L Commands

l2protocol tunnel

To enable Layer 2 protocol tunneling, use the **l2protocol tunnel** command. To disable protocol tunneling, use the **no** form of this command.

l2protocol tunnel [{**cdp** | **stp** | **vtp**}]
no l2protocol tunnel [{**cdp** | **stp** | **vtp**}]

Syntax Description

cdp	(Optional) Enables Cisco Discovery Protocol (CDP) tunneling.
stp	(Optional) Enables Spanning Tree Protocol (STP) tunneling.
vtp	(Optional) Enables VLAN Trunking Protocol (VTP) tunneling.

Command Default

Layer 2 protocol tunneling is disabled.

Command Modes

Interface configuration mode

Command History

Release	Modification
5.0(2)	This command was introduced.

Usage Guidelines

This command does not require a license.

Examples

This example shows how to enable Layer 2 protocol tunneling:

```
switch(config-if)# l2protocol tunnel cdp
```

Related Commands

Command	Description
show l2protocol tunnel	Displays Layer 2 protocol tunnel information.

l2protocol tunnel cos

To specify a global class of service (CoS) value on all Layer 2 protocol tunneling interfaces, use the **l2protocol tunnel cos** command. To reset the global CoS value to its default, use the **no** form of this command.

l2protocol tunnel cos *cos-value*
no l2protocol tunnel cos

Syntax Description

cos-value	CoS value. The range is from 0 to 7. The default value is 5.

Command Default

CoS value is 5.

Command Modes

Global configuration mode

Command History

Release	Modification
5.0(2)	This command was introduced.

Usage Guidelines

This command does not require a license.

Examples

This example shows how to specify a global CoS value on all Layer 2 protocol tunneling interfaces:

```
switch(config)# l2protocol tunnel cos 7
```

Related Commands

Command	Description
show l2protocol tunnel	Displays Layer 2 protocol tunnel information.

l2protocol tunnel drop-threshold

To specify the maximum number of packets that can be processed on a Layer 2 protocol tunneling interface before being dropped, use the **l2protocol tunnel drop-threshold** command. To reset the values to 0 and disable the drop threshold, use the **no** form of this command.

l2protocol tunnel drop-threshold [{**cdp** | **stp** | **vtp**}] *packets-per-sec*
no l2protocol tunnel drop-threshold [{**cdp** | **stp** | **vtp**}]

Syntax Description

cdp	(Optional) Specifies the number of Cisco Discovery Protocol (CDP) packets that can be processed on an interface.
stp	(Optional) Specifies the number of Spanning Tree Protocol (STP) packets that can be processed on an interface.
vtp	(Optional) Specifies the number of VLAN Trunking Protocol (VTP) packets that can be processed on an interface.
packets-per-sec	Maximum number of packets that can be processed on an interface before being dropped. The range is from 1 to 4096.

Command Default

The drop threshold is disabled.

Command Modes

Interface configuration mode

Command History

Release	Modification
5.0(2)	This command was introduced.

Usage Guidelines

This command does not require a license.

Examples

This example shows how to specify the maximum number of CDP packets that can be processed on an Layer 2 protocol tunneling interface before being dropped:

```
switch(config-if)# l2protocol tunnel drop-threshold cdp 1024
```

Related Commands

Command	Description
show l2protocol tunnel	Displays Layer 2 protocol tunnel information.

l2protocol tunnel shutdown-threshold

To specify the maximum number of packets that can be processed on a Layer 2 protocol tunneling interface, use the **l2protocol tunnel shutdown-threshold** command. To reset the values to 0 and disable the shutdown threshold, use the **no** form of this command

l2protocol tunnel shutdown-threshold [{**cdp** | **stp** | **vtp**}] *packets-per-sec*
no l2protocol tunnel shutdown-threshold [{**cdp** | **stp** | **vtp**}]

Syntax Description

cdp	(Optional) Specifies the number of Cisco Discovery Protocol (CDP) packets that can be processed on an interface.
stp	(Optional) Specifies the number of Spinning Tree Protocol (STP) packets that can be processed on an interface.
vtp	(Optional) Specifies the number of VLAN Trunking Protocol (VTP) packets that can be processed on an interface.
packets-per-sec	Maximum number of packets that can be processed on an interface. When the number of packets is exceeded, the port is put in error-disabled state. The range is from 1 to 4096.

Command Default

The shutdown threshold is disabled.

Command Modes

Interface configuration mode

Command History

Release	Modification
5.0(2)	This command was introduced.

Usage Guidelines

When the number of packets is exceeded, the port is put in error-disabled state.

This command does not require a license.

Examples

This example shows how to specify the maximum number of packets that can be processed on an Layer 2 protocol tunneling interface before the port is put in error-disabled state:

```
switch(config-if)# l2protocol tunnel shutdown-threshold 2048
```

Related Commands

Command	Description
show l2protocol tunnel	Displays Layer 2 protocol tunnel information.

lacp graceful-convergence

To configure Link Aggregation Control Protocol (LACP) graceful convergence on a port channel or vPC physical port, use the **lacp graceful-convergence** command. To disable graceful convergence, use the **no** form of this command.

lacp graceful-convergence
no lacp graceful-convergence

Syntax Description

This command has no arguments or keywords.

Command Default

Enabled.

Command Modes

Interface configuration

vpc configuration mode

Command History

Release	Modification
7.1(1)D1(0)	This command can be configured on a vPC physical port.
4.2(3)	This command was introduced.

Usage Guidelines

Use the **no lacp graceful-convergence** command only with LACP ports that are connected to a non-Nexus peer. Using the **no lacp graceful-convergence** command with a Cisco Nexus peer may cause port suspension.

Note The port channel has to be in the administratively down state before the **lacp graceful-convergence** or the **no lacp graceful-convergence** command can be run.

To allow LACP graceful convergence on the vPC physical port, the device must be in vpc configuration mode (config-if-vpc).

This command does not require a license.

Examples

This example shows how to configure LACP graceful convergence the port channel:

```
switch(config)# interface port-channel 2
switch(config-if)# shutdown
switch(config-if)# lacp graceful-convergence
switch(config-if)# no shutdown
```

This example shows how to configure LACP graceful convergence the vPC physical port:

```
switch(config)# interface ethernet1/1
switch(config-if)# vpc 1
switch(config-if-vpc)# lacp graceful-convergence
```

Related Commands

Command	Description
show lacp summary	Displays information summary information about LACP.

Command	Description
show vpc brief	Displays brief information about the vPCs.

lacp max-bundle

To configure a port channel maximum bundle, use the **lacp max-bundle** command. To return to the default setting, use the **no** form of this command.

lacp max-bundle *max-bundle-number*
no lacp mac-bundle *max-bundle-number*

Syntax Description

max-bundle-number	Maximum bundle number. The range is from 1 to 16.

Command Default

The default for the port channel max-bundle is 16.

The allowed range is from 1 to 16.

Command Modes

Interface configuration mode

Command History

Release	Modification
5.1(1)	This command was introduced.

Usage Guidelines

Note Even if the default value is 16, the number of active members in a port channel is the minimum number of the maximum bundle configured and the maximum active members that are allowed in the portchannel.

This command does not require a license.

Examples

This example shows how to configure port channel maximum bundles:

```
switch(config)# interface port-channel 1
switch(config-if)# lacp max-bundle 2
switch(config-if)#
```

Related Commands

Command	Description
interface	Enters the interface configuration mode and configures the types and identities of interfaces.

lacp min-links

To configure the minimum links for a port channel, use the **lacp min-links** command. To return to the default setting, use the **no** form of this command.

lacp min-links *number*
no lacp min-links *number*

Syntax Description

number	Minimum link number. The range is from 1 to 16.

Command Default

The default for the port channel minimum link is 1.

The allowed range is from 1 to 16.

Command Modes

Interface configuration mode

Command History

Release	Modification
5.1(1)	This command was introduced.

Usage Guidelines

This command does not require a license.

Examples

This example shows how to configure the minimum link for a port channel:

```
switch(config)# interface port-channel 1
switch(config-if)# lacp min-links 3
switch(config-if)#
```

Related Commands

Command	Description
interface	Enters the interface configuration mode and configures the types and identities of interfaces .

lacp port-priority

To set the priority for the physical interfaces for the Link Aggregation Control Protocol (LACP), use the **lacp port-priority** command. To return the port priority to the default value, use the **no** form of this command.

lacp port-priority *priority*
no lacp port-priority

Syntax Description

priority	Priority for the physical interfaces. The range is from 1 to 65535.

Command Default

32768

Command Modes

Interface configuration mode

Command History

Release	Modification
4.0	This command was introduced.

Usage Guidelines

Each port configured to use LACP has an LACP port priority. You can accept the default value of 32768 for the LACP port priority, or you can configure a value between 1 and 65535. LACP uses the port priority with the port number to form the port identifier. The port priority is used to decide which ports should be put into standby mode when there is a hardware limitation that prevents all compatible ports from aggregating or when you have more than eight ports configured for the channel group.

When setting the priority, note that a *higher* number means a *lower* priority.

This command does not require a license.

Examples

This example shows how to set the LACP port priority for the interface to 2000:

```
switch(config-if)# lacp port-priority 2000
```

Related Commands

Command	Description
show lacp	Displays LACP information.

lacp rate

To set the rate at which the Link Aggregation Control Protocol (LACP) sends LACP control packets to an LACP-supported interface, use the **lacp rate** command. To reset the rate to its default, use the **no** form of this command.

lacp rate {**fast** | **normal**}
no lacp rate {**fast** | **normal**}

Syntax Description

fast	Specifies the fast rate of 1 second.
normal	Specifies the default rate of 30 seconds.

Command Default

30 seconds

Command Modes

Interface configuration mode

Command History

Release	Modification
5.1(1)	This command was introduced.

Usage Guidelines

You can change the LACP timer rate to modify the duration of the LACP timeout. Use the **lacp rate** command to set the rate at which LACP control packets are sent to an LACP-supported interface. You can change the timeout rate from the default rate (30 seconds) to the fast rate (1 second).

This command is supported only on LACP-enabled interfaces.

This command does not require a license.

Examples

This example shows how to configure the LACP fast rate on Ethernet interface 1/4:

```
switch# configure terminal
switch (config)# interface ethernet 1/4
switch(config-if)# lacp rate fast
```

Related Commands

Command	Description
show lacp	Displays LACP information.

lacp suspend-individual

To enable LACP individual port suspension behavior on the port channel or vPC physical port, use the **lacp suspend-individual** command. To disable LACP individual port suspension behavior, use the **no** form of this command.

lacp suspend-individual
no lacp suspend-individual

Syntax Description

This command has no arguments or keywords.

Command Default

Enabled.

Command Modes

Interface configuration

vpc configuration mode

Command History

Release	Modification
7.1(1)D1(0)	This command can be configured on a vPC physical port.
4.2(3)	This command was introduced.

Usage Guidelines

By default, LACP sets a port or vPC physical port to the suspended state if it does not receive an LACP PDU from the peer. In some cases, although this feature helps in preventing loops created due to misconfigurations, it can cause servers to fail to boot up because they require LACP to logically bring up the port. You can put a port or vPC physical port into an individual state by using the **lacp suspend-individual** command.

Note The port channel has to be in the administratively down state before the **lacp suspend-individual** or the **no lacp suspend-individual** command can be run.

To put the vPC physical port into an individual state, the device must be in vpc configuration mode (config-if-vpc).

This command does not require a license.

Examples

This example shows how to configure LACP graceful convergence the port channel:

```
switch(config)# interface port-channel 2
switch(config-if)# shutdown
```

switch(config-if-vpc)# **lacp graceful-convergence**

This example shows how to configure LACP graceful convergence the vPC physical port:

```
switch(config)# interface ethernet1/1
switch(config-if)# vpc 1
switch(config-if-vpc)# lacp graceful-convergence
```

Related Commands

Command	Description
show lacp summary	Displays information summary information about LACP.
show vpc brief	Displays brief information about the vPCs.

lacp system-priority

To set the system priority of the device for the Link Aggregation Control Protocol (LACP), use the **lacp system-priority command**. To return the system priority to the default value, use the **no** form of this command.

lacp system-priority *priority*
no lacp system-priority

Syntax Description

priority	Priority for the physical interfaces. The range is from 1 to 65535 .

Command Default

32768

Command Modes

Global configuration mode

Command History

Release	Modification
4.0	This command was introduced.

Usage Guidelines

Each device that runs LACP has an LACP system priority value. You can accept the default value of 32768 for this parameter, or you can configure a value between 1 and 65535. LACP uses the system priority with the MAC address to form the system ID and also during negotiation with other systems. The system ID is unique for each virtual device context (VDC).

When setting the priority, note that a *higher* number means a *lower* priority.

This command does not require a license.

Examples

This example shows how to set the LACP system priority for the device to 2500:

```
switch(config)# lacp system-priority 2500
switch(config)#
```

Related Commands

Command	Description
show lacp	Displays LACP information.
show lacp system identifier	Displays information on the LACP system identifier.

layer3 peer-router

To enable support for layer 3 routing protocols over virtual port channels (vPCs), use the **layer3 peer-router** command. To disable support for layer 3 routing protocols, use the **no** form of this command.

layer3 peer-router
no layer3 peer-router

Syntax Description

This command has no arguments or keywords.

Command Default

Disabled.

Command Modes

VPC domain configuration mode

Command History

Release	Modification
7.1(1)D1(0)	This command was introduced.

Usage Guidelines

When you configure this command, the TTL value of packets destined to the vPC peer is not decremented. This command enables vPC to use layer 3 routing protocols that source packets with a TTL of 1.

Note This command is supported on F2, F2e, and F3 Series modules.

This command does not require a license.

Examples

This example shows how to enable support for layer 3 routing protocols over vPCs:

```
switch#  configure terminal
switch(config)# vpc domain 1
(config-vpc-domain)# layer3 peer-router
```

Related Commands

Command	Description
show vpc brief	Displays information about vPCs.

link-monitoring

To require that link-monitoring feature is configured on a remote switch before the OAM session is active, use the **link-monitoring** command in ethernet OAM require-remote configuration mode. To remove the requirement, use the **no** form of this command.

link-monitoring
nolink-monitoring

Syntax Description

This command has no keywords or arguments.

Command Default

None

Command Modes

Ethernet OAM require-remote configuration (config-eoam-require)

Command History

Release	Modification
7.3(0)D1(1)	This command was introduced.

Usage Guidelines

This command does not require a license.

The following example shows how to set up a configuration to require that the link-monitoring feature is configured on a remote switch before the OAM session is active:

```
switch# configure terminal
switch(config)# feature ethernet-link-oam
switch(config)# ethernet oam profile Profile_1
switch(config-eoam)# require-remote
switch(config-eoam-require)# link-monitoring
```

Related Commands

Command	Description
ethernet oam profile	Creates an EOAM profile and enters EOAM configuration mode.
feature ethernet-link-oam	Enables the ethernet link OAM feature.
require-remote	Enters the ethernet OAM require-remote configuration submode to specify the features that you have to enable before an OAM session can become active.

link debounce

To enable the debounce timer for Ethernet ports and specify a debounce time, use the **link debounce** command. To disable the timer, use the **no** form of this command.

link debounce [{**link-up** | **time**}] [*milliseconds*]
no link debounce

Syntax Description

link-up *milliseconds*	(Optional) Specifies the debounce link-up timer for the time you want to specify. The range is from 0 to 5000.
time *milliseconds*	(Optional) Specifies the debounce timer for the time you want to specify. The range is from 0 to 5000.

Command Default

Enabled

300 milliseconds

Command Modes

Interface configuration mode

Command History

Release	Modification
4.0	This command was introduced.
7.3(0)D1(1)	The **link-up** keyword was added.

Usage Guidelines

Use the link debounce command to enable the debounce timer for Ethernet ports and set it for a specified amount of time in milliseconds. The default debounce time applies when you enter the **link debounce** command with no arguments.

The range of time is from 1 to 5000 ms. The debounce timer is disabled if you specify the time to 0 ms.

This command does not require a license.

Examples

This example shows how to enable the debounce timer and set the debounce time to 1000 ms for the Ethernet port 3/1:

```
switch# configure terminal
switch(config)# interface ethernet 3/1
switch(config-if)# link debounce time 1000
```

This example shows how to configure the debounce link-up timer to 1000 ms for the Ethernet port 3/1:

```
switch# configure terminal
switch(config)# interface ethernet 3/1
switch(config-if)# link debounce link-up time 1000
```

This example shows how to disable the debounce timer for the Ethernet port 3/1:

```
switch# configure terminal
switch(config)# interface ethernet 3/1
switch(config-if)# no link debounce
```

Related Commands

Command	Description
show interface debounce	Displays the debounce time information about the interface.

link-monitor

To enter Ethernet OAM link monitor configuration mode, use the **link-monitor** command in Ethernet OAM configuration mode. To enter interface Ethernet OAM link monitor configuration mode, use the **link-monitor** command in interface Ethernet OAM configuration mode.

link-monitor

Syntax Description

This command has no keywords or arguments.

Command Default

None.

Command Modes

Ethernet OAM configuration (config-eoam)

Interface Ethernet OAM configuration (config-if-eoam)

Command History

Release	Modification
7.3(0)D1(1)	This command was introduced.

Usage Guidelines

This command does not require a license.

This example shows how to enter the Ethernet OAM link monitor configuration mode.

```
switch# configure terminal
switch(config)# ethernet oam profile Profile_1
switch(config-eoam)# link-monitorswitch(config-eoam-lm)#
```

The following example shows how to enter the link monitor configuration mode from interface Ethernet OAM configuration mode.

```
switch# configure terminal
switch(config)# interface ethernet 2/19
switch(config-if)# ethernet oam
switch(config-if-eoam)# link-monitor
```

load-interval

To change the sampling interval for statistics collections on interfaces, use the **load-interval** command. To return to the default sampling interval, use the **no** form of this command.

load-interval [**counter** {**1** | **2** | **3**}] *seconds*
no load-interval [**counter** {**1** | **2** | **3**}] [*seconds*]

Syntax Description

counter	(Optional) Specifies the counter for this load interval.
1 | **2** | **3**	Specifies the counter number configured on the interface.
seconds	Interval between sampling statistics on the interface. The range is from 60 to 300 seconds for VLAN network interfaces, and the range is from 30 to 300 seconds for Ethernet and port-channel interfaces.

Command Default

1—30 seconds; 60 seconds for VLAN network interface

2—300 seconds

3—not configured

Command Modes

Interface configuration mode

Command History

Release	Modification
4.2(1)	This command was introduced.

Usage Guidelines

Use the **load-interval** command to obtain bit-rate and packet-rate statistics for three different durations.

You can set the statistics collection intervals on the following types of interfaces:

- Ethernet interfaces
- Port-channel interfaces
- VLAN network interfaces

You cannot use this command on the management interface or subinterfaces.

This command sets the sampling interval for such statistics as packet rate and bit rate on the specified interface.

This command does not require a license.

Examples

This example shows how to set the three sample intervals for the Ethernet port 3/1:

```
switch# configure terminal
switch(config)# interface ethernet 3/1
switch(config-if)# load-interval counter 1 60
switch(config-if)# load-interval counter 2 135
switch(config-if)# load-interval counter 3 225
```

Related Commands

Command	Description
show interface	Displays information about the interface.
clear counters interface	Clears the counters for all load intervals for the specified interfaces.