528     689900    6751716          0          0 *Init*
```

```
  3   0     217304        304     229928          0          0 Exec
 53   0     109248        192      96064          0          0 DHCPD Receive
 56   0          0          0      32928          0          0 COPS
 19   0      39048          0      25192          0          0 Net Background
 42   0          0          0      24960          0          0 L2X Data Daemon
 58   0        192        192      24928          0          0 X.25 Background
 43   0        192        192      24928          0          0 PPP IP Route
 49   0          0          0      24928          0          0 TCP Protocols
 48   0          0          0      24928          0          0 TCP Timer
 17   0        192        192      24928          0          0 XML Proxy Client
  9   0          0          0      24928          0          0 Policy Manager
 40   0          0          0      24928          0          0 L2X SSS manager
 29   0          0          0      24928          0          0 IP Input
 44   0        192        192      24928          0          0 PPP IPCP
 32   0        192        192      24928          0          0 PPP Hooks
 34   0          0          0      24928          0          0 SSS Manager
 41   0        192        192      24928          0          0 L2TP mgmt daemon
 16   0        192        192      24928          0          0 Dialer event
 35   0          0          0      24928          0          0 SSS Test Client
--More--
```

The following is sample output from the **show processes memory** command when a process ID (*process-id*) is specified:

```
Device# show processes memory 1

Process ID: 1
Process Name: Chunk Manager
Total Memory Held: 8428 bytes
Processor memory holding = 8428 bytes
pc = 0x60790654, size =      6044, count =    1
pc = 0x607A5084, size =      1544, count =    1
pc = 0x6076DBC4, size =       652, count =    1
pc = 0x6076FF18, size =       188, count =    1
I/O memory holding = 0 bytes

Device# show processes memory 2

Process ID: 2
Process Name: Load Meter
Total Memory Held: 3884 bytes
Processor memory holding = 3884 bytes
pc = 0x60790654, size =      3044, count =    1
pc = 0x6076DBC4, size =       652, count =    1
pc = 0x6076FF18, size =       188, count =    1
I/O memory holding = 0 bytes
```

Related Commands

Command	Description
show memory	Displays statistics about memory, including memory-free pool statistics.
show processes	Displays information about the active processes.

show processes memory platform

To display memory usage per Cisco IOS XE process, use the **show processes memory platform** command in privileged EXEC mode.

show processes memory platform [**detailed name** *process-name* | **process-id** *process-ID* [**location** | **maps** [**location**] | **smaps** [**location**]] | **location** | **sorted** [**location**]] **switch** *switch-number* | **active** | **standby** **0** | **F0** | **R0**

Syntax Description

detailed *process-name*	(Optional) Displays detailed memory information for a specified Cisco IOS XE process.
name *process-name*	(Optional) Matches the Cisco IOS XE process name.
process-id *process-ID*	(Optional) Matches the Cisco IOS XE process ID.
location	(Optional) Displays information about the FRU location.
maps	(Optional) Displays memory maps of a process.
smaps	(Optional) Displays smaps of a process.
sorted	(Optional) Displays the sorted output based on the total memory used by Cisco IOS XE processes.
switch *switch-number*	Displays information about the device.
active	Displays information about the active instance of the switch.
standby	Displays information about the standby instance of the switch.
0	Displays information about the SPA-Inter-Processor slot 0.
F0	Displays information about the Embedded Service Processor (ESP) slot 0.
R0	Displays information about the Route Processor (RP) slot 0.

Command Modes

Privileged EXEC (#)

Command History

Release	Modification
Cisco IOS XE Denali 16.1.1	The command was introduced.

Usage Guidelines

Prior to Cisco IOS XE Denali 16.3.1, the Free Memory displayed in the command output was obtained from the underlying Linux kernel. This value was not accurate because some memory chunks that was available for use was not considered as free memory.

In Cisco IOS XE Denali 16.3.1, the free memory is accurately computed and displayed in the Free Memory field of the command output.

Examples

The following is sample output from the **show processes memory platform** command:

```
Switch# show processes memory platform

System memory: 3976852K total, 2761580K used, 1215272K free,
Lowest: 1215272K
   Pid    Text      Data   Stack   Dynamic       RSS     Total              Name
--------------------------------------------------------------------------------
     1    1246      4400     132      1308      4400      8328           systemd
    96     233      2796     132       132      2796     12436   systemd-journal
   105     284      1796     132       176      1796      5208     systemd-udevd
   707      52      2660     132       172      2660     11688        in.telnetd
   744     968      3264     132      1700      3264      5800         brelay.sh
   835      52      2660     132       172      2660     11688        in.telnetd
   863     968      3264     132      1700      3264      5800         brelay.sh
   928     968      3996     132      2312      3996      6412      reflector.sh
   933     968      3976     132      2312      3976      6412       droputil.sh
   934     968      2140     132       528      2140      4628            oom.sh
   936     173       936     132       132       936      3068           xinetd
   945     968      1472     132       132      1472      4168       libvirtd.sh
   947     592     43164     132      3096     43164    154716             repm
   954      45       932     132       132       932      3132          rpcbind
   986     482      3476     132       132      3476    169288         libvirtd
   988      66       940     132       132       940      2724         rpc.statd
   993     968       928     132       132       928      4232   boothelper_evt.
  1017      21       640     132       132       640      2500      inotifywait
  1089     102      1200     132       132      1200      3328        rpc.mountd
  1328       9      2940     132       148      2940     13844             rotee
  1353      39       532     132       132       532      2336             sleep
!
!
!
```

The following is sample output from the **show processes memory platform information** command:

```
Switch# show processes memory platform location switch active R0

System memory: 3976852K total, 2762844K used, 1214008K free,
Lowest: 1214008K
   Pid    Text      Data   Stack   Dynamic       RSS     Total              Name
--------------------------------------------------------------------------------
     1    1246      4400     132      1308      4400      8328           systemd
    96     233      2796     132       132      2796     12436   systemd-journal
   105     284      1796     132       176      1796      5208     systemd-udevd
   707      52      2660     132       172      2660     11688        in.telnetd
   744     968      3264     132      1700      3264      5800         brelay.sh
   835      52      2660     132       172      2660     11688        in.telnetd
   863     968      3264     132      1700      3264      5800         brelay.sh
   928     968      3996     132      2312      3996      6412      reflector.sh
   933     968      3976     132      2312      3976      6412       droputil.sh
!
!
!
```

The following is sample output from the **show processes memory platform sorted** command:

```
Switch# show processes memory platform sorted

System memory: 3976852K total, 2762884K used, 1213968K free,
Lowest: 1213968K
   Pid    Text      Data   Stack   Dynamic       RSS     Total               Name
--------------------------------------------------------------------------------
  9655    3787    264964     136     18004    264964   2675968                wcm
 17261     324    248588     132    103908    248588   2093076     fed main event
  7885  149848    684864     136        80    684864   1853548    linux_iosd-imag
 17891     398     75772     136      1888     75772    958240           sif_mgr
 17067    1087     77912     136      1796     77912    702184       platform_mgr
  4268     391    102084     136      5596    102084    482656          cli_agent
  4856     357     93388     132      3680     93388    340052               dbm
 29842    8722     64428     132      8056     64428    297068      fman_fp_image
  5960    9509     76088     136      3200     76088    287156           fman_rp
!
!
!
```

The following is sample output from the **show processes memory platform sorted location switch active R0** command:

```
Switch# show processes memory platform sorted location switch active R0

System memory: 3976852K total, 2763584K used, 1213268K free,
Lowest: 1213268K
   Pid    Text      Data   Stack   Dynamic       RSS     Total               Name
--------------------------------------------------------------------------------
  9655    3787    264968     136     18004    264968   2675968                wcm
 17261     324    249020     132    103908    249020   2093076     fed main event
  7885  149848    684912     136        80    684912   1853548    linux_iosd-imag
 17891     398     75884     136      1888     75884    958240           sif_mgr
 17067    1087     77820     136      1796     77820    702184       platform_mgr
  4268     391    102084     136      5596    102084    482656          cli_agent
  4856     357     93388     132      3680     93388    340052               dbm
 29842    8722     64428     132      8056     64428    297068      fman_fp_image
  5960    9509     76088     136      3200     76088    287156           fman_rp
!
!
!
```

show power inline

To display the Power over Ethernet (PoE) status for the specified PoE port, the specified stack member, or for all PoE ports in the switch stack, use the **show power inline** command in EXEC mode.

show power inline [**police** | **priority**] [*interface-id* | **module** *stack-member-number*] [**detail**]

Syntax Description

police	(Optional) Displays the power policing information about real-time power consumption.
priority	(Optional) Displays the power inline port priority for each port.
interface-id	(Optional) ID of the physical interface.
module *stack-member-number*	(Optional) Limits the display to ports on the specified stack member. The range is 1 to 9. This keyword is supported only on stacking-capable switches.
detail	(Optional) Displays detailed output of the interface or module.

Command Modes

User EXEC

Privileged EXEC

Command History

Release	Modification
Cisco IOS XE Everest 16.5.1a	This command was introduced.

Examples

This is an example of output from the **show power inline** command. The table that follows describes the output fields.

```
Device> show power inline
Module   Available     Used     Remaining
          (Watts)     (Watts)    (Watts)
------   ---------   --------   ---------
1             n/a        n/a         n/a
2             n/a        n/a         n/a
3          1440.0       15.4      1424.6
4           720.0        6.3       713.7
Interface Admin  Oper       Power   Device              Class Max
                            (Watts)
--------- ------ ---------- ------- ------------------- ----- ----
Gi3/0/1   auto   off        0.0     n/a                 n/a   30.0
Gi3/0/2   auto   off        0.0     n/a                 n/a   30.0
Gi3/0/3   auto   off        0.0     n/a                 n/a   30.0
Gi3/0/4   auto   off        0.0     n/a                 n/a   30.0
Gi3/0/5   auto   off        0.0     n/a                 n/a   30.0
Gi3/0/6   auto   off        0.0     n/a                 n/a   30.0
Gi3/0/7   auto   off        0.0     n/a                 n/a   30.0
Gi3/0/8   auto   off        0.0     n/a                 n/a   30.0
```

```
Gi3/0/9   auto   off        0.0     n/a                 n/a   30.0
Gi3/0/10  auto   off        0.0     n/a                 n/a   30.0
Gi3/0/11  auto   off        0.0     n/a                 n/a   30.0
Gi3/0/12  auto   off        0.0     n/a                 n/a   30.0
<output truncated>
```

This is an example of output from the **show power inline** *interface-id* command on a switch port:

```
Device> show power inline gigabitethernet1/0/1
Interface Admin  Oper       Power   Device              Class Max
                            (Watts)
--------- ------ ---------- ------- ------------------- ----- ----
Gi1/0/1   auto   off        0.0     n/a                 n/a   30.0
```

This is an example of output from the **show power inline module** *switch-number* command on stack member 3. The table that follows describes the output fields.

```
Device> show power inline module 3
Module   Available     Used     Remaining
          (Watts)     (Watts)    (Watts)
------   ---------   --------   ---------
3           865.0      864.0         1.0
Interface Admin  Oper       Power   Device              Class Max
                            (Watts)
--------- ------ ---------- ------- ------------------- ----- ----
Gi3/0/1   auto   power-deny 4.0     n/a                 n/a   15.4
Gi3/0/2   auto   off        0.0     n/a                 n/a   15.4
Gi3/0/3   auto   off        0.0     n/a                 n/a   15.4
Gi3/0/4   auto   off        0.0     n/a                 n/a   15.4
Gi3/0/5   auto   off        0.0     n/a                 n/a   15.4
Gi3/0/6   auto   off        0.0     n/a                 n/a   15.4
Gi3/0/7   auto   off        0.0     n/a                 n/a   15.4
Gi3/0/8   auto   off        0.0     n/a                 n/a   15.4
Gi3/0/9   auto   off        0.0     n/a                 n/a   15.4
Gi3/0/10  auto   off        0.0     n/a                 n/a   15.4
<output truncated>
```

Table 6: show power inline Field Descriptions

Field	Description
Available	The total amount of configured power[1] on the PoE switch in watts (W).
Used	The amount of configured power that is allocated to PoE ports in watts.
Remaining	The amount of configured power in watts that is not allocated to ports in the system. (Available – Used = Remaining)
Admin	Administration mode: auto, off, static.

Field	Description
Oper	Operating mode: • on—The powered device is detected, and power is applied. • off—No PoE is applied. • faulty—Device detection or a powered device is in a faulty state. • power-deny—A powered device is detected, but no PoE is available, or the maximum wattage exceeds the detected powered-device maximum.
Power	The maximum amount of power that is allocated to the powered device in watts. This value is the same as the value in the *Cutoff Power* field in the **show power inline police** command output.
Device	The device type detected: n/a, unknown, Cisco powered-device, IEEE powered-device, or the name from CDP.
Class	The IEEE classification: n/a or a value from 0 to 4.
Max	The maximum amount of power allocated to the powered device in watts.
AdminPowerMax	The maximum amount power allocated to the powered device in watts when the switch polices the real-time power consumption. This value is the same as the *Max* field value.
AdminConsumption	The power consumption of the powered device in watts when the switch polices the real-time power consumption. If policing is disabled, this value is the same as the *AdminPowerMax* field value.

[1] The configured power is the power that you manually specify or that the switch specifies by using CDP power negotiation or the IEEE classification, which is different than the real-time power that is monitored with the power sensing feature.

This is an example of output from the **show power inline police** command on a stacking-capable switch:

```
Device> show power inline police
Module   Available     Used      Remaining
          (Watts)     (Watts)    (Watts)
------   ---------   --------   ---------
1           370.0        0.0       370.0
3           865.0      864.0         1.0
          Admin  Oper         Admin      Oper       Cutoff Oper
Interface State  State        Police     Police     Power  Power
--------- ------ ------------ ---------- ---------- ------ ------
Gi1/0/1   auto   off          none       n/a        n/a    0.0
Gi1/0/2   auto   off          log        n/a        5.4    0.0
Gi1/0/3   auto   off          errdisable n/a        5.4    0.0
Gi1/0/4   off    off          none       n/a        n/a    0.0
Gi1/0/5   off    off          log        n/a        5.4    0.0
Gi1/0/6   off    off          errdisable n/a        5.4    0.0
Gi1/0/7   auto   off          none       n/a        n/a    0.0
Gi1/0/8   auto   off          log        n/a        5.4    0.0
Gi1/0/9   auto   on           none       n/a        n/a    5.1
Gi1/0/10  auto   on           log        ok         5.4    4.2
Gi1/0/11  auto   on           log        log        5.4    5.9
Gi1/0/12  auto   on           errdisable ok         5.4    4.2
```

```
Gi1/0/13  auto   errdisable  errdisable n/a        5.4    0.0
<output truncated>
```

In the previous example:

- The Gi1/0/1 port is shut down, and policing is not configured.
- The Gi1/0/2 port is shut down, but policing is enabled with a policing action to generate a syslog message.
- The Gi1/0/3 port is shut down, but policing is enabled with a policing action is to shut down the port.
- Device detection is disabled on the Gi1/0/4 port, power is not applied to the port, and policing is disabled.
- Device detection is disabled on the Gi1/0/5 port, and power is not applied to the port, but policing is enabled with a policing action to generate a syslog message.
- Device detection is disabled on the Gi1/0/6 port, and power is not applied to the port, but policing is enabled with a policing action to shut down the port.
- The Gi1/0/7 port is up, and policing is disabled, but the switch does not apply power to the connected device.
- The Gi1/0/8 port is up, and policing is enabled with a policing action to generate a syslog message, but the switch does not apply power to the powered device.
- The Gi1/0/9 port is up and connected to a powered device, and policing is disabled.
- The Gi1/0/10 port is up and connected to a powered device, and policing is enabled with a policing action to generate a syslog message. The policing action does not take effect because the real-time power consumption is less than the cutoff value.
- The Gi1/0/11 port is up and connected to a powered device, and policing is enabled with a policing action to generate a syslog message.
- The Gi1/0/12 port is up and connected to a powered device, and policing is enabled with a policing action to shut down the port. The policing action does not take effect because the real-time power consumption is less than the cutoff value.
- The Gi1/0/13 port is up and connected to a powered device, and policing is enabled with a policing action to shut down the port.

This is an example of output from the **show power inline police** *interface-id* command on a standalone switch. The table that follows describes the output fields.

```
Device> show power inline police gigabitethernet1/0/1
Interface Admin  Oper       Admin      Oper       Cutoff Oper
          State  State      Police     Police     Power  Power
--------- ------ ---------- ---------- ---------- ------ -----
Gi1/0/1   auto   off        none       n/a        n/a    0.0
```

Table 7: show power inline police Field Descriptions

Field	Description
Available	The total amount of configured power[2] on the switch in watts (W).
Used	The amount of configured power allocated to PoE ports in watts.
Remaining	The amount of configured power in watts that is not allocated to ports in the system. (Available – Used = Remaining)
Admin State	Administration mode: auto, off, static.
Oper State	Operating mode: • errdisable—Policing is enabled. • faulty—Device detection on a powered device is in a faulty state. • off—No PoE is applied. • on—The powered device is detected, and power is applied. • power-deny—A powered device is detected, but no PoE is available, or the real-time power consumption exceeds the maximum power allocation. **Note** The operating mode is the current PoE state for the specified PoE port, the specified stack member, or for all PoE ports on the switch.
Admin Police	Status of the real-time power-consumption policing feature: • errdisable—Policing is enabled, and the switch shuts down the port when the real-time power consumption exceeds the maximum power allocation. • log—Policing is enabled, and the switch generates a syslog message when the real-time power consumption exceeds the maximum power allocation. • none—Policing is disabled.
Oper Police	Policing status: • errdisable—The real-time power consumption exceeds the maximum power allocation, and the switch shuts down the PoE port. • log—The real-time power consumption exceeds the maximum power allocation, and the switch generates a syslog message. • n/a—Device detection is disabled, power is not applied to the PoE port, or no policing action is configured. • ok—Real-time power consumption is less than the maximum power allocation.
Cutoff Power	The maximum power allocated on the port. When the real-time power consumption is greater than this value, the switch takes the configured policing action.
Oper Power	The real-time power consumption of the powered device.

[2] The configured power is the power that you manually specify or that the switch specifies by using CDP power negotiation or the IEEE classification, which is different than the real-time power that is monitored with the power sensing feature.

This is an example of output from the **show power inline priority** command on a standalone switch.

```
Device> show power inline priority
Interface  Admin  Oper       Priority
           State  State
---------- ------ ---------- --------

Gi1/0/1    auto   off        low
Gi1/0/2    auto   off        low
Gi1/0/3    auto   off        low
Gi1/0/4    auto   off        low
Gi1/0/5    auto   off        low
Gi1/0/6    auto   off        low
Gi1/0/7    auto   off        low
Gi1/0/8    auto   off        low
Gi1/0/9    auto   off        low
```

show stack-power

To display information about StackPower stacks or switches in a power stack, use the **show stack-power** command in EXEC mode.

show stack-power [**budgeting** | **detail** | **load-shedding** | **neighbors**] [**order** *power-stack-name*] | [**stack-name** [*stack-id*] | **switch** [*switch-id*]]

Syntax Description

budgeting	(Optional) Displays the stack power budget table.
detail	(Optional) Displays the stack power stack details.
load-shedding	(Optional) Displays the stack power load shedding table.
neighbors	(Optional) Displays the stack power neighbor table.
order *power-stack-name*	(Optional) Displays the load shedding priority for a power stack. **Note** This keyword is available only after the **load-shedding** keyword.
stack-name	(Optional) Displays budget table, details, or neighbors for all power stacks or the specified power stack. **Note** This keyword is not available after the **load-shedding** keyword.
stack-id	(Optional) Power stack ID for the power stack. The stack ID must be 31 characters or less.
switch	(Optional) Displays budget table, details, load-shedding, or neighbors for all switches or the specified switch.
switch-id	(Optional) Switch ID for the switch. The switch number is from 1 to 9.

Command Modes

Privileged EXEC

Command History

Release	Modification
Cisco IOS XE Denali 16.3.2	Support for all the options was enabled for this command.
Cisco IOS XE Denali 16.1.1	This command was reintroduced.

Usage Guidelines

This command is available only on switch stacks running the IP Base or IP Services image.

If a switch is shut down because of load shedding, the output of the **show stack-power** command still includes the MAC address of the shutdown neighbor switch. The command output shows the stack power topology even if there is not enough power to power a switch.

Examples

This is an example of output from the **show stack-power** command:

```
Device# show stack-power
Power Stack           Stack   Stack    Total   Rsvd    Alloc   Unused  Num  Num
Name                  Mode    Topolgy  Pwr(W)  Pwr(W)  Pwr(W)  Pwr(W)  SW   PS
--------------------  ------  -------  ------  ------  ------  ------  ---  ---
Powerstack-1          SP-PS   Stndaln  350     150     200     0       1    1
```

This is an example of output from the **show stack-power budgeting** command:

```
Device# show stack-power budgeting
Power Stack           Stack   Stack    Total   Rsvd    Alloc   Unused  Num  Num
Name                  Mode    Topolgy  Pwr(W)  Pwr(W)  Pwr(W)  Pwr(W)  SW   PS
--------------------  ------  -------  ------  ------  ------  ------  ---  ---
Powerstack-1          SP-PS   Stndaln  350     150     200     0       1    1

    Power Stack           PS-A   PS-B   Power     Alloc     Avail   Consumd Pwr
SW  Name                  (W)    (W)    Budgt(W)  Power(W)  Pwr(W)  Sys/PoE(W)
--  --------------------  -----  -----  --------  --------  ------  -----------
1   Powerstack-1          350    0      200       200       0       60   /0
--  --------------------  -----  -----  --------  --------  ------  -----------
Totals:                                          200       0       60   /0
```

show system mtu

To display the global maximum transmission unit (MTU) or maximum packet size set for the switch, use the **show system mtu** command in privileged EXEC mode.

show system mtu

Syntax Description

This command has no arguments or keywords.

Command Default

None

Command Modes

Privileged EXEC

Command History

Release	Modification
Cisco IOS XE Everest 16.5.1a	This command was introduced.

Usage Guidelines

For information about the MTU values and the stack configurations that affect the MTU values, see the **system mtu** command.

Examples

This is an example of output from the **show system mtu** command:

show tech-support

To automatically run **show** commands that display system information, use the **show tech-support** command in the privilege EXEC mode.

show tech-support [**cef** | **cft** | **eigrp** | **evc** | **fnf** | **ipc** | **ipmulticast** | **ipsec** | **mfib** | **nat** | **nbar** | **onep** | **ospf** | **page** | **password** | **poe** | **rsvp** | **subscriber** | **vrrp** | **wccp**]

Syntax Description

cef	(Optional) Displays CEF related information.
cft	(Optional) Displays CFT related information.
eigrp	(Optional) Displays EIGRP related information.
evc	(Optional) Displays EVC related information.
fnf	(Optional) Displays flexible netflow related information.
ipc	(Optional) Displays IPC related information.
ipmulticast	(Optional) Displays IP multicast related information.
ipsec	(Optional) Displays IPSEC related information.
mfib	(Optional) Displays MFIB related information.
nat	(Optional) Displays NAT related information.
nbar	(Optional) Displays NBAR related information.
onep	(Optional) Displays ONEP related information.
ospf	(Optional) Displays OSPF related information.
page	(Optional) Displays the command output on a single page at a time. Use the Return key to display the next line of output or use the space bar to display the next page of information. If not used, the output scrolls (that is, it does not stop for page breaks). Press the **Ctrl-C** keys to stop the command output.
password	(Optional) Leaves passwords and other security information in the output. If not used, passwords and other security-sensitive information in the output are replaced with the label "<removed>".
poe	(Optional) Displays PoE related information.
rsvp	(Optional) Displays IP RSVP related information.
subscriber	(Optional) Displays subscriber related information.
vrrp	(Optional) Displays VRRP related information.
wccp	(Optional) Displays WCCP related information.

Command Modes

Privileged EXEC (#)

Command History

Release	Modification
Cisco IOS XE Denali 16.3.2	This command was enhanced to display of the outputs of the following commands in the output modifier : • **show power inline** • **show platform software ilpower details** • **show power inline police** • **show stack-power budgeting**
Cisco IOS XE Denali 16.1.1	This command was reintroduced.

Usage Guidelines

The output from the **show tech-support** command is very long. To better manage this output, you can redirect the output to a file (for example, **show tech-support** > *filename*) in the local writable storage file system or the remote file system. Redirecting the output to a file also makes sending the output to your Cisco Technical Assistance Center (TAC) representative easier.

You can use one of the following redirection methods:

- > *filename* - Redirects the output to a file.
- >> *filename* - Redirects the output to a file in append mode.

speed

To specify the speed of a 10/100/1000/2500/5000 Mbps port, use the **speed** command in interface configuration mode. To return to the default value, use the **no** form of this command.

speed **10** | **100** | **1000** | **2500** | **5000** | **auto** [**10** | **100** | **1000** | **2500** | **5000**] | **nonegotiate**
no **speed**

Syntax Description

10	Specifies that the port runs at 10 Mbps.
100	Specifies that the port runs at 100 Mbps.
1000	Specifies that the port runs at 1000 Mbps. This option is valid and visible only on 10/100/1000 Mb/s ports.
2500	Specifies that the port runs at 2500 Mbps. This option is valid and visible only on multi-Gigabit-supported Ethernet ports.
5000	Specifies that the port runs at 5000 Mbps. This option is valid and visible only on multi-Gigabit-supported Ethernet ports.
auto	Detects the speed at which the port should run, automatically, based on the port at the other end of the link. If you use the **10**, **100**, **1000**, **1000**, **2500**, or **5000** keyword with the **auto** keyword, the port autonegotiates only at the specified speeds.
nonegotiate	Disables autonegotiation, and the port runs at 1000 Mbps.

Command Default

The default is **auto**.

Command Modes

Interface configuration

Command History

Release	Modification
Cisco IOS XE Everest 16.5.1a	This command was introduced.
Cisco IOS XE Denali 16.3.1	This command was modified. The following keywords were added: **2500** and **5000**. These keywords are visible only on multi-Gigabit Ethernet port supporting devices.

Usage Guidelines

You cannot configure speed on 10-Gigabit Ethernet ports.

Except for the 1000BASE-T small form-factor pluggable (SFP) modules, you can configure the speed to not negotiate (**nonegotiate**) when an SFP module port is connected to a device that does not support autonegotiation.

The new keywords, **2500** and **5000** are visible only on multi-Gigabit (m-Gig) Ethernet supporting devices.

If the speed is set to **auto**, the switch negotiates with the device at the other end of the link for the speed setting, and then forces the speed setting to the negotiated value. The duplex setting remains configured on each end of the link, which might result in a duplex setting mismatch.

If both ends of the line support autonegotiation, we highly recommend the default autonegotiation settings. If one interface supports autonegotiation and the other end does not, use the auto setting on the supported side, but set the duplex and speed on the other side.

Caution Changing the interface speed and duplex mode configuration might shut down and re-enable the interface during the reconfiguration.

For guidelines on setting the switch speed and duplex parameters, see the "Configuring Interface Characteristics" chapter in the software configuration guide for this release.

Verify your settings using the **show interfaces** privileged EXEC command.

Examples

The following example shows how to set speed on a port to 100 Mbps:

```
Device(config)# interface gigabitethernet1/0/1
Device(config-if)# speed 100
```

The following example shows how to set a port to autonegotiate at only 10 Mbps:

```
Device(config)# interface gigabitethernet1/0/1
Device(config-if)# speed auto 10
```

The following example shows how to set a port to autonegotiate at only 10 or 100 Mbps:

```
Device(config)# interface gigabitethernet1/0/1
Device(config-if)# speed auto 10 100
```

stack-power

To configure StackPower parameters for the power stack or for a switch in the power stack, use the **stack power** command in global configuration mode. To return to the default setting, use the **no** form of the command,

stack-power stack *power-stack-name* | **switch** *stack-member-number*
no stack-power stack *power-stack-name* | **switch** *stack-member-number*

Syntax Description

stack *power-stack-name*	Specifies the name of the power stack. The name can be up to 31 characters. Entering these keywords followed by a carriage return enters power stack configuration mode.
switch *stack-member-number*	Specifies the switch number in the stack (1 to 4) to enter switch stack-power configuration mode for the switch.

Command Default

There is no default.

Command Modes

Global configuration

Command History

Release	Modification
Cisco IOS XE Everest 16.5.1a	This command was introduced.

Usage Guidelines

When you enter the **stack-power stack** *power stack name* command, you enter power stack configuration mode, and these commands are available:

- **default**—Returns a command to its default setting.
- **exit**—Exits ARP access-list configuration mode.
- **mode**—Sets the power mode for the power stack. See the **mode** command.
- **no**—Negates a command or returns to default settings.

If you enter the **stack-power switch** *switch-number* command with a switch number that is not participating in StackPower, you receive an error message.

When you enter the **stack-power switch** *switch-number* command with the number of a switch participating in StackPower, you enter switch stack power configuration mode, and these commands are available:

- **default**—Returns a command to its default setting.
- **exit**—Exits switch stack power configuration mode.
- **no**—Negates a command or returns to default settings.
- **power-priority**—Sets the power priority for the switch and the switch ports. See the **power-priority** command.
- **stack-id** *name*—Enters the name of the power stack to which the switch belongs. If you do not enter the power stack-ID, the switch does not inherit the stack parameters. The name can be up to 31 characters.
- **standalone**—Forces the switch to operate in standalone power mode. This mode shuts down both stack power ports.

Examples

This example removes switch 2, which is connected to the power stack, from the power pool and shutting down both power ports:

```
Device(config)# stack-power switch 2
Device(config-switch-stackpower)# standalone
Device(config-switch-stackpower)# exit
```

switchport block

To prevent unknown multicast or unicast packets from being forwarded, use the **switchport block** command in interface configuration mode. To allow forwarding unknown multicast or unicast packets, use the **no** form of this command.

switchport block multicast | **unicast**
no switchport block multicast | **unicast**

Syntax Description

multicast	Specifies that unknown multicast traffic should be blocked. **Note** Only pure Layer 2 multicast traffic is blocked. Multicast packets that contain IPv4 or IPv6 information in the header are not blocked.
unicast	Specifies that unknown unicast traffic should be blocked.

Command Default

Unknown multicast and unicast traffic is not blocked.

Command Modes

Interface configuration

Command History

Release	Modification
Cisco IOS XE Everest 16.5.1a	This command was introduced.

Usage Guidelines

By default, all traffic with unknown MAC addresses is sent to all ports. You can block unknown multicast or unicast traffic on protected or nonprotected ports. If unknown multicast or unicast traffic is not blocked on a protected port, there could be security issues.

With multicast traffic, the port blocking feature blocks only pure Layer 2 packets. Multicast packets that contain IPv4 or IPv6 information in the header are not blocked.

Blocking unknown multicast or unicast traffic is not automatically enabled on protected ports; you must explicitly configure it.

For more information about blocking packets, see the software configuration guide for this release.

This example shows how to block unknown unicast traffic on an interface:

```
Device(config-if)# switchport block unicast
```

You can verify your setting by entering the **show interfaces** *interface-id* **switchport** privileged EXEC command.

system mtu

Syntax Description

bytes

Command Default

The default MTU size for all ports is 1500 bytes.

Command Modes

Global configuration

Command History

Release	Modification
Cisco IOS XE Everest 16.5.1a	This command was introduced.

Usage Guidelines

You can verify your setting by entering the **show system mtu** privileged EXEC command.

The switch does not support the MTU on a per-interface basis.

If you enter a value that is outside the allowed range for the specific type of interface, the value is not accepted.

voice-signaling vlan (network-policy configuration)

To create a network-policy profile for the voice-signaling application type, use the **voice-signaling vlan** command in network-policy configuration mode. To delete the policy, use the **no** form of this command.

voice-signaling vlan *vlan-id* [**cos** *cos-value* | **dscp** *dscp-value*] | **dot1p** [**cos** *l2-priority* | **dscp** *dscp*] | **none** | **untagged**

Syntax Description

vlan-id	(Optional) The VLAN for voice traffic. The range is 1 to 4094.
cos *cos-value*	(Optional) Specifies the Layer 2 priority class of service (CoS) for the configured VLAN. The range is 0 to 7; the default is 5.
dscp *dscp-value*	(Optional) Specifies the differentiated services code point (DSCP) value for the configured VLAN. The range is 0 to 63; the default is 46.
dot1p	(Optional) Configures the phone to use IEEE 802.1p priority tagging and to use VLAN 0 (the native VLAN).
none	(Optional) Does not instruct the Cisco IP phone about the voice VLAN. The phone uses the configuration from the phone key pad.
untagged	(Optional) Configures the phone to send untagged voice traffic. This is the default for the phone.

Command Default

No network-policy profiles for the voice-signaling application type are defined.

The default CoS value is 5.

The default DSCP value is 46.

The default tagging mode is untagged.

Command Modes

Network-policy profile configuration

Command History

Release	Modification
Cisco IOS XE Everest 16.5.1a	This command was introduced.

Usage Guidelines

Use the **network-policy profile** global configuration command to create a profile and to enter network-policy profile configuration mode.

The voice-signaling application type is for network topologies that require a different policy for voice signaling than for voice media. This application type should not be advertised if all of the same network policies apply as those advertised in the voice policy TLV.

When you are in network-policy profile configuration mode, you can create the profile for voice-signaling by specifying the values for VLAN, class of service (CoS), differentiated services code point (DSCP), and tagging mode.

These profile attributes are contained in the Link Layer Discovery Protocol for Media Endpoint Devices (LLDP-MED) network-policy time-length-value (TLV).

To return to privileged EXEC mode from the network-policy profile configuration mode, enter the **exit** command.

This example shows how to configure voice-signaling for VLAN 200 with a priority 2 CoS:

```
Device(config)# network-policy profile 1
Device(config-network-policy)# voice-signaling vlan 200 cos 2
```

This example shows how to configure voice-signaling for VLAN 400 with a DSCP value of 45:

```
Device(config)# network-policy profile 1
Device(config-network-policy)# voice-signaling vlan 400 dscp 45
```

This example shows how to configure voice-signaling for the native VLAN with priority tagging:

```
Device(config-network-policy)# voice-signaling vlan dot1p cos 4
```

voice vlan (network-policy configuration)

To create a network-policy profile for the voice application type, use the **voice vlan** command in network-policy configuration mode. To delete the policy, use the **no** form of this command.

voice vlan *vlan-id* [**cos** *cos-value* | **dscp** *dscp-value*] | **dot1p** [**cos** *l2-priority* | **dscp** *dscp*] | **none** | **untagged**

Syntax Description

vlan-id	(Optional) The VLAN for voice traffic. The range is 1 to 4094.
cos *cos-value*	(Optional) Specifies the Layer 2 priority class of service (CoS) for the configured VLAN. The range is 0 to 7; the default is 5.
dscp *dscp-value*	(Optional) Specifies the differentiated services code point (DSCP) value for the configured VLAN. The range is 0 to 63; the default is 46.
dot1p	(Optional) Configures the phone to use IEEE 802.1p priority tagging and to use VLAN 0 (the native VLAN).
none	(Optional) Does not instruct the Cisco IP phone about the voice VLAN. The phone uses the configuration from the phone key pad.
untagged	(Optional) Configures the phone to send untagged voice traffic. This is the default for the phone.

Command Default

No network-policy profiles for the voice application type are defined.

The default CoS value is 5.

The default DSCP value is 46.

The default tagging mode is untagged.

Command Modes

Network-policy profile configuration

Command History

Release	Modification
Cisco IOS XE Everest 16.5.1a	This command was introduced.

Usage Guidelines

Use the **network-policy profile** global configuration command to create a profile and to enter network-policy profile configuration mode.

The voice application type is for dedicated IP telephones and similar devices that support interactive voice services. These devices are typically deployed on a separate VLAN for ease of deployment and enhanced security through isolation from data applications.

When you are in network-policy profile configuration mode, you can create the profile for voice by specifying the values for VLAN, class of service (CoS), differentiated services code point (DSCP), and tagging mode.

These profile attributes are contained in the Link Layer Discovery Protocol for Media Endpoint Devices (LLDP-MED) network-policy time-length-value (TLV).

To return to privileged EXEC mode from the network-policy profile configuration mode, enter the **exit** command.

This example shows how to configure the voice application type for VLAN 100 with a priority 4 CoS:

```
Device(config)# network-policy profile 1
Device(config-network-policy)# voice vlan 100 cos 4
```

This example shows how to configure the voice application type for VLAN 100 with a DSCP value of 34:

```
Device(config)# network-policy profile 1
Device(config-network-policy)# voice vlan 100 dscp 34
```

This example shows how to configure the voice application type for the native VLAN with priority tagging:

```
Device(config-network-policy)# voice vlan dot1p cos 4
```