



Cisco Nexus 7000 Series NX-OS Layer 2 Switching Command Reference



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C Commands

- [clear mac address-table dynamic, page 2](#)
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- [clear vlan counters, page 8](#)
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clear mac address-table dynamic

To clear the dynamic address entries from the MAC address table in Layer 2, use the **clear mac address-table dynamic** command.

clear mac address-table dynamic [*address mac_addr*][*vlan vlan_id*][*interface {type slot/port| port-channel number}*]

Syntax Description

<i>address mac_addr</i>	(Optional) Specifies the MAC address to remove from the table. Use the format XXXX.XXXX.XXXX.
<i>vlan vlan_id</i>	(Optional) Specifies the VLAN from which the MAC address should be removed from the table. The range of valid values is from 1 to 4094.
<i>interface type slot/port</i>	(Optional) Specifies the interface. Use either the type of interface, the slot number, or the port number.
<i>port-channel number</i>	(Optional) Specifies the port channel number. The range is from 1 to 4096.

Command Default

None

Command Modes

Any command mode
Supported User Roles
network-admin
vdc-admin

Command History

Release	Modification
4.0	This command was introduced.

Usage Guidelines

Use the **clear mac address-table dynamic** command with no arguments to remove all dynamic entries from the table.

To clear static MAC addresses from the table, use the **no mac address-table static** command in configuration mode.

If the **clear mac address-table dynamic** command is entered with no options, all dynamic addresses are removed. If you specify an address but do not specify an interface, the address is deleted from all interfaces.

If you specify an interface but do not specify an address, the device removes all addresses on the specified interfaces.

This command does not require a license.

Examples

This example shows how to clear all the dynamic Layer 2 entries from the MAC address table:

```
switch(config)#clear mac address-table dynamic  
switch(config) #
```

This example shows how to clear all the dynamic Layer 2 entries from the MAC address table for VLAN 20 on port 2/20:

```
switch(config)# clear mac address-table dynamic vlan 20 interface ethernet 2/20  
switch(config)#
```

Related Commands

Command	Description
show mac address-table	Displays information about the MAC address table.

clear spanning-tree counters

To clear the counters for the Spanning Tree Protocol (STP), use the clear spanning-tree counters command.

clear spanning-tree counters [**vlan** *vlan-id*] [**interface** {*ethernet interface-num*|*port-channel channel-num*}]

Syntax Description

vlan <i>vlan-id</i>	(Optional) Specifies the VLAN. The range is from 1 to 4094.
interface	(Optional) Specifies the interface type.
<i>ethernet</i>	Specifies the Ethernet.
<i>interface-num</i>	Module and port number.
<i>port-channel channel-num</i>	Port-channel number.

Command Default

None

Command Modes

Any command mode
Supported User Roles
network-admin
vdc-admin

Command History

Release	Modification
4.0	This command was introduced.

Usage Guidelines

You can clear all the STP counters on the entire device, per VLAN, or per interface.
This command does not require a license.

Examples

This example shows how to clear the STP counters for VLAN 5:

```
switch# clear spanning-tree counters vlan 5
```

Related Commands

Command	Description
show spanning-tree	Displays information about the spanning tree state.
show spanning-tree mst	Displays information about the MST spanning tree state.

clear spanning-tree detected-protocol

To restart the protocol migration, use the clear spanning-tree detected-protocol command.

clear spanning-tree detected-protocol [**interface** {**ethernet** *interface-num*|*port-channel channel-num*}]

Syntax Description

interface	(Optional) Specifies the interface type.
ethernet	Specifies the Ethernet.
<i>interface-num</i>	Module and port number.
<i>port-channel channel-num</i>	Port-channel number.

Command Default

None

Command Modes

Any command mode
Supported User Roles
network-admin
vdc-admin

Command History

Release	Modification
4.0	This command was introduced.

Usage Guidelines

Rapid per VLAN Spanning Tree Plus (Rapid PVST+) and Multiple Spanning Tree (MST) have built-in compatibility mechanisms that allow them to interact properly with other versions of IEEE spanning tree or other regions. For example, a bridge running Rapid PVST+ can send 802.1D bridge protocol data units (BPDUs) on one of its ports when it is connected to a legacy bridge. An MST bridge can detect that a port is at the boundary of a region when it receives a legacy BPDU or an MST BPDU that is associated with a different region.

These mechanisms are not always able to revert to the most efficient mode. For example, a Rapid PVST+ bridge that is designated for a legacy 802.1D bridge stays in 802.1D mode even after the legacy bridge has been removed from the link. Similarly, an MST port assumes that it is a boundary port when the bridges to which it is connected have joined the same region.

To force the MST port to renegotiate with the neighbors, enter the **clear spanning-tree detected-protocol** command.

If you enter the **clear spanning-tree detected-protocol** command with no arguments, the command is applied to every port of the device.

This command does not require a license.

Examples

This example shows how to restart the protocol migration on a specific interface:

```
switch# clear spanning-tree detected-protocol interface gigabitethernet5/8
```

Related Commands

Command	Description
show spanning-tree	Displays information about the spanning tree state.
show spanning-tree mst	Displays information about MST spanning tree state.

clear vlan counters

To clear the counters for a specified VLAN or all VLANs, use the **clear vlan counters** command.

clear vlan [*id vlan-id*] **counters**

Syntax Description

id	(Optional) Specifies the VLAN ID that you want to clear . Valid values are from 1 to 4096.
<i>vlan-id</i>	Number of the VLAN that you want to clear .

Command Default

None

Command Modes

Any command mode
Supported User Roles
network-admin
vdc-admin

Command History

Release	Modification
4.0	This command was introduced.

Usage Guidelines

If you do not specify a VLAN ID, the system clears the counters for all the VLANs, including private VLANs. This command does not require a license.

Examples

This example shows how to clear the counters for VLAN 50:

```
switch# clear vlan 50 counters
```

Related Commands

Command	Description
show vlan counters	Displays information on statistics for all VLANs or the specified VLAN.
show interface counters	Displays information about the statistics for the specified VLANs.

clear vtp counters

To clear the Virtual Trunking Protocol (VTP) counters, use the **clear vtp counters** command.

clear vtp counters

Syntax Description This command has no arguments or keywords.

Command Default None

Command Modes Any command mode
Supported User Roles
network-admin
vdc-admin

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 clear the VTP counters:

```
switch# clear vtp counters
switch#
```

Related Commands	Command	Description
	show interface counters	Displays information about the statistics for the specified VLANs.

clear vtp counters



F Commands

- [feature private-vlan, page 12](#)
- [feature vtp, page 14](#)

feature private-vlan

To enable private VLANs, use the **feature private-vlan** command. To return to the default settings, use the **no** form of this command.

feature private-vlan

no feature private-vlan

Syntax Description This command has no arguments or keywords.

Command Default Disabled

Command Modes Global configuration
Supported User Roles
network-admin
vdc-admin

Command History	Release	Modification
	4.0	This command was introduced.

Usage Guidelines You must use this command to enable private VLAN functionality. You must enable private VLANs before the private VLANs are visible to the user. When private VLANs are disabled, all of the configuration on the feature is removed from the interfaces.

You cannot apply the **no feature private-vlan** command if the device has any operational ports in private VLAN mode. You must shut down all operational ports in private VLAN mode before you use the **no feature private-vlan** command. After you shut down the interfaces and enter the **no feature private-vlan** command, these ports return to the default mode.

This command does not require a license.

Examples This example shows how to enable private VLAN functionality on the device:

```
switch(config)# feature private-vlan
switch(config)#
```

Related Commands

Command	Description
show feature	Displays whether the feature is enabled or disabled.

Command	Description
show vlan private-vlan	Displays information on private VLANs. If the feature is not enabled, this command returns an error.

feature vtp

To enable the Virtual Trunking Protocol (VTP), use the **feature vtp** command. To return to the default setting, use the **no** form of this command.

feature vtp

no feature vtp

Syntax Description This command has no arguments or keywords.

Command Default Disabled

Command Modes Global configuration
Supported User Roles
network-admin
vdc-admin

Command History

Release	Modification
4.1(2)	This command was introduced.

Usage Guidelines

You must use this command to enable private VTP functionality. You must enable private VTP before you can configure or use any of the functionality.

The VTP mode changes to off if VLAN long-names are enabled instead of the default server.

This situation is true even when PVLAN or VLANs from 1002 to 1005 are present.



Note

When you disable the VTP feature, all of the VTP configurations are lost.

This command does not require a license.

Examples

This example shows how to enable VTP functionality on the device:

```
switch(config)#feature vtp
switch(config)#
```

Related Commands

Command	Description
show feature	Displays whether the feature is enabled or disabled.



I Commands

- [instance vlan](#), page 18

instance vlan

To map a VLAN or a set of VLANs to a Multiple Spanning Tree instance (MSTI), use the **instance vlan** command. To delete the instance and return the VLANs to the default instance (CIST), use the **no** form of this command.

instance *instance-id* **vlan** *vlan-id*

no instance *instance-id* **vlan** *vlan-id*

Syntax Description

<i>instance-id</i>	Instances to which the specified VLANs are mapped; the range of valid values is from 0 to 4094.
<i>vlan-id</i>	Number of the VLAN that you are mapping to the specified MSTI; the range of valid values is from 1 to 4094.

Command Default

No VLANs are mapped to any MST instance (all VLANs are mapped to the CIST instance).

Command Modes

MST configuration submode

Supported User Roles

network-admin

vdc-admin

Command History

Release	Modification
4.0	This command was introduced.

Usage Guidelines

The **vlan** *vlan-range* is entered as a single value or a range.

You cannot map VLANs 3968 to 4047 or 4094 to an MST instance. These VLANs are reserved for internal use by the device.

The mapping is incremental, not absolute. When you enter a range of VLANs, this range is added to or removed from the existing instances.

Any unmapped VLAN is mapped to the CIST instance.



Caution

When you change the VLAN-to-MSTI mapping, the system restarts MST.

This command does not require a license.

Examples

This example shows how to map a range of VLANs to MSTI 4:

```
switch(config)# spanning-tree mst configuration  
switch(config-mst)# instance 4 vlan 100-200  
switch(config-mst)#
```

Related Commands

Command	Description
show spanning-tree mst configuration	Displays information about the MST protocol.
spanning-tree mst configuration	Enters MST configuration submode.



M Commands

- [mac address-table aging-time, page 22](#)
- [mac-address, page 24](#)
- [mac-address bpdv source version 2, page 26](#)
- [media ethernet, page 28](#)
- [mac address-table aging-time, page 29](#)
- [mac address-table static, page 31](#)

mac address-table aging-time

To configure the aging time for entries in the Layer 2 table, use the **mac address-table aging-time** command. To return to the default settings, use the **no** form of this command.

mac address-table aging-time *seconds* [**vlan** *vlan_id*]

no mac address-table aging-time [**vlan** *vlan_id*]

Syntax Description

<i>seconds</i>	Aging time for MAC table entries for Layer 2. The range is from 120 to 918000 seconds. The default is 1800 seconds. Entering 0 disables the aging time.
vlan <i>vlan_id</i>	(Optional) Specifies the VLAN to apply the changed aging time.

Command Default

1800 seconds

Command Modes

Global configuration
Supported User Roles
network-admin
vdc-admin

Command History

Release	Modification
4.0	This command was introduced.

Usage Guidelines

Enter **0** seconds to disable the aging process.

The age value may be rounded off to the nearest multiple of 5 seconds. If the system rounds the value to a different value from that specified by the user (from the rounding process), the system returns an informational message.

When you use this command in the global configuration mode, the age values of all VLANs for which a configuration has not been specified are modified and those VLANs with specifically modified aging times are not modified. When you use the **no** form of this command without the VLAN parameter, only those VLANs that have not been specifically configured for the aging time reset to the default value. Those VLANs with specifically modified aging times are not modified.

When you use this command and specify a VLAN, the aging time for only that specified VLAN is modified. When you use the **no** form of this command and specify a VLAN, the aging time for the VLAN is returned

to the current *global* configuration for the aging time, which might or might not be the default value of 300 seconds depending if the global configuration of the device for the aging time has been changed.

The aging time is counted from the last time that the switch detected the MAC address.

This command does not require a license.

Examples

This example shows how to change the length of time an entry remains in the MAC address table to 500 seconds for the entire device:

```
switch(config)# mac address-table aging-time 500
switch(config)#
```

Related Commands

Command	Description
show mac address-table	Displays information about the MAC address table.
clear mac address-table aging-time	Displays information about the MAC address aging time.

mac-address

To configure a static MAC address for a Layer 3 interface, use the **mac address** command. To return to the default settings, use the **no** form of this command.

mac-address *mac-address*

no mac-address *mac-address*

Syntax Description

<i>mac-address</i>	MAC address for the Layer 3 interface. Use the format XXXX.XXXX.XXXX.
--------------------	-----------------------------------------------------------------------

Command Default

VDC MAC address

Command Modes

Interface configuration
Supported User Roles
network-admin
vdc-admin

Command History

Release	Modification
4.2(1)	This command was introduced.

Usage Guidelines

You can specify a MAC address for all Layer 3 interfaces:

- Layer 3 interfaces
- Layer 3 port channels
- Layer 3 subinterfaces
- VLAN network interface

You cannot configure static MAC addresses on tunnel interfaces.

You cannot use this command on Layer 2 interfaces or individual members of a port channel.

See the Cisco Nexus 7000 Series NX-OS Interfaces Command Reference for information on configuring Layer 3 interfaces.

You cannot configure a static group MAC address to these interfaces.

This command does not require a license.

Examples

This example shows how to configure a static MAC address on a Layer 3 interface:

```
switch(config)#interface ethernet 7/3
switch(config-if)#mac-address 02c4.1e42.a3b2
```

Related Commands

Command	Description
show interface	Displays information about the interface.
show running-config	Displays information about the current configuration.

mac-address bpdu source version 2

To enable version 2 bpdu source mac address, use the **mac-address bpdu source version 2** command. To return to the default settings, use the **no** form of this command.

mac-address bpdu source version 2

no mac-address bpdu source version 2

Syntax Description This command has no arguments or keywords.

Command Default VDC MAC address

Command Modes vPC domain configuration
Supported User Roles
network-admin
vdc-admin

Command History	Release	Modification
	6.1(3)	This command was introduced.

Usage Guidelines This command will trigger STP to use new Cisco MAC address (00:26:0b:xx:xx:xx) as the sources address of BPDU generated on vPC ports. It is important both vPC peer devices have identical configuration of this parameter. You may also, if supported by the end-devices, disable Ether channel guard on the edge devices prior to issuing this command to minimize traffic disruption due STP inconsistencies. It is recommended to re-enable the Ether channel guard after updating the related configuration on both peers.

This command does not require a license.

Examples This example shows how to enable version 2 bpdu source mac address:

```
switch# config t
Enter configuration commands, one per line. End with CNTL/Z.
switch(config)# vpc domain 1
switch(config-vpc-domain)# mac-address bpdu source version 2
Warning: This command will trigger STP to use new Cisco MAC address (00:26:0b:
xx:xx:xx) as the sources address of BPDU generated on vPC ports. It is important
both vPC peer devices have identical configuration of this parameter. You may
also disable Ether channel guard on the edge devices prior to issuing this comm-
and to minimize traffic disruption due STP inconsistencies. It is recommended to
re-enable the Ether channel guard after updating the related configuration on
both peers.
```

```
Continue? (yes/no) [no] y  
switch(config-vpc-domain)#
```

This example shows how to disable version 2 bpdu source mac address:

```
switch# config t  
Enter configuration commands, one per line. End with CNTL/Z.  
switch(config)# vpc domain 1  
switch(config-vpc-domain)# no mac-address bpdu source version 2  
switch(config-vpc-domain)#
```

Related Commands

Command	Description
show interface	Displays information about the interface.
show running-config	Displays information about the current configuration.

media ethernet



Note

The Cisco NX-OS software supports *only* Ethernet VLANs. Although the **media ethernet** command appears on the device, it does not apply to any configuration.

To set the media type for a VLAN to Ethernet, use the **media ethernet** command. Use the **no** form of this command to return to the default value.

media ethernet

no media

Syntax Description

This command has no arguments or keywords.

Command Default

Ethernet is the only media type supported.

Command Modes

VLAN configuration submode

Supported User Roles

network-admin

vdc-admin

Command History

Release	Modification
4.0	This command was introduced.

Usage Guidelines

The **media ethernet** command is not supported in Release 4.0.

This command does not require a license.

Examples

This example shows how to set the media type to Ethernet for VLAN 2:

```
switch(config)#vlan 2
switch(config-vlan)#media ethernet
switch(config-mst)#
```

Related Commands

Command	Description
show vlan	Displays VLAN information.

mac address-table aging-time

To configure the aging time for entries in the Layer 2 table, use the **mac address-table aging-time** command. To return to the default settings, use the **no** form of this command.

mac address-table aging-time *seconds* [**vlan** *vlan_id*]

no mac address-table aging-time [**vlan** *vlan_id*]

Syntax Description

<i>seconds</i>	Aging time for MAC table entries for Layer 2. The range is from 120 to 918000 seconds. The default is 1800 seconds. Entering 0 disables the aging time.
vlan <i>vlan_id</i>	(Optional) Specifies the VLAN to apply the changed aging time.

Command Default

1800 seconds

Command Modes

Global configuration
Supported User Roles
network-admin
vdc-admin

Command History

Release	Modification
4.0	This command was introduced.

Usage Guidelines

Enter **0** seconds to disable the aging process.

The age value may be rounded off to the nearest multiple of 5 seconds. If the system rounds the value to a different value from that specified by the user (from the rounding process), the system returns an informational message.

When you use this command in the global configuration mode, the age values of all VLANs for which a configuration has not been specified are modified and those VLANs with specifically modified aging times are not modified. When you use the **no** form of this command without the VLAN parameter, only those VLANs that have not been specifically configured for the aging time reset to the default value. Those VLANs with specifically modified aging times are not modified.

When you use this command and specify a VLAN, the aging time for only that specified VLAN is modified. When you use the **no** form of this command and specify a VLAN, the aging time for the VLAN is returned

to the current *global* configuration for the aging time, which might or might not be the default value of 300 seconds depending if the global configuration of the device for the aging time has been changed.

The aging time is counted from the last time that the switch detected the MAC address.

This command does not require a license.

Examples

This example shows how to change the length of time an entry remains in the MAC address table to 500 seconds for the entire device:

```
switch(config)# mac address-table aging-time 500
switch(config)#
```

Related Commands

Command	Description
show mac address-table	Displays information about the MAC address table.
clear mac address-table aging-time	Displays information about the MAC address aging time.

mac address-table static

To configure a static entry for the Layer 2 MAC address table, use the **mac address-table static** command. To delete the static entry, use the **no** form of this command.

mac address-table static address *mac_addr* **vlan** *vlan_id*

no mac address-table static address *mac_addr* **vlan** *vlan_id*

Syntax Description

<i>mac-address</i>	MAC address to add to the table. Use the format XXXX.XXXX.XXXX.
vlan <i>vlan-id</i>	Specifies the VLAN to apply static MAC address to; valid values are from 1 to 4094.
drop	(Optional) Drops all traffic that is received from and going to the configured MAC address in the specified VLAN.
interface <i>type slot/port</i>	(Optional) Specifies the interface. Use either the type of interface, the slot number, or the port number.
port-channel <i>number</i>	(Optional) Specifies the interface. Use the port-channel number.

Command Default

None

Command Modes

Global configuration
Supported User Roles
network-admin
vdc-admin

Command History

Release	Modification
4.0	This command was introduced.

Usage Guidelines

You cannot apply the **mac address-table static** *mac-address* **vlan** *vlan-id* **drop** command to a multicast MAC address.

The output interface specified cannot be a VLAN interface or a switched virtual interface (SVI).

Use the **no** form to remove entries that are profiled by the combination of specified entry information. This command does not require a license.

Examples

This example shows how to add a static entry to the MAC address table:

```
switch(config)#mac address-table static 0050.3e8d.6400 vlan 3 interface ethernet 2/1
switch(config)#
```

Related Commands

Command	Description
show mac address-table	Displays information about the MAC address table.



N Commands

- [name \(VLAN configuration\)](#), page 34
- [name \(mst configuration\)](#), page 36

name (VLAN configuration)

To set the name for a VLAN, use the **name** command. To remove the user-configured name from a VLAN, use the **no name** form of this command.

name *vlan-name*

no name

Syntax Description

<i>vlan-name</i>	Name of the VLAN; you can use up to 32 alphanumeric, case-sensitive characters.
	Note The name must be unique within each virtual device context (VDC).

Command Default

The *vlan-name* argument is VLANxxxx where xxxx represents four numeric digits (including leading zeros) equal to the VLAN ID number.

Command Modes

VLAN configuration submode

Supported User Roles

network-admin

vdc-admin

Command History

Release	Modification
4.0	This command was introduced.

Usage Guidelines

The name must be unique within the VDC, and the same name can be reused in a separate VDC.

You cannot change the name for the default VLAN, VLAN 1, or for the internally allocated VLANs.

This command does not require a license.

Examples

This example shows how to name VLAN 2:

```
switch(config)# vlan 2
switch(config-vlan)# name accounting
switch(config-mst)#
```

Related Commands

Command	Description
show vlan	Displays VLAN information.

name (mst configuration)

To set the name of a Multiple Spanning Tree (MST) region, use the **name** command. To return to the default name, use the **no** form of this command.

name *name*

no name *name*

Syntax Description

<i>name</i>	Name to assign to the MST region. It can be any string with a maximum length of 32 alphanumeric characters.
-------------	-------------------------------------------------------------------------------------------------------------

Command Default

None

Command Modes

MST configuration submode

Supported User Roles

network-admin

vdc-admin

Command History

Release	Modification
4.0	This command was introduced.

Usage Guidelines

Two or more devices with the same VLAN mapping and configuration version number are considered to be in different MST regions if the region names are different.



Caution

Be careful when using the **name** command to set the name of an MST region. If you make a mistake, you can put the device in a different region. The configuration name is a case-sensitive parameter.

This command does not require a license.

Examples

This example shows how to name a region:

```
switch(config)# spanning-tree mst configuration
switch(config-mst)# name accounting
switch(config-mst)#
```

Related Commands

Command	Description
show spanning-tree mst configuration	Displays information about the MST protocol.
spanning-tree mst configuration	Enters MST configuration submode.

name (mst configuration)



P Commands

- [private-vlan association](#), page 40
- [private-vlan mapping](#), page 42
- [private-vlan synchronize](#), page 44
- [private-vlan](#), page 46

private-vlan association

To configure the association between a primary VLAN and a secondary VLAN on a private VLAN, use the **private-vlan association** command. To remove the association, use the **no** form of this command.

private-vlan association {[**add**] *secondary-vlan-list*| **remove** *secondary-vlan-list*}

no private-vlan association

Syntax Description

add	(Optional) Associates a secondary VLAN to a primary VLAN.
<i>secondary-vlan-list</i>	VLAN ID of the secondary VLAN.
remove	Clears the association between a secondary VLAN and a primary VLAN.

Command Default

None

Command Modes

VLAN configuration submode

Supported User Roles

network-admin

vdc-admin

Command History

Release	Modification
4.0	This command was introduced.

Usage Guidelines

You must enable private VLANs by using the [feature private-vlan](#) command before you can configure private VLANs. The commands for configuring private VLANs are not visible until you enable private VLANs.



Note

Before you configure a VLAN as a secondary VLAN, either community or isolated, you must shut down the VLAN interface, or switched virtual interface (SVI), for that VLAN.

If you delete either the primary or secondary VLAN, the ports that are associated with the VLAN become inactive. When you enter the **no private-vlan** command, the VLAN returns to the normal VLAN mode. All primary and secondary associations on that VLAN are suspended, but the interfaces remain in private VLAN mode. However, when you reconvert the specified VLAN to private VLAN mode, the original associations are reinstated.

If you enter the **no vlan** command for the primary VLAN, all private VLAN associations with that VLAN are lost. However, if you enter the **no vlan** command for a secondary VLAN, the private VLAN associations with that VLAN are suspended and return when you recreate the specified VLAN and configure it as the previous secondary VLAN.

The *secondary-vlan-list* argument cannot contain spaces. It can contain multiple comma-separated items. Each item can be a single secondary VLAN ID or a hyphenated range of secondary VLAN IDs. The *secondary-vlan-list* parameter can contain multiple secondary VLAN IDs.

A private VLAN is a set of private ports that are characterized by using a common set of VLAN number pairs. Each pair is made up of at least two special unidirectional VLANs and is used by isolated ports and/or by a community of ports to communicate with routers.

Multiple community and isolated VLANs are allowed. If you enter a range of primary VLANs, the system uses the first number in the range for the association.

Isolated and community VLANs can only be associated with one primary VLAN. You cannot configure a VLAN that is already associated to a primary VLAN as a primary VLAN.

This command does not require a license.

Examples

This example shows how to create a private VLAN relationship between the primary VLAN 14, the isolated VLAN 19, and the community VLANs 20 and 21:

```
switch(config)# vlan 19
switch(config-vlan)# private-vlan isolated
switch(config)# vlan 20
switch(config-vlan)# private-vlan community
switch(config)# vlan 21
switch(config-vlan)# private-vlan community
switch(config)# vlan 14
switch(config-vlan)# private-vlan primary
switch(config-vlan)# private-vlan association 19-21
```

This example shows how to remove isolated VLAN 18 and community VLAN 20 from the private VLAN association:

```
switch(config)# vlan 14
switch(config-vlan)# private-vlan association remove 18,20
switch(config-vlan)#
```

Related Commands

Command	Description
show vlan	Displays information about VLANs.
show vlan private-vlan	Displays information about private VLANs.

private-vlan mapping

To create a mapping between the primary and the secondary VLANs so that both VLANs share the same Layer 3 VLAN interface, or switched virtual interface (SVI), use the **private-vlan mapping** command under the SVI. To remove all private VLAN mappings from the Layer 3 VLAN interface, use the **no** form of this command.

private-vlan mapping {[**add**] *secondary-vlan-list*| **remove** *secondary-vlan-list*}

no private-vlan mapping

Syntax Description

add	(Optional) Maps the secondary VLAN to the primary VLAN.
<i>secondary-vlan-list</i>	VLAN ID of the secondary VLANs to map to the primary VLAN.
remove	Removes the mapping between the secondary VLAN and the primary VLAN.

Command Default

None

Command Modes

Interface configuration
Supported User Roles
network-admin
vdc-admin

Command History

Release	Modification
4.0	This command was introduced.

Usage Guidelines

You must enable private VLANs by using the [feature private-vlan](#) command before you can configure private VLANs. The commands for configuring private VLANs are not visible until you enable private VLANs.

The **private-vlan mapping** command is valid in the interface configuration mode of the primary VLAN.

The *secondary-vlan-list* argument cannot contain spaces. It can contain multiple comma-separated items. Each item can be a single secondary VLAN ID or a hyphenated range of secondary VLAN IDs.

**Note**

You must enable VLAN interfaces, or SVIs, before you can configure the SVI. Use the **feature interface-vlan** command to enable VLAN interfaces. See the *Cisco Nexus 7000 Series NX-OS Interfaces Configuration Guide, Release 6.x*, for information on creating and configuring VLAN interfaces.

Traffic that is received on the secondary VLAN is routed by the SVI of the primary VLAN.

When you configure VLANs as secondary private VLANs, the SVIs of those existing VLANs do not function and are considered as down after you enter this command.

You can map a secondary VLAN to only one primary SVI. If you configure the primary VLAN as a secondary VLAN, all the mappings that are specified in this command are suspended.

You must first associate all secondary VLANs with the primary VLAN using the private-vlan command. If you configure a mapping between two VLANs that do not have a valid Layer 2 association, the mapping configuration does not take effect.

See the private-vlan command for more information about primary and secondary VLANs.

This command does not require a license.

Examples

This example shows how to map the interface of VLAN 20 to the Layer 3 VLAN interface, or SVI, of VLAN 18:

```
switch(config)# interface vlan 18
switch(config-if)# private-vlan mapping 20
switch(config-if)#
```

This example shows how to permit routing of secondary VLAN-ingress traffic from private VLANs 303 through 307, 309, and 440:

```
switch# configure terminal

switch(config)# interface vlan 202
switch(config-if)# private-vlan mapping add 303-307,309,440
switch(config-if)# end
```

This example shows how to remove all private VLAN mappings from the SVI of VLAN 19:

```
switch(config)# interface vlan 19
switch(config-if)# no private-vlan mapping
switch(config-if)#
```

Related Commands

Command	Description
show interface private-vlan mapping	Displays information on the secondary private VLAN mapping to VLAN interface.

private-vlan synchronize

To map the secondary VLANs to the same Multiple Spanning Tree (MST) instance as the primary VLAN, use the **private-vlan synchronize** command.

private-vlan synchronize

Syntax Description This command has no arguments or keywords.

Command Default This command has no default settings.

Command Modes MST configuration submode
Supported User Roles
network-admin
vdc-admin

Command History

Release	Modification
4.0	This command was introduced.

Usage Guidelines

If you do not map secondary VLANs to the same MST instance as the associated primary VLAN when you exit the MST configuration submode, the device displays a warning message that lists the secondary VLANs that are not mapped to the same instance as the associated VLAN. The **private-vlan synchronize** command automatically maps all secondary VLANs to the same instance as the associated primary VLANs.

This command does not require a license.

Examples

This example assumes that a primary VLAN 2 and a secondary VLAN 3 are associated to VLAN 2, and that all VLANs are mapped to the CIST instance 1. This example also shows the output if you try to change the mapping for the primary VLAN 2 only:

```
switch(config)# spanning-tree mst configuration
switch(config-mst)# instance 1 vlan 2
switch(config-mst)# exit
These secondary vlans are not mapped to the same instance as their primary:
-> 3
```

This example shows how to initialize PVLAN synchronization:

```
switch(config-mst)# private-vlan synchronize
switch(config-mst)#
```

Related Commands

Command	Description
show spanning-tree mst configuration	Displays information about the MST protocol.
spanning-tree mst configuration	Enters MST configuration submode.

private-vlan

To configure private VLANs, use the **private-vlan** command. To return the specified VLAN(s) to normal VLAN mode, use the **no** form of this command.

private-vlan {**isolated**| **community**| **primary**}

no private-vlan association

Syntax Description

isolated	Designates the VLAN as an isolated secondary VLAN.
community	Designates the VLAN as a community secondary VLAN.
primary	Designates the VLAN as the primary VLAN.
association	Specifies to delete all associations from the primary VLAN.

Command Default

None

Command Modes

VLAN configuration submode

Supported User Roles

network-admin

vdc-admin

Command History

Release	Modification
4.0	This command was introduced.

Usage Guidelines

You must enable private VLANs by using the [feature private-vlan](#) command before you can configure private VLANs. The commands for configuring private VLANs are not visible until you enable private VLANs.



Note

Before you configure a VLAN as a secondary VLAN, either community or isolated, you must shut down the VLAN interface, or switched virtual interface (SVI), for that VLAN.

If you delete either the primary or secondary VLAN, the ports that are associated with the VLAN become inactive. When you enter the **no private-vlan** command, the VLAN returns to the normal VLAN mode. All

primary and secondary associations on that VLAN are suspended, but the interfaces remain in private VLAN mode. However, when you reconvert the specified VLAN to private VLAN mode, the original associations are reinstated.

If you enter the **no vlan** command for the primary VLAN, all private VLAN associations with that VLAN are lost. However, if you enter the **no vlan** command for a secondary VLAN, the private VLAN associations with that VLAN are suspended and return when you recreate the specified VLAN and configure it as the previous secondary VLAN.

You cannot configure VLAN1 or the internally allocated VLANs as private VLANs.

A private VLAN is a set of private ports that are characterized by using a common set of VLAN number pairs. Each pair is made up of at least two special unidirectional VLANs and is used by isolated ports and/or by a community of ports to communicate with routers.

An isolated VLAN is a VLAN that is used by isolated ports to communicate with promiscuous ports. An isolated VLAN's traffic is blocked on all other private ports in the same VLAN. Its traffic can only be received by standard trunking ports and promiscuous ports that are assigned to the corresponding primary VLAN.

A promiscuous port is defined as a private port that is assigned to a primary VLAN.

A community VLAN is defined as the VLAN that carries the traffic among community ports and from community ports to the promiscuous ports on the corresponding primary VLAN.

A primary VLAN is defined as the VLAN that is used to convey the traffic from the routers to customer end stations on private ports.

Multiple community and isolated VLANs are allowed. If you enter a range of primary VLANs, the system uses the first number in the range for the association.

This command does not require a license.

Examples

This example shows how to remove a private VLAN relationship from the primary VLAN. The associated secondary VLANs are not deleted.

```
switch(config-vlan)# no private-vlan association
switch(config-vlan)#
```

Related Commands

Command	Description
show vlan	Displays information about VLANs.
show vlan private-vlan	Displays information about private VLANs.



R Commands

- [revision, page 50](#)

revision

To set the revision number for the Multiple Spanning Tree (MST) region configuration, use the **revision** command. To return to the default settings, use the **no** form of this command.

revision *version*

no revision *version*

Syntax Description

<i>version</i>	Revision number for the MST region configuration; the range of valid values is from 0 to 65535.
----------------	-------------------------------------------------------------------------------------------------

Command Default

0

Command Modes

MST configuration submode

Supported User Roles

network-admin

vdc-admin

Command History

Release	Modification
4.0	This command was introduced.

Usage Guidelines

Two or more devices with the same VLAN mapping and name are considered to be in different MST regions if the configuration revision numbers are different.



Caution

Be careful when using the **revision** command to set the revision number of the MST region configuration because a mistake can put the device in a different region.

This command does not require a license.

Examples

This example shows how to set the revision number of the MST region configuration:

```
switch(config)# spanning-tree mst configuration
switch(config-mst)#revision 5
switch(config-mst)#
```

Related Commands

Command	Description
show spanning-tree mst	Displays information about the MST protocol.



S Commands

- [spanning-tree link-type](#), page 55
- [spanning-tree loopguard default](#), page 57
- [spanning-tree mode](#), page 58
- [spanning-tree mst configuration](#), page 60
- [spanning-tree mst cost](#), page 62
- [spanning-tree mst forward-time](#), page 64
- [spanning-tree mst hello-time](#), page 65
- [spanning-tree mst max-age](#), page 67
- [spanning-tree mst max-hops](#), page 68
- [spanning-tree mst port-priority](#), page 69
- [spanning-tree mst pre-standard](#), page 71
- [spanning-tree mst priority](#), page 72
- [spanning-tree mst root](#), page 74
- [spanning-tree mst simulate pvst](#), page 76
- [spanning-tree mst simulate pvst global](#), page 78
- [spanning-tree pathcost method](#), page 80
- [spanning-tree port type edge](#), page 82
- [spanning-tree port type edge bpdudfilter default](#), page 84
- [spanning-tree port type edge bpduguard default](#), page 86
- [spanning-tree port type edge default](#), page 88
- [spanning-tree port type network](#), page 90
- [spanning-tree port type network default](#), page 92
- [spanning-tree port-priority](#), page 94
- [spanning-tree pseudo-information](#), page 96

- [spanning-tree vlan](#), page 97
- [state](#), page 100
- [switchport mode private-vlan host](#), page 101
- [switchport mode private-vlan promiscuous](#), page 103
- [switchport mode private-vlan promiscuous trunk](#), page 105
- [switchport mode private-vlan trunk promiscuous](#), page 107
- [switchport mode private-vlan trunk secondary](#), page 109
- [switchport private-vlan association trunk](#), page 111
- [switchport private-vlan host-association](#), page 113
- [switchport private-vlan mapping](#), page 115
- [switchport private-vlan mapping trunk](#), page 118
- [switchport private-vlan trunk allow vlan](#), page 120
- [switchport private-vlan trunk allowed vlan](#), page 122
- [switchport private-vlan trunk native vlan](#), page 124
- [switchport private-vlan trunk native vlan tag](#), page 126
- [switchport trunk pruning vlan](#), page 128
- [system vlan long-name](#), page 130
- [system vlan reserve](#), page 131
- [spanning-tree bpdudfilter](#), page 133
- [spanning-tree bpduguard](#), page 135
- [spanning-tree bridge assurance](#), page 137
- [spanning-tree cost](#), page 139
- [spanning-tree guard](#), page 141

spanning-tree link-type

To configure a link type for a port, use the **spanning-tree link-type** command. To return to the default settings, use the **no** form of this command.

spanning-tree link-type {**auto**| **point-to-point**| **shared**}

no spanning-tree link-type

Syntax Description

auto	Sets the link type based on the duplex setting of the interface.
point-to-point	Specifies that the interface is a point-to-point link.
shared	Specifies that the interface is a shared medium.

Command Default

auto

Command Modes

Interface configuration
Supported User Roles
network-admin
vdc-admin

Command History

Release	Modification
4.0	This command was introduced.

Usage Guidelines

Fast transition (specified in IEEE 802.1w) works only on point-to-point links between two bridges.

By default, the device derives the link type of a port from the duplex mode. A full-duplex port is considered as a point-to-point link while a half-duplex configuration is assumed to be on a shared link.

If you designate a port as a shared link, you cannot use the fast transition feature, regardless of the duplex setting.

This command does not require a license.

Examples

This example shows how to configure the port as a shared link:

```
switch(config-if) # spanning-tree link-type shared
switch(config-if) #
```

Related Commands

Command	Description
show spanning-tree interface	Displays information about the spanning tree state.

spanning-tree loopguard default

To enable Loop Guard as a default on all ports of a given bridge, use the **spanning-tree loopguard default** command. To disable Loop Guard, use the **no** form of this command.

spanning-tree loopguard default

no spanning-tree loopguard default

Syntax Description This command has no arguments or keywords.

Command Default Disabled

Command Modes Global configuration
Supported User Roles
network-admin
vdc-admin

Command History	Release	Modification
	4.0	This command was introduced.

Usage Guidelines Loop Guard provides additional security in the bridge network. Loop Guard prevents alternate or root ports from becoming the designated port because of a failure that could lead to a unidirectional link.

Loop Guard operates only on ports that are considered point-to-point links by the spanning tree, and it does not run on spanning tree edge ports.

When you enter the Loop Guard command for the specified interface, that **spanning-tree guard loop** command overrides this command.

This command does not require a license.

Examples This example shows how to enable Loop Guard:

```
switch(config)# spanning-tree loopguard default
switch(config)#
```

Related Commands

Command	Description
show spanning-tree summary	Displays information about the spanning tree state.

spanning-tree mode

To switch between Rapid per VLAN Spanning Tree Plus (Rapid PVST+) and Multiple Spanning Tree (MST) Spanning Tree Protocol (STP) modes, use the **spanning-tree mode** command. To return to the default settings, use the **no** form of this command.

spanning-tree mode {rapid-pvst| mst}

no spanning-tree mode

Syntax Description

rapid-pvst	Sets the STP mode to Rapid PVST+.
mst	Sets the STP mode to MST.

Command Default

Rapid PVST+

Command Modes

Global configuration
Supported User Roles
network-admin
vdc-admin

Command History

Release	Modification
4.0	This command was introduced.

Usage Guidelines

You cannot use both Rapid PVST+ and MST in a single virtual device context (VDC). You can, however, use Rapid PVST+ in one VDC and MST in another VDC.



Caution

Be careful when using the **spanning-tree mode** command to switch between Rapid PVST+ and MST modes. When you enter the command, all STP instances are stopped for the previous mode and are restarted in the new mode. Using this command may cause the user traffic to be disrupted.

This command does not require a license.

Examples

This example shows how to switch to MST mode:

```
switch(config)# spanning-tree mode mst
switch(config-mst)#
```

This example shows how to return to the default mode (Rapid PVST+):

```
switch(config)# no spanning-tree mode
switch(config)#
```

Related Commands

Command	Description
show spanning-tree summary	Displays information about the spanning tree configuration.

spanning-tree mst configuration

To enter the Multiple Spanning Tree (MST) configuration submode, use the **spanning-tree mst configuration** command. To return to the default settings, use the **no** form of this command.

spanning-tree mst configuration

no spanning-tree mst configuration

Syntax Description

This command has no arguments or keywords.

Command Default

The default value for the MST configuration is the default value for all its parameters:

- No VLANs are mapped to any MST instance (all VLANs are mapped to the CIST instance).
- The region name is an empty string.
- The revision number is 0.

Command Modes

Global configuration
Supported User Roles
network-admin
vdc-admin

Command History

Release	Modification
4.0	This command was introduced.

Usage Guidelines

The MST configuration consists of three main parameters:

- Instance VLAN mapping—See the [instance vlan](#) command.
- Region name—See the [name \(mst configuration\)](#) command.
- Configuration revision number—See the [revision](#) command.

The **abort** and **exit** commands allow you to exit MST configuration submode. The difference between the two commands depends on whether you want to save your changes or not.

The **exit** command commits all the changes before leaving MST configuration submode.

The **abort** command leaves MST configuration submode without committing any changes.

If you do not map secondary VLANs to the same instance as the associated primary VLAN, when you exit MST configuration submode, the following warning message is displayed:

```
These secondary vlans are not mapped to the same instance as their primary:
-> 3
```

See the [switchport mode private-vlan host](#) command to fix this problem.

Changing an mst configuration submode parameter can cause a connectivity loss. To reduce service disruptions, when you enter mst configuration submode, make changes to a copy of the current MST configuration. When you are done editing the configuration, you can apply all the changes at once by using the exit keyword, or you can exit the submode without committing any change to the configuration by using the abort keyword.

In the unlikely event that two users commit a new configuration at exactly at the same time, this warning message appears:

```
% MST CFG:Configuration change lost because of concurrent access
This command does not require a license.
```

Examples

This example shows how to enter MST-configuration submode:

```
switch(config)# spanning-tree mst configuration
switch(config-mst)#
```

This example shows how to reset the MST configuration (name, instance mapping, and revision number) to the default settings:

```
switch(config)# no spanning-tree mst configuration
switch(config)#
```

Related Commands

Command	Description
instance vlan	Maps a VLAN or a set of VLANs to an MST instance.
name (mst configuration)	Sets the name of an MST region.
revision	Sets the revision number for the MST configuration.
show spanning-tree mst	Displays information about the MST protocol.

spanning-tree mst cost

To set the path-cost parameter for any Multiple Spanning Tree (MST) instance (including the common and internal spanning tree [CIST] with instance ID 0), use the **spanning-tree mst cost** command. To return to the default settings, use the **no** form of this command.

spanning-tree mst *instance-id* **cost** {*cost*| **auto**}

no spanning-tree mst *instance-id* **cost**

Syntax Description

<i>instance-id</i>	Instance ID number; the range of valid values is from 0 to 4094.
<i>cost</i>	Port cost for an instance; the range of valid values is from 1 to 200,000,000.
auto	Sets the value of the port cost by the media speed of the interface.

Command Default

auto

- 10 Mbps—2,000,000
- 100 Mbps—200,000
- 1 Gigabit Ethernet—20,000
- 10 Gigabit Ethernet—2,000

Command Modes

Interface configuration

Supported User Roles

network-admin

vdc-admin

Command History

Release	Modification
4.0	This command was introduced.

Usage Guidelines

The port cost depends on the port speed; the faster interface speeds indicate smaller costs. MST always uses long path costs.

Higher *cost* values indicate higher costs. When entering the *cost*, do not include a comma in the entry; for example, enter 1000, not 1,000.

The port-channel bundle is considered a single port. The port cost is the aggregation of all the configured port costs assigned to that channel.

This command does not require a license.

Examples

This example shows how to set the interface path cost:

```
switch(config-if) # spanning-tree mst 0 cost 17031970
switch(config-if) #
```

Related Commands

Command	Description
show spanning-tree mst	Displays information about the MST protocol.

spanning-tree mst forward-time

To set the forward-delay timer for all the instances on the device, use the **spanning-tree mst forward-time** command. To return to the default settings, use the **no** form of this command.

spanning-tree mst forward-time *seconds*

no spanning-tree mst forward-time

Syntax Description

<i>seconds</i>	Number of seconds to set the forward-delay timer for all the instances on the device; the range of valid values is from 4 to 30 seconds.
----------------	------------------------------------------------------------------------------------------------------------------------------------------

Command Default

15

Command Modes

Global configuration
Supported User Roles
network-admin
vdc-admin

Command History

Release	Modification
4.0	This command was introduced.

Usage Guidelines

This command does not require a license.

Examples

This example shows how to set the forward-delay timer:

```
switch(config)# spanning-tree mst forward-time 20
switch(config)#
```

Related Commands

Command	Description
show spanning-tree mst	Displays information about the MST protocol.

spanning-tree mst hello-time

To set the hello-time delay timer for all the instances on the device, use the **spanning-tree mst hello-time** command. To return to the default settings, use the **no** form of this command.

spanning-tree mst hello-time *seconds*

no spanning-tree mst hello-time

Syntax Description

<i>seconds</i>	Number of seconds to set the hello-time delay timer for all the instances on the device; the range of valid values is from 1 to 10 second s.
----------------	----------------------------------------------------------------------------------------------------------------------------------------------

Command Default

2

Command Modes

Global configuration
Supported User Roles
network-admin
vdc-admin

Command History

Release	Modification
4.0	This command was introduced.

Usage Guidelines

If you do not specify the *hello-time* value, the value is calculated from the network diameter.



Note

We recommend not to change any of STP timer values.

This command does not require a license.

Examples

This example shows how to set the hello-time delay timer:

```
switch(config)# spanning-tree mst hello-time 3
switch(config)#
```

Related Commands

Command	Description
show spanning-tree mst	Displays information about the MST protocol.

spanning-tree mst max-age

To set the max-age timer for all the instances on the device, use the **spanning-tree mst max-age** command. To return to the default settings, use the **no** form of this command.

spanning-tree mst max-age *seconds*

no spanning-tree mst max-age

Syntax Description

<i>seconds</i>	Number of seconds to set the max-age timer for all the instances on the device; the range of valid values is from 6 to 40 seconds.
----------------	------------------------------------------------------------------------------------------------------------------------------------

Command Default

20

Command Modes

Global configuration
Supported User Roles
network-admin
vdc-admin

Command History

Release	Modification
4.0	This command was introduced.

Usage Guidelines

This parameter is used only by Instance 0 or the IST.
This command does not require a license.

Examples

This example shows how to set the max-age timer:

```
switch(config)# spanning-tree mst max-age 40
switch(config)#
```

Related Commands

Command	Description
show spanning-tree mst	Displays information about the MST protocol.

spanning-tree mst max-hops

To specify the number of possible hops in the region before a bridge protocol data unit (BPDU) is discarded, use the **spanning-tree mst max-hops** command. To return to the default settings, use the **no** form of this command.

spanning-tree mst max-hops *hop-count*

no spanning-tree mst max-hops

Syntax Description

<i>hop-count</i>	Number of possible hops in the region before a BPDU is discarded; the range of valid values is from 1 to 255 hops.
------------------	--------------------------------------------------------------------------------------------------------------------

Command Default

20

Command Modes

Global configuration
Supported User Roles
network-admin
vdc-admin

Command History

Release	Modification
4.0	This command was introduced.

Usage Guidelines

This command does not require a license.

Examples

This example shows how to set the number of possible hops:

```
switch(config)# spanning-tree mst max-hops 25
switch(config)#
```

Related Commands

Command	Description
show spanning-tree mst	Displays information about the MST protocol.

spanning-tree mst port-priority

To set the port-priority parameters for any Multiple Spanning Tree (MST) instance—including the common and internal spanning tree (CIST) with instance ID 0, use the **spanning-tree mst port-priority** command. To return to the default settings, use the **no** form of this command.

spanning-tree mst *instance-id* **port-priority** *priority*

no spanning-tree mst *instance-id* **port-priority**

Syntax Description

<i>instance-id</i>	Instance ID number; valid values are from 0 to 4094.
<i>priority</i>	Port priority for an instance; the range of valid values is from 0 to 224 in increments of 32.

Command Default

priority is 128.

Command Modes

Interface configuration
Supported User Roles
network-admin
vdc-admin

Command History

Release	Modification
4.0	This command was introduced.

Usage Guidelines

Higher port-priority *priority* values indicate smaller priorities.
The priority values are 0, 32, 64, 96, 128, 160, 192, and 224. All other values are rejected.

Examples

This example shows how to set the interface priority:

```
switch(config-if) # spanning-tree mst 0 port-priority 64
switch(config-if) #
```

Related Commands

Command	Description
show spanning-tree mst	Displays information about the MST protocol.

Command	Description
spanning-tree port-priority	Configures the port priority for default STP, which is Rapid PVST+.

spanning-tree mst pre-standard

To force the specified interface to send pre-standard, rather than standard, Multiple Spanning Tree (MST) messages, use the **spanning-tree mst pre-standard** command. To return to the default setting, use the **no** form of this command.

spanning-tree mst pre-standard

no spanning-tree mst pre-standard

Syntax Description This command has no arguments or keywords.

Command Default None

Command Modes Global configuration
Supported User Roles
network-admin
vdc-admin

Command History	Release	Modification
	4.0(2)	This command was introduced.

Usage Guidelines You can set the bridge priority in increments of 4096 only. When you set the priority, valid values are 0, 4096, 8192, 12288, 16384, 20480, 24576, 28672, 32768, 36864, 40960, 45056, 49152, 53248, 57344, and 61440. You can set the *priority* argument to 0 to make the device root. You can enter the *instance-id* argument as a single instance or a range of instances, for example, 0-3,5,7-9. This command does not require a license.

Examples This example shows how to set the bridge priority:

```
switch(config)# spanning-tree mst pre-standard 0 root priority 4096
switch(config)#
```

Related Commands	Command	Description
	show spanning-tree mst	Displays information about the MST protocol.

spanning-tree mst priority

To set the bridge priority, use the **spanning-tree mst priority** command. To return to the default setting, use the **no** form of this command.

spanning-tree mst *instance-id* **priority** *priority-value*

no spanning-tree mst *instance-id* **priority**

Syntax Description

<i>instance-id</i>	Instance identification number; the range of valid values is from 0 to 4094.
<i>priority-value</i>	Bridge priority; see the “Usage Guidelines” section for valid values and additional information.

Command Default

priority-value default is 32768.

Command Modes

Global configuration
Supported User Roles
network-admin
vdc-admin

Command History

Release	Modification
4.0	This command was introduced.

Usage Guidelines

You can set the bridge priority in increments of 4096 only. When you set the priority, valid values are 0, 4096, 8192, 12288, 16384, 20480, 24576, 28672, 32768, 36864, 40960, 45056, 49152, 53248, 57344, and 61440.

You can set the *priority* argument to 0 to make the device root.

You can enter the *instance-id* argument as a single instance or a range of instances, for example, 0-3,5,7-9.

This command does not require a license.

Examples

This example shows how to set the bridge priority:

```
switch(config)# spanning-tree mst priority 4096
switch(config)#
```


Related Commands

Command	Description
show spanning-tree mst	Displays information about the MST protocol.

spanning-tree mst root

To designate the primary and secondary root and set the timer value for an instance, use the **spanning-tree mst root** command. To return to the default settings, use the **no** form of this command.

spanning-tree mst *instance-id* **root** {**primary**| **secondary**} [**diameter** *dia* [**hello-time** *hello-time*]]

no spanning-tree mst *instance-id* **root**

Syntax Description

<i>instance-id</i>	Instance identification number; the range of valid values is from 0 to 4094.
primary	Specifies the high priority (low value) that is high enough to make the bridge root of the spanning-tree instance.
secondary	Specifies the device as a secondary root, should the primary root fail.
diameter <i>dia</i>	(Optional) Specifies the timer values for the bridge that are based on the network diameter .
hello-time <i>hello-time</i>	(Optional) Specifies the duration between the generation of configuration messages by the root device. The range is from 1 to 10 seconds; the default is 2 seconds.

Command Default

spanning-tree mst root has no default settings.

Command Modes

Global configuration
Supported User Roles
network-admin
vdc-admin

Command History

Release	Modification
4.0	This command was introduced.

Usage Guidelines

You can enter the *instance-id* argument as a single instance or a range of instances, for example, 0-3,5,7-9. The **diameter** *dia* and **hello-time** *hello-time* keywords and arguments are available for instance 0 (IST) only.

If you do not specify the *hello-time* argument, the argument is calculated from the network diameter. You must first specify the **diameter** *dia* keyword and argument before you can specify the **hello-time** *hello-time* keyword and argument.

This command does not require a license.

Examples

This example shows how to designate the primary root:

```
switch(config)# spanning-tree mst 0 root primary
switch(config)#
```

This example shows how to set the priority and timer values for the bridge:

```
switch(config)# spanning-tree mst 0 root primary diameter 7 hello-time 2
switch(config)# spanning-tree mst 5 root primary
switch(config)#
```

Related Commands

Command	Description
show spanning-tree mst	Displays information about the MST protocol.

spanning-tree mst simulate pvst

To prevent specific Multiple Spanning Tree (MST) interfaces from automatically interoperating with a connecting device running Rapid per VLAN Spanning Tree (Rapid PVST+), use the **spanning-tree mst simulate pvst disable** command. To return specific interfaces to the default settings that are set globally for the device, use the **no** form of this command. To reenables specific interfaces to automatically interoperate between MST and Rapid PVST+, use the **spanning-tree mst simulate pvst** command.

spanning-tree mst simulate pvst

no spanning-tree mst simulate pvst

spanning-tree mst simulate pvst disable

Syntax Description

This command has no arguments or keywords.

Command Default

Enabled. By default, all interfaces on the device interoperate seamlessly between MST and Rapid PVST+. See the **spanning-tree mst simulate pvst global command** to change this behavior globally.

Command Modes

Interface configuration

Supported User Roles

network-admin

vdc-admin

Command History

Release	Modification
4.0	This command was introduced.

Usage Guidelines

Note

The interfaces must be in Layer 2 port mode to use this command.

MST interoperates with Rapid PVST+ with no need for user configuration. The PVST simulation feature enables this seamless interoperability. However, you may want to control the connection between MST and Rapid PVST+ to protect against accidentally connecting an MST-enabled port to a Rapid PVST+-enabled port.

When you use the **spanning-tree mst simulate pvst disable** command, specified MST interfaces that receive a Rapid PVST+ (SSTP) bridge protocol data unit (BPDU) move into the Spanning Tree Protocol (STP) blocking state. Those interfaces remain in the inconsistent state until the port stops receiving Rapid PVST+ BPDUs, and then the port resumes the normal STP transition process.

**Note**

To block automatic MST and Rapid PVST+ interoperability for the entire device, use the **no spanning-tree mst simulate pvst global** command, which can be used in interface command mode.

This command is useful when you want to prevent accidental connection with a device running Rapid PVST+.

To reenables seamless operation between MST and Rapid PVST+ on specific interfaces, use the **spanning-tree mst simulate pvst** command.

This command does not require a license.

Examples

This example shows how to prevent specified ports from automatically interoperating with a connected device running Rapid PVST+:

```
switch(config-if) # spanning-tree mst simulate pvst disable
switch(config-if) #
```

Related Commands

Command	Description
spanning-tree mst simulate pvst global	Enables global seamless interoperation between MST and Rapid PVST+.

spanning-tree mst simulate pvst global

To prevent the Multiple Spanning Tree (MST) device from automatically interoperating with a connecting device running Rapid Per VLAN Spanning Tree (Rapid PVST+), use the **no spanning-tree mst simulate pvst global** command. To return to the default settings, which is seamless operation between MST and Rapid PVST+ on the device, use the **spanning-tree mst simulate pvst global** command.

spanning-tree mst simulate pvst global

no spanning-tree mst simulate pvst global

Syntax Description

This command has no arguments or keywords.

Command Default

Enabled. By default, the device interoperates seamlessly between MST and Rapid PVST+.

Command Modes

Global configuration
 Interface configuration
 Supported User Roles
 network-admin
 vdc-admin

Command History

Release	Modification
4.0	This command was introduced.

Usage Guidelines

MST does not require user configuration to interoperate with Rapid PVST+. The PVST simulation feature enables this seamless interoperability. However, you may want to control the connection between MST and Rapid PVST+ to protect against accidentally connecting an MST-enabled port to a Rapid PVST+-enabled port.

When you use the **no spanning-tree mst simulate pvst global** command, the device running in MST mode moves all interfaces that receive a Rapid PVST+ (SSTP) bridge protocol data unit (BPDU) into the Spanning Tree Protocol (STP) blocking state. Those interfaces remain in the inconsistent state until the port stops receiving Rapid PVST+ BPDUs, and then the port resumes the normal STP transition process.

You can also use this command from the interface mode, and the configuration applies to the entire device.



Note

To block automatic MST and Rapid PVST+ interoperability for specific interfaces, see the **spanning-tree mst simulate pvst** command.

This command is useful when you want to prevent accidental connection with a device not running MST.

To return the device to seamless operation between MST and Rapid PVST+, use the **spanning-tree mst simulate pvst global** command.

This command does not require a license.

Examples

This example shows how to prevent all ports on the device from automatically interoperating with a connected device running Rapid PVST+:

```
switch(config)# no spanning-tree mst simulate pvst global
switch(config)#
```

Related Commands

Command	Description
spanning-tree mst simulate pvst	Enables seamless interoperation between MST and Rapid PVST+ by the interface.

spanning-tree pathcost method

To set the default path-cost calculation method, use the `spanning-tree pathcost method` command. To return to the default settings, use the **no** form of this command.

spanning-tree pathcost method {long| short}

no spanning-tree pathcost method

Syntax Description

long	Specifies the 32-bit based values for port path costs.
short	Specifies the 16-bit based values for port path costs.

Command Default

short

Command Modes

Global configuration
Supported User Roles
network-admin
vdc-admin

Command History

Release	Modification
4.0	This command was introduced.

Usage Guidelines

Note

This command applies only to the Rapid Per VLAN Spanning Tree Plus (PVST+) spanning tree mode, which is the default mode. When you are using MST spanning tree mode, the device uses only the long method for calculating path cost; this is not user-configurable for MST.

The **long** path-cost calculation method uses all 32 bits for path-cost calculations and yields values in the range of 2 through 2,00,000,000.

The **short** path-cost calculation method (16 bits) yields values in the range of 1 through 65535.

This command does not require a license.

Examples

This example shows how to set the default pathcost method to long:

```
switch(config)# spanning-tree pathcost method long
switch(config)#
```


Related Commands

Command	Description
show spanning-tree summary	Displays information about the spanning tree state.

spanning-tree port type edge

To configure an interface connected to a Layer 2 host as an edge port, which automatically transitions the port to the spanning tree forwarding state without passing through the blocking or learning states, use the **spanning-tree port type edge** command. To return the port to a normal spanning tree port, use the **no spanning-tree port type** command or the **spanning-tree port type normal** command.

spanning-tree port type edge [trunk]

no spanning-tree port type

spanning-tree port type normal

Syntax Description

trunk

(Optional) Configures the trunk port as a spanning tree edge port.

Command Default

The default is the global setting for the default port type edge that is configured when you entered the spanning-tree port type edge default command. If you did not configure a global setting, the default spanning tree port type is normal.

Command Modes

Interface configuration
Supported User Roles
network-admin
vdc-admin

Command History

Release	Modification
4.0	This command was introduced.

Usage Guidelines

You can also use this command to configure a port in trunk mode as a spanning tree edge port.



Caution

You should use this command only with interfaces that connect to end stations; otherwise, an accidental topology loop could cause a data-packet loop and disrupt the device and network operation.

When linkup occurs, spanning tree edge ports are moved directly to the spanning tree forwarding state without waiting for the standard forward-time delay.



Note

This functionality that was previously provided by the Cisco-proprietary PortFast feature.

When you use this command, the system returns a message similar to the following:

```
Warning: portfast should only be enabled on ports connected to a single
host. Connecting hubs, concentrators, switches, bridges, etc... to this
interface when portfast is enabled, can cause temporary bridging loops.
Use with CAUTION
```

When you use this command without the **trunk** keyword, the system returns a message similar to the following:

```
%Portfast has been configured on GigabitEthernet2/8 but will only
have effect when the interface is in a non-trunking mode.
```

To configure trunk interfaces as spanning tree edge ports, use the **spanning-tree port type trunk** command. To remove the spanning tree edge port type setting, use the **spanning-tree port type normal** command.

The default spanning tree port type is normal.

This command does not require a license.

Examples

This example shows how to configure an interface connected to a Layer 2 host as an edge port, which automatically transitions that interface to the forwarding state on linkup:

```
switch(config-if) # spanning-tree port type edge
switch(config-if) #
```

Related Commands

Command	Description
show spanning-tree interface	Displays information about the spanning tree interface.

spanning-tree port type edge bpdudfilter default

To enable BPDU Filtering by default on all spanning tree edge ports, use the **spanning-tree port type edge bpdudfilter default** command. To disable BPDU Filtering by default on all edge ports, use the **no** form of this command.

spanning-tree port type edge bpdudfilter default

no spanning-tree port type edge bpdudfilter default

Syntax Description This command has no arguments or keywords.

Command Default Disabled

Command Modes Global configuration
Supported User Roles
network-admin
vdc-admin

Command History	Release	Modification
	4.0	This command was introduced.

Usage Guidelines To enable BPDU Filtering by default, you must do the following:

- Configure the interface as a spanning tree edge port by using the [spanning-tree port type edge](#) or the `spanning-tree port type edge default` command.
- Enable BPDU Filtering.

Use this command to enable BPDU Filtering globally on all spanning tree edge ports. BPDU Filtering prevents a port from sending or receiving any BPDUs.



Caution Be careful when using this command. Using this command incorrectly can cause bridging loops.

You can override the global effects of this **spanning-tree port type edge bpdudfilter default** command by configuring BPDU Filtering at the interface level. See the `spanning-tree bpdudfilter` command for complete information on using this feature at the interface level.

**Note**

Be careful when enabling BPDU Filtering. The feature's functionality is different when you enable it on a per-port basis or globally. When enabled globally, BPDU Filtering is applied only on ports that are operational spanning tree edge ports. Ports send a few BPDUs at a linkup before they effectively filter outbound BPDUs. If a BPDU is received on an edge port, that port immediately becomes a normal spanning tree port with all the normal transitions and BPDU Filtering is disabled. When enabled locally on a port, BPDU Filtering prevents the device from receiving or sending BPDUs on this port.

This command does not require a license.

Examples

This example shows how to enable BPDU Filtering globally on all spanning tree edge operational ports by default:

```
switch(config)# spanning-tree port type edge bpdudfilter default
switch(config)#
```

Related Commands

Command	Description
show spanning-tree summary	Displays information about the spanning tree configuration.
spanning-tree bpdudfilter	Enables BPDU Filtering on the interface.
spanning-tree port type edge	Configures an interface as a spanning tree edge port.

spanning-tree port type edge bpduguard default

To enable BPDU Guard by default on all spanning tree edge ports, use the **spanning-tree port type edge bpduguard default** command. To disable BPDU Guard on all edge ports by default, use the **no** form of this command.

spanning-tree port type edge bpduguard default

no spanning-tree port type edge bpduguard default

Syntax Description This command has no arguments or keywords.

Command Default Disabled

Command Modes Global configuration
Supported User Roles
network-admin
vdc-admin

Command History

Release	Modification
4.0	This command was introduced.

Usage Guidelines

To enable BPDU Guard by default, you must do the following:

- Configure the interface as spanning tree edge ports by entering the spanning-tree port type edge or the spanning-tree port type edge default command.
- Enable BPDU Guard.

Use this command to enable BPDU Guard globally on all spanning tree edge ports. BPDU Guard disables a port if it receives a BPDU.

Global BPDU Guard is applied only on spanning tree edge ports.

You can also enable BPDU Guard per interface; see the spanning-tree bpduguard {enable | disable} command for more information.



Note

We recommend that you enable BPDU Guard on all spanning tree edge ports.

This command does not require a license.

Examples

This example shows how to enable BPDU Guard by default on all spanning tree edge ports:

```
switch(config)# spanning-tree port type edge bpduguard default
switch(config)#
```

Related Commands

Command	Description
show spanning-tree summary	Displays information about the spanning tree configuration.
spanning-tree bpduguard {enable disable}	Enables BPDU Guard on the interface.
spanning-tree port type edge	Configures an interface as a spanning tree edge port.

spanning-tree port type edge default

To configure all access ports that are connected to Layer 2 hosts as edge ports by default, use the **spanning-tree port type edge default** command. To restore all ports connected to Layer 2 hosts as normal spanning tree ports by default, use the **no** form of this command.

spanning-tree port type edge default

no spanning-tree port type edge default

Syntax Description This command has no arguments or keywords.

Command Default Disabled

Command Modes Global configuration
Supported User Roles
network-admin
vdc-admin

Command History	Release	Modification
	4.0	This command was introduced.

Usage Guidelines Use this command to automatically configure all interfaces as spanning tree edge ports by default. This command does not work on trunk ports.



Caution

Be careful when using this command. You should use this command only with interfaces that connect to end stations; otherwise, an accidental topology loop could cause a data-packet loop and disrupt the device and network operation.

When a linkup occurs, an interface configured as an edge port automatically moves the interface directly to the spanning tree forwarding state without waiting for the standard forward-time delay. (This transition was previously configured as the Cisco-proprietary PortFast feature.)

When you use this command, the system returns a message similar to the following:

```
Warning: this command enables portfast by default on all interfaces. You
should now disable portfast explicitly on switched ports leading to hubs,
switches and bridges as they may create temporary bridging loops.
```

You can configure individual interfaces as edge ports using the spanning-tree port type edge command.

The default spanning tree port type is normal.

This command does not require a license.

Examples

This example shows how to globally configure all ports connected to Layer 2 hosts as spanning tree edge ports:

```
switch(config)# spanning-tree port type edge default
switch(config)#
```

Related Commands

Command	Description
show spanning-tree summary	Displays information about the spanning tree configuration.
spanning-tree port type edge	Configures an interface as a spanning tree edge port.

spanning-tree port type network

To configure the interface that connects to a Layer 2 switch or bridge as a network spanning tree port, regardless of the global configuration, use the **spanning-tree port type network** command. To return the port to a normal spanning tree port, use the **spanning-tree port type normal** command.

spanning-tree port type network

no spanning-tree port type

spanning-tree port type normal

Syntax Description

This command has no arguments or keywords.

Command Default

The default is the global setting for the default port type network that is configured when you entered the **spanning-tree port type network default** command. If you did not configure a global setting, the default spanning tree port type is normal.

Command Modes

Interface configuration

Supported User Roles

network-admin

vdc-admin

Command History

Release	Modification
4.0	This command was introduced.

Usage Guidelines

Use this command to configure an interface that connects to a Layer 2 switch or bridge as a spanning tree network port. Bridge Assurance runs only on Spanning Tree Protocol (STP) network ports.



Note

If you mistakenly configure ports connected to Layer 2 hosts as STP network ports and enable Bridge Assurance, those ports automatically move into the blocking state.



Note

Bridge Assurance is enabled by default, and all interfaces configured as spanning tree network ports have Bridge Assurance enabled.

To configure a port as a spanning tree network port, use the **spanning-tree port type network** command. To remove this configuration, use the **spanning-tree port type normal** command. When you use the **no spanning-tree port type** command, the software returns the port to the global default setting for network port types.

You can configure all ports that are connected to Layer 2 switches or bridges as spanning tree network ports by default by entering the spanning-tree port type network default command.

The default spanning tree port type is normal.

This command does not require a license.

Examples

This example shows how to configure an interface connected to a Layer 2 switch or bridge as a spanning tree network port:

```
switch(config-if) # spanning-tree port type network
switch(config-if) #
```

Related Commands

Command	Description
show spanning-tree interface	Displays information about the spanning tree configuration per specified interface.

spanning-tree port type network default

To configure all ports as spanning tree network ports by default, use the **spanning-tree port type network default** command. To restore all ports to normal spanning tree ports by default, use the **no** form of this command.

spanning-tree port type network default

no spanning-tree port type network default

Syntax Description This command has no arguments or keywords.

Command Default Disabled

Command Modes Global configuration
Supported User Roles
network-admin
vdc-admin

Command History

Release

Modification

4.0

This command was introduced.

Usage Guidelines

Use this command to automatically configure all interfaces that are connected to Layer 2 switches or bridges as spanning tree network ports by default. Then, you can use the **spanning-tree port type edge** command to configure specified ports that are connected to Layer 2 hosts as spanning-tree edge ports.



Note

If you mistakenly configure ports connected to Layer 2 hosts as Spanning Tree Protocol (STP) network ports and Bridge Assurance is enabled, those ports automatically move into the blocking state.

If you have enabled Bridge Assurance on the device, all network ports automatically run that feature. To enable Bridge Assurance, see the **spanning-tree bridge assurance** command.

Configure only the ports that connect to other Layer 2 switches or bridges as network ports because the Bridge Assurance feature causes network ports that are connected to Layer 2 hosts to move into the spanning tree blocking state.

You can identify individual interfaces as network ports by using the **spanning-tree port type network** command.

The default spanning tree port type is normal.

This command does not require a license.

Examples

This example shows how to globally configure all ports connected to Layer 2 switches or bridges as spanning tree network ports:

```
switch(config)# spanning-tree port type network default  
switch(config)#
```

Related Commands

Command	Description
show spanning-tree summary	Displays information about the spanning tree configuration.

spanning-tree port-priority

To set an interface priority when two bridges compete for position as the root bridge, use the spanning-tree port-priority command. The priority you set breaks the tie. To return to the default settings, use the **no** form of this command.

spanning-tree [**vlan** *vlan-id*] **port-priority** *value*

no spanning-tree [**vlan** *vlan-id*] **port-priority**

Syntax Description

vlan <i>vlan-id</i>	(Optional) Specifies the VLAN identification number; the range of valid values is from 0 to 4094 .
<i>value</i>	Port priority; valid values are from 1 to 224 in increments of 32.

Command Default

value is 128 .

Command Modes

Interface configuration
Supported User Roles
network-admin
vdc-admin

Command History

Release	Modification
4.0	This command was introduced.

Usage Guidelines

Note

Use this command to configure the port priority for Rapid Per VLAN Spanning Tree Plus (PVST+) spanning tree mode, which is the default Spanning Tree Protocol (STP) mode. To configure the port priority for Multiple Spanning Tree (MST) spanning tree mode, use the **spacing-tree mst port-priority** command.

Do not use the **vlan** *vlan-id* parameter on access ports. The software uses the port priority value for access ports and the VLAN port priority values for trunk ports.

The priority values are 0, 32, 64, 96, 128, 160, 192, and 224. All other values are rejected.

This command does not require a license.

Examples

This example shows how to increase the likelihood that the spanning tree instance on access port interface 2/0 is chosen as the root bridge by changing the port priority to 32:

```
switch(config-if) # spanning-tree port-priority 32  
switch(config-if) #
```

Related Commands

Command	Description
show spanning-tree	Displays information about the spanning tree state.
spanning-tree interface priority	Displays information on the spanning tree port priority for the interface.

spanning-tree pseudo-information

To configure the spanning tree pseudo information, use the spanning-tree pseudo-information command.

spanning-tree pseudo-information

Syntax Description This command has no arguments or keywords.

Command Default None .

Command Modes Global configuration mode
Supported User Roles
network-admin
vdc-admin

Command History	Release	Modification
	4.0	This command was introduced.

Usage Guidelines This command does not require a license.

Examples This example shows how to configure the spanning tree pseudo information:

```
switch(config)# spanning-tree pseudo-information
switch(config-pseudo)#
```

Related Commands

Command	Description
show spanning-tree	Displays information about the spanning tree state.
spanning-tree interface priority	Displays information on the spanning tree port priority for the interface.

spanning-tree vlan

To configure Spanning Tree Protocol (STP) parameters on a per-VLAN basis, use the **spanning-tree vlan** command. To return to the default settings, use the **no** form of this command.

spanning-tree vlan *vlan-id* [**forward-time** *value*| **hello-time** *value*| **max-age** *value*| **priority** *value*] [**root** {**primary**| **secondary**} [**diameter** *dia* [**hello-time** *hello-time*]]]

no spanning-tree vlan *vlan-id* [**forward-time**| **hello-time**| **max-age**| **priority**| **root**]

Syntax Description

<i>vlan-id</i>	VLAN identification number; the range of valid values is from 0 to 4094.
forward-time <i>value</i>	(Optional) Specifies the STP forward-delay time; the range of valid values is from 4 to 30 seconds.
hello-time <i>value</i>	(Optional) Specifies the number of seconds between the generation of configuration messages by the root device; the range of valid values is from 1 to 10 seconds.
max-age <i>value</i>	(Optional) Specifies the maximum number of seconds that the information in a bridge protocol data unit (BPDU) is valid; the range of valid values is from 6 to 40 seconds.
priority <i>value</i>	(Optional) Specifies the STP-bridge priority; the valid values are 0, 4096, 8192, 12288, 16384, 20480, 24576, 28672, 32768, 36864, 40960, 45056, 49152, 53248, 57344, or 61440. All other values are rejected.
root primary	(Optional) Forces this device to be the root bridge.
root secondary	(Optional) Forces this device to be the root switch if the primary root fails.
diameter <i>dia</i>	(Optional) Specifies the maximum number of bridges between any two points of attachment between end stations .

Command Default

The defaults are as follows:

- **forward-time**— 15 seconds
- **hello-time**— 2 seconds
- **max-age**— 20 seconds

- **priority32768**

Command Modes

Global configuration
Supported User Roles
network-admin
vdc-admin

Command History

Release	Modification
4.0	This command was introduced.

Usage Guidelines**Caution**

When disabling spanning tree on a VLAN using the `no spanning-tree vlan vlan-id` command, ensure that all switches and bridges in the VLAN have spanning tree disabled. You cannot disable spanning tree on some switches and bridges in a VLAN and leave it enabled on other switches and bridges in the same VLAN because switches and bridges with spanning tree enabled have incomplete information about the physical topology of the network.

**Caution**

We do not recommend disabling spanning tree even in a topology that is free of physical loops. Spanning tree is a safeguard against misconfigurations and cabling errors. Do not disable spanning tree in a VLAN without ensuring that there are no physical loops present in the VLAN.

When setting the **max-age seconds**, if a bridge does not see BPDUs from the root bridge within the specified interval, it assumes that the network has changed and recomputes the spanning-tree topology.

Valid values for *protocol* are **dec**—Digital STP, **ibm**—IBM STP, **ieee**—IEEE Ethernet STP, and **vlan-bridge**—VLAN Bridge STP.

The `spanning-tree root primary` alters this device's bridge priority to 24576. If you enter the `spanning-tree root primary` command and the device does not become the root, the bridge priority is changed to 4096 less than the bridge priority of the current bridge. The command fails if the value required to be the root bridge is less than 1. If the device does not become the root, an error results.

If the network devices are set for the default bridge priority of 32768 and you enter the `spanning-tree root secondary` command, the software alters this device's bridge priority to 28762. If the root device fails, this device becomes the next root switch.

Use the `spanning-tree root` command on the backbone switches only.

**Note**

We recommend that you configure the hello time to be 4 seconds when you are working with virtual port channels (vPCs).

This command does not require a license.

Examples

This example shows how to enable spanning tree on VLAN 200:

```
switch(config)# spanning-tree vlan 200
switch(config)#
```

This example shows how to configure the device as the root switch for VLAN 10 with a network diameter of 4:

```
switch(config)# spanning-tree vlan 10 root primary diameter 4
switch(config)#
```

This example shows how to configure the device as the secondary root switch for VLAN 10 with a network diameter of 4:

```
switch(config)# spanning-tree vlan 10 root secondary diameter 4
switch(config)#
```

Related Commands

Command	Description
show spanning-tree	Displays information about the spanning tree state.

state

To set the operational state for a VLAN, use the **state** command. To return a VLAN to its default operational state, use the **no** form of this command.

state {**active**|**suspend**}

no state

Syntax Description

active	Specifies that the VLAN is actively passing traffic.
suspend	Specifies that the VLAN is not passing any packets.

Command Default

active

Command Modes

VLAN configuration submode

Supported User Roles

network-admin

vdc-admin

Command History

Release	Modification
4.0	This command was introduced.

Usage Guidelines

You cannot suspend the state for VLAN 1 or VLANs 1006 to 4094.

VLANs in the suspended state do not pass packets.

This command does not require a license.

Examples

This example shows how to suspend VLAN 2:

```
switch(config)# vlan 2
switch(config-vlan)# state suspend
switch(config-mst)#
```

Related Commands

Command	Description
show vlan	Displays VLAN information.

switchport mode private-vlan host

To set the interface type to be a Layer 2 host port for a private VLAN, use the **switchport mode private-vlan host** command.

switchport mode private-vlan host

Syntax Description This command has no arguments or keywords.

Command Default None

Command Modes Interface configuration
Supported User Roles
network-admin
vdc-admin

Command History	Release	Modification
	4.0	This command was introduced.

Usage Guidelines You must first use the **switchport** command on the interface before you can use the **switchport mode private-vlan host** command.

When you configure a port as a host private VLAN port and one of the following applies, the port becomes inactive:

- The port does not have a valid private VLAN association configured.
- The port is a Switched Port Analyzer (SPAN) destination.
- The private VLAN association is suspended.

If you delete a private VLAN port association, or if you configure a private port as a SPAN destination, the deleted private VLAN port association or the private port that is configured as a SPAN destination becomes inactive.



Note We recommend that you enable spanning tree BPDU Guard on all private VLAN host ports.

This command does not require a license.

Examples

This example shows how to set a port to host mode for private VLANs:

```
switch(config-if) # switchport mode private-vlan host  
switch(config-if) #
```

Related Commands

Command	Description
show interface switchport	Displays information on all interfaces configured as switch ports.

switchport mode private-vlan promiscuous

To set the interface type to be a Layer 2 promiscuous port for a private VLAN, use the **switchport mode private-vlan promiscuous** command.

switchport mode private-vlan promiscuous

Syntax Description This command has no arguments or keywords.

Command Default None

Command Modes Interface configuration
Supported User Roles
network-admin
vdc-admin

Command History	Release	Modification
	4.0	This command was introduced.

Usage Guidelines You must first use the **switchport** command on the interface before you can use the **switchport mode private-vlan promiscuous** command.

When you configure a port as a promiscuous private VLAN port and one of the following applies, the port becomes inactive:

- The port does not have a valid private VLAN mapping configured.
- The port is a Switched Port Analyzer (SPAN) destination.

If you delete a private VLAN port mapping or if you configure a private port as a SPAN destination, the deleted private VLAN port mapping or the private port that is configured as a SPAN destination becomes inactive.

See the private-vlan command for more information on promiscuous ports.

This command does not require a license.

Examples This example shows how to set a port to promiscuous mode for private VLANs:

```
switch(config-if) # switchport mode private-vlan promiscuous
switch(config-if) #
```

Related Commands

Command	Description
show interface switchport	Displays information on all interfaces configured as switch ports.

switchport mode private-vlan promiscuous trunk

To set the interface type to be a Layer 2 promiscuous trunk port for a private VLAN, use the **switchport mode private-vlan promiscuous trunk** command.

switchport mode private-vlan promiscuous trunk

Syntax Description This command has no arguments or keywords.

Command Default None

Command Modes Interface configuration
Supported User Roles
network-admin
vdc-admin

Command History	Release	Modification
	5.0(2)	This command was introduced.

Usage Guidelines

Note See the *Cisco Nexus 7000 Series NX-OS Interfaces Configuration Guide* for more information on trunk interfaces.

You must first use the **switchport** command on the interface before you can use the **switchport mode private-vlan promiscuous trunk** command. To return to the default Layer 3 port mode, enter the no switchport command.

Beginning with Cisco Release 5.0(2) for the Cisco Nexus 7000 Series devices, you can configure private VLAN promiscuous trunk ports to carry traffic for multiple primary VLANs and their mapped secondary VLANs.

You must map the primary and secondary VLANs, by entering the **private-vlan mapping** command, before the pair you are mapping to a promiscuous trunk port can become operational. You can map 16 pairs of primary and secondary VLANs to a private VLAN promiscuous trunk port.

This command does not require a license.

Examples This example shows how to set a port to be a promiscuous trunk port for private VLANs:

```
switch(config-if) # switchport mode private-vlan promiscuous trunk
switch(config-if) #
```

Related Commands

Command	Description
show interface switchport	Displays information about all interfaces configured as switch ports.

switchport mode private-vlan trunk promiscuous

To set the interface type to be a Layer 2 trunk port and a promiscuous port that carries traffic for multiple primary VLANs, use the **switchport mode private-vlan trunk promiscuous** command.

switchport mode private-vlan trunk promiscuous

Syntax Description This command has no keywords or arguments.

Command Default None

Command Modes Interface configuration
Supported User Roles
network-admin
vdc-admin

Command History	Release	Modification
	4.2(1)	This command was introduced.

Usage Guidelines Use this command to configure a private VLAN promiscuous port to carry traffic for multiple primary VLANs as well as normal VLANs. You can configure a maximum of 16 private VLAN primary and secondary pairs on each promiscuous trunk port.

You must first use the **switchport** command on the interface before you can use the **switchport mode private-vlan trunk promiscuous** command.

When you configure a port as a promiscuous private VLAN port and the port is a Switched Port Analyzer (SPAN) destination the port becomes inactive,

You must have already configured the private VLANs, including associating the primary and secondary VLANs. See the private-vlan command for more information on promiscuous ports and the **private-vlan association** command for more information on associating private VLANs.

As with all Layer 2 trunk ports, you must configure the allowed VLANs, the native VLAN, and whether you want tagging on the private VLAN promiscuous trunk port. See the **switchport private-vlan trunk allowed vlan**, **switchport private-vlan trunk native vlan** and **switchport private-vlan trunk native vlan tag** commands to set these parameters.

This command does not require a license.

Examples

This example shows how to set a port to promiscuous mode for private VLANs:

```
switch(config-if) # switchport mode private-vlan promiscuous  
switch(config-if) #
```

Related Commands

Command	Description
show interface switchport	Displays information on all interfaces configured as switchports.

switchport mode private-vlan trunk secondary

To set the interface type to be a Layer 2 isolated trunk port for a private VLAN, use the **switchport mode private-vlan trunk secondary** command.

switchport mode private-vlan trunk secondary

Syntax Description This command has no arguments or keywords.

Command Default None

Command Modes Interface configuration
Supported User Roles
network-admin
vdc-admin

Command History	Release	Modification
	5.0(2)	This command was introduced.

Usage Guidelines

Note See the *Cisco Nexus 7000 Series NX-OS Interfaces Configuration Guide* for more information on trunk interfaces.

You must first use the **switchport** command on the interface before you can use the **switchport mode private-vlan trunk secondary** command. To return to the default Layer 3 port mode, enter the no **switchport** command. You can only make private VLAN isolated ports trunk ports; you cannot make private VLAN community ports trunk ports.

Beginning with Cisco Release 5.0(2) for the Cisco Nexus 7000 Series devices, you can configure private VLAN isolated trunk ports to carry traffic for multiple isolated VLANs and their associated primary VLANs. Each secondary VLAN on an isolated trunk port must be associated with a different primary VLAN. You cannot put two isolated VLANs that are associated with the same primary VLAN into a private VLAN isolated trunk port.

You can map 16 pairs of primary and secondary VLANs to a private VLAN isolated trunk port.

You must associate the primary and secondary isolated VLANs before the pair you map to an isolated trunk port can become operational.



Note We recommend that you enable spanning tree BPDU Guard on all private VLAN host ports.

This command does not require a license.

Examples

This example shows how to set a port to be an isolated trunk port for private VLANs:

```
switch(config-if)# switchport mode private-vlan trunk secondary  
switch(config-if)#
```

Related Commands

Command	Description
show interface switchport	Displays information about all interfaces configured as switch ports.

switchport private-vlan association trunk

To add private VLANs, associated isolated VLANs, and primary VLANs to a private VLAN isolated trunk port, use the `switchport private-vlan association trunk` command. To remove the private VLAN association from the port, use the **no** form of this command.

switchport private-vlan *primary-vlan-id secondary-vlan-id* association trunk

no switchport private-vlan *primary-vlan-id secondary-vlan-id* association trunk

Syntax Description

<i>primary-vlan-id</i>	Number of the primary VLAN of the private VLAN relationship.
<i>secondary-vlan-id</i>	Number of the isolated VLAN of the private VLAN relationship. Note You cannot add a community VLAN to an isolated trunk port.

Command Default

None

Command Modes

Interface configuration

Command History

Release	Modification
5.0(2)	This command was introduced.

Usage Guidelines

You must have configured the interface using the **switchport mode private-vlan trunk secondary** command before this command becomes operational.

You use the command to add private VLANs, isolated VLANs, and their associated primary VLANs to the isolated trunk port. In this way, the isolated trunk port can carry multiple private VLANs. You can add up to 16 pairs of isolated and primary VLANs to each isolated trunk port. You must associate the private VLANs by entering the **private-vlan association** command before this command becomes operational.



Note

Each secondary VLAN on an isolated trunk port must be associated with a different primary VLAN. You cannot put two isolated VLANs that are associated with the same primary VLAN into a private VLAN isolated trunk port.

Delete associations by doing the following:

- Enter the **no** form of this command to delete a Private VLAN associations, both primary and secondary VLANs.

- Enter the **no** form of the command with the *primary-vlan-id* argument to delete a secondary VLANs and their associated primary VLANs.
- Enter the **no** form of the command and the *primary-vlan-id* and *secondary-vlan-id* arguments to delete a specified primary and secondary associated private VLANs.

This command does not require a license.

Examples

This example shows how to add isolated VLAN 200 and its associated primary VLAN 100 to a private VLAN isolated trunk port:

```
switch(config-if)# 100 200
switch(config-if)#
```

Related Commands

Command	Description
show vlan private-vlan	Displays information about private VLANs.

switchport private-vlan host-association

To define a private VLAN association for an isolated or community port, use the **switchport private-vlan host-association** command. To remove the private VLAN association from the port, use the **no** form of this command.

switchport private-vlan host-association *primary-vlan-id* *secondary-vlan-id*
no switchport private-vlan host-association

Syntax Description

<i>primary-vlan-id</i>	Number of the primary VLAN of the private VLAN relationship.
<i>secondary-vlan-id</i>	Number of the secondary VLAN of the private VLAN relationship.

Command Default

None

Command Modes

Interface configuration
 Supported User Roles
 network-admin
 vdc-admin

Command History

Release	Modification
4.0	This command was introduced.

Usage Guidelines

There is no run-time effect on the port unless it is in private VLAN-host mode. If the port is in private VLAN-host mode but neither of the VLANs exist, the command is allowed but the port is made inactive. The port also may be inactive when the association between the private VLANs is suspended.

The secondary VLAN may be an isolated or community VLAN.

See the private-vlan command for more information on primary VLANs, secondary VLANs, and isolated or community ports.

This command does not require a license.

Examples

This example shows how to configure a Layer 2 host private VLAN port with a primary VLAN (VLAN 18) and a secondary VLAN (VLAN 20):

```
switch(config-if)# switchport private-vlan host-association 18 20  
switch(config-if)#
```

This example shows how to remove the private VLAN association from the port:

```
switch(config-if)# no switchport private-vlan host-association  
switch(config-if)#
```

Related Commands

Command	Description
show vlan private-vlan	Displays information about private VLANs.

switchport private-vlan mapping

To define the private VLAN association for a promiscuous port or a promiscuous trunk port, use the **switchport private-vlan mapping** command. To clear all mapping from the primary VLAN, use the **no** form of this command.

switchport private-vlan mapping [**trunk** *primary-vlan-id* **remove** *secondary-vlan-list*]

no switchport private-vlan mapping [**trunk** *primary-vlan-id* **remove** *secondary-vlan-list*]

Syntax Description

<i>primary-vlan-id</i>	Number of the primary VLAN of the private VLAN relationship.
add	Associates the secondary VLANs to the primary VLAN.
<i>secondary-vlan-list</i>	Number of the secondary VLAN of the private VLAN relationship.
remove	Clears the association between the secondary VLANs and the primary VLAN.
trunk	Associates the primary and secondary VLANs of more than one private VLAN to the interface.

Command Default

None

Command Modes

Interface configuration

Supported User Roles

network-admin

vdc-admin

Command History

Release	Modification
4.0	This command was introduced.
4.2(1)	The promiscuous trunk interface functionality was added.

Usage Guidelines

You configure the promiscuous trunk mode on the interface to allow that interface to carry traffic for multiple private VLANs. You can map a maximum of 16 private VLAN primary and secondary pairs on each promiscuous trunk port.

On a promiscuous trunk port, you must enter this command separately for each primary VLAN. You enter the primary VLAN value and then add or remove those secondary associated VLANs that you want. To map another primary VLAN, you must re-enter the command with the new primary VLAN value and then add or remove its associated VLANs as you want.

**Note**

The association between the primary and secondary VLANs for all the private VLANs you want to add to this interface must be operational.

There is no run-time effect on the port unless it is in private VLAN-promiscuous mode or promiscuous trunk mode. If the port is in private VLAN-promiscuous mode or promiscuous trunk mode but the primary VLAN does not exist, the command is allowed but the port is made inactive.

The secondary VLAN may be an isolated or community VLAN.

See the private-vlan command for more information on primary VLANs, secondary VLANs, and isolated or community ports.

This command does not require a license.

Examples

This example shows how to configure the associate primary VLAN 18 to secondary isolated VLAN 20 on a private VLAN promiscuous port:

```
switch(config-if)# switchport private-vlan mapping 18 20
switch(config-if)#
```

This example shows how to add a VLAN to the association on the promiscuous port:

```
switch(config-if)# switchport private-vlan mapping 18 add 21
switch(config-if)#
```

This example shows how to remove the all private VLAN association from the port:

```
switch(config-if)# no switchport private-vlan mapping
switch(config-if)#
```

This example shows how to add multiple private VLANs to the promiscuous trunk port; this example adds 5 private VLAN pairs:

```
switch(config-if)# switchport private-vlan mapping trunk 2 add 3-5
switch(config-if)# switchport private-vlan mapping trunk 4 add 5,8
switch(config-if)#
```

Related Commands

Command	Description
show interface switchport	Displays information on all interfaces configured as switchports.
show interface private-vlan mapping	Displays the information about the private VLAN mapping for VLAN interfaces, or SVIs.

switchport private-vlan mapping trunk

To add or remove private VLAN pairs to the private VLAN promiscuous trunk port, use the **switchport private-vlan mapping trunk** command. To remove private VLAN mappings from the promiscuous trunk interface, use the **no** form of this command.

```
switchport private-vlan mapping trunk primary-vlan {add secondary-vlan-list| remove secondary-vlan-list}
no switchport private-vlan mapping trunk [primary-vlan [secondary-vlan-list]]
```

Syntax Description

<i>primary-vlan</i>	ID of the primary VLAN that you are adding to the private VLAN promiscuous trunk port.
add	Adds the secondary VLAN of the primary VLAN to the promiscuous trunk port.
<i>secondary-vlan-list</i>	ID of the secondary VLANs that you are adding to the promiscuous trunk port.
remove	Removes the secondary VLAN of the primary VLAN to the promiscuous trunk port.

Command Default

None

Command Modes

Interface configuration

Command History

Release	Modification
5.0(2)	This command was introduced.

Usage Guidelines

You must have configured the interface by using the **switchport mode private-vlan trunk promiscuous** command before this command becomes operational.

You use the **switchport private-vlan mapping trunk** command to add private VLANs, primary VLANs, and specified associated secondary VLANs to the promiscuous trunk port. In this way, the promiscuous trunk port can carry multiple private VLANs as well as normal VLANs. The secondary VLAN can be either an isolated or community VLAN. The private VLAN mapping between primary and secondary VLANs must be operational (see the **private-vlan mapping** command). You can add up to 16 pairs of isolated and primary VLANs to each isolated trunk port.

You must reenter the command for each primary VLAN that you are working with.

When you are using the **no** form of this command, the following guidelines apply:

- If you do not specify any primary VLANs, the system removes all the private VLANs on this interface.
- If you specify only the primary VLAN, the system removes that primary VLAN and all secondary VLANs associated with that primary VLAN on this interface.
- If you specify the primary VLAN and specific secondary VLANs, the system removes only those specified private VLAN pairs from this interface.

**Note**

You must configure this interface as a VLAN interface if you want Layer 3 communication on this port.

The *secondary-vlan-list* argument cannot contain spaces. It can contain multiple comma-separated items. Each item can be a single secondary VLAN ID or a hyphenated range of secondary VLAN IDs.

This command does not require a license.

Examples

This example shows how to map two primary VLANs and selected associated secondary VLANs to the promiscuous trunk interface:

```
switch
(config-if)#
switchport
private-vlan mapping trunk 200 add 3,5
switch
(config-if)#
switchport
private-vlan mapping trunk 100 add 10
switch
(config-if)#
```

Related Commands

Command	Description
show vlan private-vlan	Displays information about private VLANs.

switchport private-vlan trunk allow vlan

To set the list of allowed VLANs on the private VLAN promiscuous trunking interface, use the **switchport private-vlan trunk allowed vlan** command. To allow *no* VLANs on the trunking interface, use the **no** form of this command.

switchport trunk allowed vlan {*vlan-list*| **all**| **none**} [**add**| **except**| **remove** *vlan-list*]

no switchport trunk allowed vlan

Syntax Description

<i>vlan-list</i>	Allowed VLANs that transmit through this interface in tagged format when in trunking mode; the range of valid values is from 1 to 4094.
all	Allows all appropriate VLANs to transmit through this interface in tagged format when in trunking mode.
none	Blocks all VLANs transmitting through this interface in tagged format when in trunking mode.
add	<i>(Optional)</i> Adds the defined list of VLANs to those currently set instead of replacing the list.
except	<i>(Optional)</i> Allows all VLANs to transmit through this interface in tagged format when in trunking mode except the specified values.
remove	<i>(Optional)</i> Removes the defined list of VLANs from those currently set instead of replacing the list.

Command Default

No VLANs

Command Modes

Interface configuration

Supported User Roles

network-admin

vdc-admin

Command History

Release	Modification
4.2(1)	This command was introduced.

Usage Guidelines

Private VLAN promiscuous trunk ports carry traffic for multiple private primary VLANs as well as for normal VLANs.

When you map the private primary and secondary VLANs to the promiscuous trunk port using the command **switchport private vlan mapping** command, the system automatically puts all the primary VLANs into the allowed VLAN list for this port. These ports can carry traffic for a maximum of 16 private VLAN primary and secondary VLANs.

You can enter the **switchport trunk allowed vlan** command on interfaces where the Switched Port Analyzer (SPAN) destination port is either a trunk or an access port.

If you remove the native VLAN from a trunk, the trunk interface continues to send and receive management traffic in that VLAN.

This command does not require a license.

Examples

This example shows how to add a series of consecutive VLANs to the list of allowed VLANs on a private VLAN promiscuous trunking port:

```
switch(config-if) # switchport private-vlan trunk allowed vlan add 4-6
switch(config-if) #
```

Related Commands

Command	Description
show interface switchport	Displays the administrative and operational status of a switching (nonrouting) port.

switchport private-vlan trunk allowed vlan

To add allowed VLANs to the private VLAN promiscuous and isolated trunk ports, use the **switchport private-vlan trunk allowed vlan** command. To remove VLANs from the promiscuous and isolated trunk interfaces, use the **no** form of this command.

switchport private-vlan trunk allowed vlan {**add** *vlan-list*| **all**| **except** *vlan-list*| **none**| **remove** *vlan-list*}
no switchport private-vlan trunk no allowed vlan *vlan-list*

Syntax Description

add	Adds a defined list of VLANs on the private VLAN promiscuous and isolated trunk ports. The default value is no VLANs allowed. Note You must configure at least the native VLAN as allowed on this interface, even if you are using the default native VLAN 1.
<i>vlan-list</i>	Allowed VLANs that transmit through this interface in tagged format when in trunking mode; the range of valid values is from 1 to 3968 and 4048 to 4093.
all	Adds all VLANs to the private VLAN.
except	Allows all VLANs to transmit through this interface in tagged format except the specified values.
none	Blocks all VLANs transmitting through this interface in tagged format.
remove	Removes the defined list of VLANs from those VLANs currently set.

Command Default

Empty; no VLANs are allowed on the private VLAN promiscuous and isolated trunk ports by default.

Command Modes

Interface configuration

Supported User Roles

network-admin

vdc-admin

Command History

Release	Modification
5.0(2)	This command was introduced.

Usage Guidelines

You must have configured the interface by using either the **switchport mode private-vlan trunk secondary** or the **switchport mode private-vlan trunk promiscuous** command for this command to become operational.

When you map the private primary and secondary private VLANs to the isolated and promiscuous trunk ports, the system automatically adds all the primary VLANs into the list of allowed VLANs for this interface.

**Note**

Ensure that the native VLAN is on the allowed VLANs on this interface. By default, these interfaces do not allow any traffic. So, even if you are using the default VLAN 1 as the native VLAN, you must configure that VLAN as allowed or you will not pass traffic.

This command does not require a license.

Examples

This example shows how to configure the native default VLAN 1 to be allowed on a private VLAN promiscuous or isolated trunk port:

```
switch(config-if)# switchport private-vlan trunk allowed vlan add 1
switch(config-if)#
```

Related Commands

Command	Description
show interface	Displays information about interfaces.

switchport private-vlan trunk native vlan

To assign the native VLAN ID to a private VLAN promiscuous trunk interface, use the **switchport private-vlan trunk native vlan** command. To return the native VLAN ID to the default native VLAN, use the **no** form of this command.

switchport trunk native vlan *vlan-id*

no switchport trunk native vlan

Syntax Description

<i>vlan-id</i>	Native VLAN for the private VLAN promiscuous trunk port in 802.1Q trunking mode. The range of valid values is from 1 to 4094, except the internally reserved VLANs 3968 to 4047 and 4094. The default v
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Command Default

VLAN 1

Command Modes

Interface configuration
Supported User Roles
network-admin
vdc-admin

Command History

Release	Modification
4.2(1)	This command was introduced.

Usage Guidelines

Private VLAN trunk ports carry traffic for multiple private primary VLANs, as well as normal VLANs. If you are using a private VLAN as the native VLAN, you must enter a primary VLAN value. If you enter a secondary VLAN as a value here, the system rejects the command.



Note

See the **switchport private-vlan trunk native vlan tag** command for more information about configuring the native VLAN for 802,1Q private VLAN promiscuous trunk ports.

This command does not require a license.

Examples

This example shows how to configure the native VLAN for a private VLAN promiscuous trunk interface:

```
switch(config-if) # switchport private-vlan trunk native vlan 5  
switch(config-if) #
```

Related Commands

Command	Description
show interface switchport	Displays the administrative and operational status of a switching (nonrouting) port.

switchport private-vlan trunk native vlan tag

To enable dot1q (IEEE 802.1Q) tagging for the native VLAN in a private VLAN promiscuous trunk port, use the **switchport private-vlan trunk native vlan tag** command. To return to the default where no packets are tagged in the native VLAN in a trunk, use the **no** form of this command.

switchport private-vlan trunk native vlan tag

no switchport private-vlan trunk native vlan tag

Syntax Description This command has no arguments or keywords.

Command Default Disabled

Command Modes Global configuration
Supported User Roles
network-admin
vdc-admin

Command History

Release	Modification
4.2(1)	This command was introduced.

Usage Guidelines

Typically, you configure 802.1Q trunks with a native VLAN ID, which strips tagging from all packets on that VLAN and allows all untagged traffic and control traffic to transit the switch. Packets that enter the switch with 802.1Q tags that match the native VLAN ID value are similarly stripped of tagging. If you choose to maintain the tagging on the native VLAN and drop untagged traffic on the private VLAN promiscuous trunk port, enter the **switchport private-vlan trunk native vlan tag** command.

Use the **switchport private-vlan trunk native vlan tag** command to configure the switch to tag the traffic received on the native VLAN and to admit only 802.1Q-tagged frame, dropping any untagged traffic, including untagged traffic in the native VLAN. Control traffic continues to be accepted untagged on the native VLAN on a trunked port, even when the **switchport private-vlan trunk native vlan tag** command is enabled.

Use this command to enable the tagging behavior on all native VLANs on all private VLAN promiscuous trunked ports on the switch.



Note

If you enable 802.1Q tagging on one switch and disable it on another switch, all traffic is dropped; you must identically configure 802.1Q tagging on each switch.

This command does not require a license.

Examples

This example shows how to enable tagging for all VLANs on all private VLAN promiscuous trunk ports on the switch:

```
switch(config)# switchport private-vlan trunk native vlan tag  
switch(config)#
```

Related Commands

Command	Description
show vlan dot1q tag native	Displays native VLAN-tagging information.

switchport trunk pruning vlan

To configure pruning eligibility on trunk ports, use the **switchport trunk pruning vlan** command.

switchport trunk pruning vlan [**add**| **except**| **none**| **remove**] *vlan-id*

Syntax Description

add	(Optional) Adds a VLAN to the current list.
except	(Optional) Specifies all VLANs except a particular VLAN.
none	(Optional) Specifies no VLANs.
remove	(Optional) Removes the VLANs from the current list.
<i>vlan-id</i>	VLAN ID. The range is from 2 to 1001.

Command Default

None

Command Modes

Interface configuration

Supported User Roles

network-admin

vdc-admin

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 add a VLAN to the current list:

```
switch(config-if)# switchport trunk pruning vlan add 20
switch(config-if)#
```

This example shows how to remove a VLAN from the current list:

```
switch(config-if)# switchport trunk pruning vlan remove 12
switch(config-if)#
```


Related Commands

Command	Description
show spanning-tree summary	Displays information about the spanning tree state.

system vlan long-name

To enable VLAN long-names, use the system vlan long-name command. To disable this feature, use the no form of this command.

system vlan long-name
no system vlan long-name

Syntax Description This command has no arguments or keywords.

Command Default None

Command Modes Global configuration mode
 Supported User Roles
 network-admin
 vdc-admin

Command History

Release	Modification
6.1(1)	This command was introduced.

Usage Guidelines

To enable the system vlan long-name command, set the VLAN Trunking Protocol (VTP) to the transparent or off mode. This command allows you to configure VLAN names greater than 32 and less than or equal to 128 characters.

The VTP mode changes to off if the VLAN long-name are enabled instead of the default server. This situation is true even when a private VLAN or VLANs from 1002 to 1005 are present.

This command does not require a license.

Examples

This example shows how to enable long VLAN long names:

```
switch# config t
switch(config)# system vlan long-name
switch(config)#
```

Related Commands

Command	Description
show run vlan	Displays information about the run VLAN usage.

system vlan reserve

To configure a reserved VLAN range, use the system vlan reserve command. To delete the reserved VLAN range configuration, use the no form of this command.

system vlan start-vlan-id reserve

no system vlan start-vlan-id reserve

Syntax Description

start-vlan-id	Starting VLAN ID. 128 VLANs are reserved starting from the start VLAN ID. For example, if you specify the starting VLAN ID as 0, the reserved VLAN range is from 0 to 127.
----------------------	----------------------------------------------------------------------------------------------------------------------------------------------------------------------------

Command Default

3968–4096

Command Modes

Any command mode
Supported User Roles
network-admin
vdc-admin

Command History

Release	Modification
5.2(1)	This command was introduced.

Usage Guidelines

When you configure the system reserved VLAN range, all configuration on the VLANs that fall under the reserved VLAN range are deleted.

The user-configured system reserved VLAN range comes into effect only after a reload.

This command does not require a license.

Examples

This example shows how to configure a reserved VLAN range:

```
switch# system vlan 2000 reserve
This will delete all configs on vlans 2000-2127. Continue anyway? [no]
switch#
```

This example shows how to remove the reserved VLAN configuration:

```
switch# no system vlan 2000 reserve
This will delete all configs on vlans 2000-2127. Continue anyway? [no]
switch#
```

Related Commands

Command	Description
write erase	Reverts to the default reserved VLAN range.
show system vlan reserved	Displays information about the reserved VLAN usage.

spanning-tree bpdudfilter

To enable bridge protocol data unit (BPDU) Filtering on the interface, use the **spanning-tree bpdudfilter** command. To return to the default settings, use the **no** form of this command.

spanning-tree bpdudfilter {enable| disable}

no spanning-tree bpdudfilter

Syntax Description

enable	Enables BPDU Filtering on this interface.
disable	Disables BPDU Filtering on this interface.

Command Default

The setting that is already configured when you enter the spanning-tree port type edge bpdudfilter default command.

Command Modes

Interface configuration

Supported User Roles

network-admin

vdc-admin

Command History

Release	Modification
4.0	This command was introduced.

Usage Guidelines

Caution

Be careful when you enter the **spanning-tree bpdudfilter enable** command on specified interfaces. Explicitly configuring BPDU Filtering on a port that is not connected to a host can cause a bridging loop because the port ignores any BPDU that it receives, and the port moves to the STP forwarding state.

Entering the **spanning-tree bpdudfilter enable** command to enable BPDU Filtering overrides the spanning tree edge port configuration. That port then returns to the normal spanning tree port type and moves through the normal spanning tree transitions.

Use the spanning-tree port type edge bpdudfilter default command to enable BPDU Filtering on all spanning tree edge ports.

This command does not require a license.

Examples

This example shows how to enable BPDU Filtering on this interface:

```
switch(config-if)# spanning-tree bpdudfilter enable  
switch(config-if)#
```

Related Commands

Command	Description
show spanning-tree summary	Displays information about the spanning tree state.

spanning-tree bpduguard

To enable bridge protocol data unit (BPDU) Guard on an interface, use the **spanning-tree bpduguard** command. To return to the default settings, use the **no** form of this command.

spanning-tree bpduguard {enable| disable}

no spanning-tree bpduguard

Syntax Description

enable	Enables BPDU Guard on this interface.
disable	Disables BPDU Guard on this interface.

Command Default

The setting that is already configured when you enter the spanning-tree port type edge bpduguard default command.

Command Modes

Interface configuration
Supported User Roles
network-admin
vdc-admin

Command History

Release	Modification
6.2(10)	Updated the usage guidelines for the command.
4.0	This command was introduced.

Usage Guidelines

BPDU Guard prevents a port from receiving BPDUs. If the port still receives a BPDU, the BPDU packet is dropped.



Note

In Cisco NX-OS Release 6.2(10) and later releases, the port will be error disabled when an invalid BPDU is received and BPDU Guard is enabled on the port.



Caution

Be careful when using this command. You should use this command only with interfaces that connect to end stations; otherwise, an accidental topology loop could cause a data-packet loop and disrupt the device and network operation.

When you enable this BPDU Guard command globally, the command applies only to spanning tree edge ports. See the `spanning-tree port type edge bpduguard default` for more information on the global command for BPDU Guard. **However**, when you enable this command on an *interface*, it applies to that interface *regardless* of the spanning tree port type. For a trunk port, configure an allowed VLAN list using the **switchport trunk allowed vlan** *vlan-list* command.

This command has three states:

- **spanning-tree bpduguard enable**— Unconditionally enables BPDU Guard on the interface.
- **spanning-tree bpduguard disable**— Unconditionally disables BPDU Guard on the interface.
- **no spanning-tree bpduguard**— Enables BPDU Guard on the interface if it is an operational spanning tree edge port and if the `spanning-tree port type edge bpduguard default` command is configured.

Typically, this feature is used in a service-provider environment where the network administrator wants to prevent an access port from participating in the spanning tree.

This command does not require a license.

Examples

This example shows how to enable BPDU Guard on this interface:

```
switch(config-if)# spanning-tree bpduguard enable
switch(config-if)#
```

Related Commands

Command	Description
<code>spanning-tree port type edge bpduguard default</code>	Enables BPDU Guard by default on all spanning tree edge ports.
<code>show spanning-tree summary</code>	Displays information about the spanning tree state.

spanning-tree bridge assurance

To enable Bridge Assurance on the device, use the **spanning-tree bridge assurance** command. To disable Bridge Assurance, use the **no** form of this command.

spanning-tree bridge assurance

no spanning-tree bridge assurance

Syntax Description This command has no arguments or keywords.

Command Default Enabled

Command Modes Global configuration
Supported User Roles
network-admin
vdc-admin

Command History	Release	Modification
	4.0	This command was introduced.

Usage Guidelines Use this command to enable Bridge Assurance on the device.

Bridge Assurance is active only on spanning tree network interfaces. To configure an interface as a spanning tree network interface, use either the spanning-tree port type networkcommand or the spanning-tree port type network default command.



Note Bridge Assurance works only on point-to-point links. You must configure this feature on both ends of the link.

When Bridge Assurance is enabled on network ports, all ports send bridge protocol data units (BPDUs). When a Bridge Assurance-enabled network port does not receive any BPDUs for a specified period, that interface moves into the blocking state. After the network port receives a BPDU again, the port begins its normal spanning tree transitions.

An interface that is connected to a Layer 2 host and misconfigured as a spanning tree network port moves into the blocking state.



Note Bridge Assurance is configured globally only.

This command does not require a license.

Examples

This example shows how to enable Bridge Assurance on the device:

```
switch(config)# spanning-tree bridge assurance
switch(config)#
```

Related Commands

Command	Description
show spanning-tree summary	Displays information about the spanning tree state.

spanning-tree cost

To set the path cost of the interface for Spanning Tree Protocol (STP) calculations, use the `spanning-tree cost` command. To return to the default settings, use the **no** form of this command.

spanning-tree [**vlan** *vlan-id*] **cost** {*value*| **auto**}

no spanning-tree [**vlan** *vlan-id*] **cost**

Syntax Description

vlan <i>vlan-id</i>	(Optional) Lists the VLANs on this trunk interface for which you want to assign the path cost. You do not use this parameter on access ports. The range is from 1 to 4094.
<i>value</i>	Value of the port cost. The available cost range depends on the path-cost calculation method as follows: <ul style="list-style-type: none"> • short—The range is from 1 to 65536. • long—The range is from 1 to 200,000,000.
auto	Sets the value of the port cost by the media speed of the interface (see spanning-tree cost , on page 139 for the values).

Command Default

auto

Command Modes

Interface configuration

Supported User Roles

network-admin

vdc-admin

Command History

Release	Modification
4.0	This command was introduced.

Usage Guidelines

The STP port path cost default value is determined from the media speed and path-cost calculation method of a LAN interface (see [spanning-tree cost](#), on page 139).

Table 1: Default Port Cost

Bandwidth	Short Path-Cost Method Port Cost	Long Path-Cost Method Port Cost
10 Mbps	100	2,000,000
100 Mbps	19	200,000
1-Gigabit Ethernet	4	20,000
10-Gigabit Ethernet	2	2,000

When you configure the *value*, note that higher values indicate higher costs.

On access ports, assign the port cost by port. On trunk ports, assign the port cost by VLAN; you can configure all the VLANs on a trunk port as the same port cost.

The port channel bundle is considered a single port. The port cost is the aggregation of all the configured port costs assigned to that channel.

**Note**

Use this command to set the port cost for Rapid Per VLAN Spanning Tree Plus (PVST+). Use the **spanning-tree mst cost** command to set the port cost for Multiple Spanning Tree (MST).

This command does not require a license.

Examples

This example shows how to access an interface and set a path cost value of 250 for the spanning tree VLAN that is associated with that interface:

```
switch(config)# interface ethernet 2/0
switch(config-if)# spanning-tree cost 250
switch(config-if)#
```

Related Commands

Command	Description
show spanning-tree	Displays information about the spanning tree configuration.

spanning-tree guard

To enable or disable Loop Guard or Root Guard, use the **spanning-tree guard** command. To return to the default settings, use the **no** form of this command.

spanning-tree guard {loop| root| none}

no spanning-tree guard

Syntax Description

loop	Enables Loop Guard on the interface.
root	Enables Root Guard on the interface.
none	Sets the guard mode to none.

Command Default

Disabled

Command Modes

Interface configuration
Supported User Roles
network-admin
vdc-admin

Command History

Release	Modification
4.0	This command was introduced.

Usage Guidelines

You cannot enable Loop Guard if Root Guard is enabled, although the device accepts the command to enable Loop Guard on spanning tree edge ports.

This command does not require a license.

Examples

This example shows how to enable Root Guard:

```
switch(config-if)# spanning-tree guard root
switch(config-if)#
```

Related Commands

Command	Description
show spanning-tree summary	Displays information about the spanning tree state.



Show Commands

- [show interface switchport](#), page 145
- [show interface trunk](#), page 147
- [show interface vlan](#), page 149
- [show interface vlan counters](#), page 152
- [show mac address-table](#), page 155
- [show mac address-table aging-time](#), page 159
- [show running-config spanning-tree](#), page 161
- [show running-config vlan](#), page 163
- [show running-config vtp](#), page 164
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- [show spanning-tree brief](#), page 175
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- [show spanning-tree vlan](#), page 190
- [show startup-config vlan](#), page 194
- [show startup-config vtp](#), page 195
- [show system vlan reserved](#), page 196
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- [show vlan dot1q tag native, page 202](#)
- [show vlan id, page 203](#)
- [show vlan private-vlan, page 205](#)
- [show vtp counter, page 207](#)
- [show vtp devices, page 209](#)
- [show vtp interface, page 211](#)
- [show vtp password, page 213](#)
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- [shutdown \(VLAN configuration\), page 216](#)
- [show forwarding consistency l2, page 218](#)
- [show hardware mac address-table, page 220](#)
- [show interface mac-address, page 223](#)
- [show interface private-vlan mapping, page 225](#)
- [show interface pruning, page 227](#)

show interface switchport

To display interface switchport information, use the **show interface switchport** command.

show interface [*if-identifier*] **switchport**

Syntax Description

<i>if-identifier</i>	(Optional) Identifier of an interface. Examples are ethernet 3/22 or port channel 120.
----------------------	----------------------------------------------------------------------------------------

Command Default

None

Command Modes

Any command mode
Supported User Roles
network-admin
vdc-admin

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 display VTP interface switchport information on the device:

```
switch# show interface switchport
Name: Ethernet8/11
Switchport: Enabled
Switchport Monitor: Not enabled
Operational Mode: trunk
Access Mode VLAN: 1 (default)
Trunking Native Mode VLAN: 1 (default)
Trunking VLANs Enabled: 1,10,20-30
Pruning VLANs Enabled: 2-1001
Administrative private-vlan primary host-association: none
Administrative private-vlan secondary host-association: none
Administrative private-vlan primary mapping: none
Administrative private-vlan secondary mapping: none
Administrative private-vlan trunk native VLAN: none
Administrative private-vlan trunk encapsulation: dot1q
Administrative private-vlan trunk normal VLANs: none
Administrative private-vlan trunk private VLANs: none
Operational private-vlan: none
switch#
```

Related Commands

Command	Description
feature vtp	Enables VTP on the device.
vtp domain	Configures the VTP domain name.
vtp version	Configures the VTP version.

show interface trunk

To display interface trunk information, use the **show interface trunk** command.

show interface [*if-identifier*] **trunk**

Syntax Description

if-identifier

(Optional) Identifier of an interface. Examples are ethernet 3/22 or port channel 120.

Command Default

None

Command Modes

Any command mode

Supported User Roles

network-admin

vdc-admin

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 display VTP interface trunk information on the device:

```
switch# show interface trunk
```

```
-----
Port          Native  Status      Port
              Vlan              Channel
-----
Eth1/33       1       trunking    --
Eth1/34       1       trunking    --
-----
```

```
-----
Port          Vlans Allowed on Trunk
-----
Eth1/33       1,10
Eth1/34       1,10
-----
```

```
-----
Port          Vlans Err-disabled on Trunk
-----
Eth1/33       none
Eth1/34       none
-----
```

```

-----
Port          STP Forwarding
-----
Eth1/33      1,10
Eth1/34      1,10
-----
Port          VTP in spanning tree forwarding state and not pruned
-----
Eth1/33      1
Eth1/34      1
switch#

```

Related Commands

Command	Description
feature vtp	Enables VTP on the device.
vtp domain	Configures the VTP domain name.
vtp version	Configures the VTP version.

show interface vlan

To display information about specified VLANs, use the **show interface vlan** command.

show interface vlan *vlan-id* [**brief**] **description**| **private-vlan mapping**| **status**]

Syntax Description

<i>vlan-id</i>	Number of the VLAN. The range of values is from 1 to 4096.
brief	(Optional) Displays a brief description about a specified VLAN.
description	(Optional) Displays a detailed description about a specified VLAN.
private-vlan mapping	(Optional) Displays information about the private VLAN mapping, if any, for a specified VLAN.
status	(Optional) Displays information about the status for a specified VLAN.

Command Default

None

Command Modes

Any command mode
Supported User Roles
network-admin
vdc-admin

Command History

Release	Modification
4.0	This command was introduced.
4.2(1)	Display of configured static MAC addresses for Layer 3 port channels added.

Usage Guidelines

You can use this command to display information about a specified VLAN, including the private VLANs.

The information is gathered at 1-minute intervals.

When you specify a primary VLAN, the device displays all secondary VLANs mapped to the specified primary VLAN.

The device displays the output for the **private-vlan mapping** keyword only when you specify a primary private VLAN. If you specify a secondary private VLAN and enter the **private-vlan mapping** keyword, the output is blank.



Note To display more statistics for the specified VLAN, use the **show interface vlan counters** and **show vlan counters** commands. To display more information about private VLANs, see the **show interface private-vlan** commands.

You can configure a VLAN network interface with a static MAC address, and this command will display that configured MAC address. See the **mac-address** command for information on configuring a VLAN network interface with a static MAC address.

This command does not require a license.

Examples

This example shows how to display information about the specified VLAN. This command displays statistical information gathered on the VLAN at 1-minute intervals:

```
switch# show interface vlan 5
Vlan5 is administratively down, line protocol is down
Hardware is EtherSVI, address is 0000.0000.0000
MTU 1500 bytes, BW 1000000 Kbit, DLY 10 usec,
  reliability 255/255, txload 1/255, rxload 1/255
Encapsulation ARPA, loopback not set
Keepalive not supported
ARP type: ARPA
Last clearing of "show interface" counters 01:21:55
1 minute input rate 0 bytes/sec, 0 packets/sec
1 minute output rate 0 bytes/sec, 0 packets/sec
L3 Switched:
  input: 0 pkts, 0 bytes - output: 0 pkts, 0 bytes
L3 in Switched:
  ucast: 0 pkts, 0 bytes - mcast: 0 pkts, 0 bytes
L3 out Switched:
  ucast: 0 pkts, 0 bytes - mcast: 0 pkts, 0 bytes
```

This example shows how to display a brief description for a specified VLAN. This displays shows the secondary VLAN and type, if configured, and the status:

```
switch# show interface vlan 5 brief
-----
Interface      Secondary VLAN(Type)          Status      Reason
-----
Vlan5          --                            down        none
This example shows how to display the description for a specified VLAN:
```

```
switch# show interface vlan 100 description
-----
Interface      Description
-----
Vlan100
```

This example shows how to display information about the private VLAN mapping, if any, for a specified VLAN:

```
switch# show interface vlan 200 private-vlan mapping
Interface Secondary VLAN
-----
vlan200   201  202
```

This example shows how to display the status for a specified VLAN:

```
switch# show interface vlan 5 status
-----
Interface      Status      Protocol
```

```
-----  
vlan5          admin down          shut
```

Related Commands

Command	Description
show interface switchport	Displays information about the switch ports, including those configured for private VLANs,
show interface vlan counters	Displays the statistics for VLANs.

show interface vlan counters

To display the statistics for a specified VLAN, use the **show interface vlan counters** command.

show interface vlan *vlan-id* counters [detailed [all]] snmp]

Syntax Description

<i>vlan-id</i>	VLAN or range of VLANs for which you want to display statistics . The range is from 1 to 4096.
detailed	(Optional) Displays nonzero counters for the specified interface.
all	(Optional) Displays all the detailed information for the particular VLAN, including statistics per byte .
snmp	(Optional) Displays the MIB values .

Command Default

None

Command Modes

Any command mode
Supported User Roles
network-admin
vdc-admin

Command History

Release	Modification
4.0	This command was introduced.

Usage Guidelines

You can use this command to display information about the received octets, unicast packets, multicast packets, and broadcast packets as well as the transmitted octets, unicast packets, multicast packets, and broadcast packets for all VLANs, including private VLANs.

This command does not require a license.

Examples

This example shows how to display the statistics for a specified VLAN:

```
switch# show interface vlan 9 counters
-----
Port           InOctets   InUcastPkts  InMcastPkts  InBcastPkts
-----
Vlan9          0           0             0             --
```



```
-----
Port                OutOctets  OutUcastPkts  OutMcastPkts  OutBcastPkts
-----
Vlan9                0           0             0             --
```

This example shows how to display only the nonzero counters for a specified VLAN:

```
switch# show interface vlan 2 counters detailed
Vlan2
counters:
 13_average_input_bits           9947168160
 13_average_input_packets       20723267
 13_routed_bytes_in             39054410460
 13_routed_pkts_in              650906841
 13_ucast_bytes_in              39054410460
 13_ucast_pkts_in               650906841
```

This example shows how to display all detailed statistics for a specified VLAN:

```
switch(config)# show interface vlan 9 counters detailed all
Vlan9
counters:
 0.      13_ipv4_ucast_bytes_in = 0
 1.      13_ipv4_ucast_pkts_in = 0
 2.      13_ipv4_mcast_bytes_in = 0
 3.      13_ipv4_mcast_pkts_in = 0
 4.      13_ipv6_ucast_bytes_in = 0
 5.      13_ipv6_ucast_pkts_in = 0
 6.      13_ipv6_mcast_bytes_in = 0
 7.      13_ipv6_mcast_pkts_in = 0
 8.      13_ipv4_ucast_bytes_out = 0
 9.      13_ipv4_ucast_pkts_out = 0
10.     13_ipv4_mcast_bytes_out = 0
11.     13_ipv4_mcast_pkts_out = 0
12.     13_ipv6_ucast_bytes_out = 0
13.     13_ipv6_ucast_pkts_out = 0
14.     13_ipv6_mcast_bytes_out = 0
15.     13_ipv6_mcast_pkts_out = 0
16.     13_average_input_bytes = 0
17.     13_average_input_packets = 0
18.     13_average_output_bytes = 0
19.     13_average_output_packets = 0
20.     13_routed_bytes_in = 0
21.     13_routed_pkts_in = 0
22.     13_ucast_bytes_in = 0
23.     13_ucast_pkts_in = 0
24.     13_mcast_bytes_in = 0
25.     13_mcast_pkts_in = 0
26.     13_routed_bytes_out = 0
27.     13_routed_pkts_out = 0
28.     13_ucast_bytes_out = 0
29.     13_ucast_pkts_out = 0
30.     13_mcast_bytes_out = 0
31.     13_mcast_pkts_out = 0
```

This example shows how to display the MIB values for a specified VLAN:

```
switch(config)# show interface vlan 9 counters snmp
-----
Port                InOctets  InUcastPkts  InMcastPkts  InBcastPkts
-----
Vlan9                0           0             0             --
-----
Port                OutOctets  OutUcastPkts  OutMcastPkts  OutBcastPkts
-----
Vlan9                0           0             0             --
Ethernet2/28         0000.0000.0000  0019.076c.4dc7
Ethernet2/29         0000.0000.0000  0019.076c.4dc8
Ethernet2/30         0000.0000.0000  0019.076c.4dc9
```

Related Commands

Command	Description
clear counters	Clears counters on the interfaces.

show mac address-table

To display the information about the MAC address table, use the **show mac address-table** command.

```
show mac address-table [ num ] [dynamic| static] [address mac-address] count| interface {type slot/port|
port-channel number}| vlan vlan-id]
```

Syntax Description

<i>num</i>	(Optional) MAC address table for a specified module. Note When you use this argument, the system displays all the entries on that module as specified by any of the following optional arguments. When you do not use this argument, the system displays only the primary entries on all modules.
dynamic	(Optional) Displays information about the dynamic MAC address table entries only.
static	(Optional) Displays information about the static MAC address table entries only.
address <i>mac-address</i>	(Optional) Displays information about the MAC address table for a specific MAC address.
count	(Optional) Displays the number of MAC address entries for dynamic and static.
interface <i>type slot/port</i>	(Optional) Specifies the interface. Use either the type of interface, the slot number, or the port number.
port-channel <i>number</i>	(Optional) Specifies the port-channel number. The range is from 1 to 4096.
vlan <i>vlan-id</i>	(Optional) Displays information for a specific VLAN only; the range of valid values is from 1 to 4094.

Command Default None

Command Modes Any command mode
Supported User Roles
network-admin
vdc-admin

Command History

Release	Modification
4.0	This command was introduced.
4.1.2	This command was enhanced to display vPC information.

Usage Guidelines

A primary entry is a MAC address learned on that interface.



Note Use the **show mac address-table** command without the *num* argument to display only the primary entries on all modules. When you use the *num* argument, the device displays all the entries on that module as specified by additional optional arguments.

The device maintains static MAC address entries saved in the startup-config file across reboots and flushes the dynamic entries.

The MAC address table for each virtual device context (VDC) is separate and distinct.



Note To display the MAC address for the VDC, use the **show vdc** command.

The show mac address-table command is enhanced to display information about MAC addresses on virtual port channels (vPCs). See the *Cisco NX-OS Interfaces Configuration Guide* for information on vPCs.

This command does not require a license.

Examples

Note In the following examples, NTFY means notify.

This example shows how to display the information about the entries for the Layer 2 MAC address table:

```
switch# show mac address-table
Legend:
  * - primary entry, G - Gateway MAC, (R) - Routed MAC
  age - seconds since last seen
  VLAN   MAC Address      Type      age      Secure  NTFY    Ports
-----+-----+-----+-----+-----+-----+-----
G   -   0018.bad8.3fbd      static    -        False  False  sup-eth1(R)
* 3   1234.dd56.ee89     static    -        False  False  Eth2/1
```

This example shows how to display the information about the entries for the Layer 2 MAC address table when you have enabled and configured the vPC feature:

```
switch# show mac address-table
Legend:
  * - primary entry, G - Gateway MAC, (R) - Routed MAC
  age - seconds since last seen
  VLAN   MAC Address      Type      age      Secure  NTFY    Ports
-----+-----+-----+-----+-----+-----+-----
G   -   0018.bad8.447d      static    -        False  False  sup-eth1(R)
* 1   0000.0300.0300     dynamic    0        False  False  Eth1/2
* 1   0000.0300.0301     dynamic    0        False  False  Eth1/2
* 1   0000.0300.0302     dynamic    0        False  False  Eth1/2
```

```
* 1      0000.0300.0303    dynamic  0      False  False Eth1/2
* 1      0000.0300.0304    dynamic  0      False  False Eth1/2
2        ac00.0000.0021    dynamic  0      False  False VPC Peer-Link
2        ac00.0000.0022    dynamic  0      False  False VPC Peer-Link
2        ac00.0000.0023    dynamic  0      False  False VPC Peer-Link
```

This example shows how to display the information about the entries for the Layer 2 MAC address table for a specific module:

```
switch# show mac address-table 2
Legend:
* - primary entry, G - Gateway MAC, (R) - Routed MAC
age - seconds since last seen
VLAN  MAC Address      Type      age      Secure  NTFY    Ports
-----+-----+-----+-----+-----+-----+-----
G -    0018.bad8.3fbd    static    -        False  False   sup-eth1(R)
* 3    1234.dd56.ee89     static    -        False  False   Eth2/1
3      0000.23bd.4fda    dynamic   70       False  False   Eth1/1
```

This example shows how to display the information about the entries for the Layer 2 MAC address table for a specific MAC address:

```
switch# show mac address-table address 0018.bad8.3fbd
Legend:
* - primary entry, G - Gateway MAC, (R) - Routed MAC
age - seconds since last seen
VLAN  MAC Address      Type      age      Secure  NTFY    Ports
-----+-----+-----+-----+-----+-----+-----
G -    0018.bad8.3fbd    static    -        False  False   sup-eth1(R)
```

This example shows how to display the information about the dynamic entries for the Layer 2 MAC address table:

```
switch# show mac address-table dynamic
Legend:
* - primary entry, G - Gateway MAC, (R) - Routed MAC
age - seconds since last seen
VLAN  MAC Address      Type      age      Secure  NTFY    Ports
-----+-----+-----+-----+-----+-----+-----
* 3    0010.fcbc.3fbd     dynamic   1265    False  False   Eth2/12
* 3    1234.dd56.ee89     dynamic   850     False  False   Eth2/1
```

This example shows how to display the information about the Layer 2 MAC address table for a specific interface:

```
switch# show mac address-table interface ethernet 2/13
Legend:
* - primary entry, G - Gateway MAC, (R) - Routed MAC
age - seconds since last seen
VLAN  MAC Address      Type      age      Secure  NTFY    Ports
-----+-----+-----+-----+-----+-----+-----
* 1    1234.dd56.ee89     dynamic   0        False  False   Eth2/13
```

This example shows how to display the static entries in the Layer 2 MAC address table:

```
switch# show mac address-table static
Legend:
* - primary entry, G - Gateway MAC, (R) - Routed MAC
age - seconds since last seen
VLAN  MAC Address      Type      age      Secure  NTFY    Ports
-----+-----+-----+-----+-----+-----+-----
G -    0018.bad8.3fbd    static    -        False  False   sup-eth1(R)
* 3    1234.dd56.ee89     static    -        False  False   Eth2/1
```

This example shows how to display the entries in the Layer 2 MAC address table for a specific VLAN:

```
switch# show mac address-table vlan 3
Legend:
* - primary entry, G - Gateway MAC, (R) - Routed MAC
age - seconds since last seen
```

show mac address-table

```

      VLAN      MAC Address      Type      age      Secure  NTFY      Ports
-----+-----+-----+-----+-----+-----+-----
* 3          1234.dd56.ee89      static      -          False  False  Eth2/1

```

Related Commands

Command	Description
<code>mac address-table static</code>	Adds static entries to the MAC address table or configures a static MAC address with IGMP snooping disabled for that address.

show mac address-table aging-time

To display information about the timeout values for the MAC address table, use the **show mac-address-table aging-time** command.

show mac address-table aging-time [**vlan** *vlan-id*]

Syntax Description

vlan <i>vlan-id</i>	(Optional) Displays information for a specific VLAN only; the range of valid values is from 1 to 4094.
----------------------------	--------------------------------------------------------------------------------------------------------

Command Default

None

Command Modes

Any command mode
Supported User Roles
network-admin
vdc-admin

Command History

Release	Modification
4.0	This command was introduced.

Usage Guidelines

You can configure the MAC address aging time per VLAN or for the entire device. The valid range is from 120 to 918000. Entering 0 disables the MAC aging time.

This command does not require a license.

Examples

This example shows how to display MAC address aging times:

```
switch# show mac address-table aging-time
Vlan    Aging Time
----    -
1       1800
50      1200
100     1800
```

Related Commands

Command	Description
mac address-table aging-time	Configures the aging time for entries in the Layer 2 table.

show mac address-table aging-time

show running-config spanning-tree

To display the running configuration for the Spanning Tree Protocol (STP), use the **show running-config spanning-tree** command.

show running-config spanning-tree [all]

Syntax Description

all	(Optional) Displays current STP operating information including the default settings.
------------	---------------------------------------------------------------------------------------

Command Default

None

Command Modes

Any command mode

Supported User Roles

network-admin

vdc-admin

Command History

Release	Modification
4.0	This command was introduced.

Usage Guidelines

This command provides information about the Spanning Tree Protocol.



Note

The display output differs slightly depending on whether you are running Rapid Per VLAN Spanning Tree (Rapid PVST+) or Multiple Spanning Tree (MST).

This command does not require a license.

Examples

This example shows how to display information about the running STP configuration when you are running MST:

```
switch# show running-config spanning-tree
spanning-tree mode mst
```

This example shows how to display detailed information about the running STP configuration when you are running MST:

```
switch# show running-config spanning-tree all
spanning-tree mode mst
no spanning-tree port type edge default
```

show running-config spanning-tree

```

no spanning-tree port type network default
spanning-tree bridge assurance
no spanning-tree loopguard default
spanning-tree mst simulate pvst global
no snmp-server enable traps bridge topologychange
no snmp-server enable traps bridge newroot
no snmp-server enable traps stpx inconsistency
no snmp-server enable traps stpx loop-inconsistency
no snmp-server enable traps stpx root-inconsistency
spanning-tree mst hello-time 2
spanning-tree mst forward-time 15
spanning-tree mst max-age 20
spanning-tree mst max-hops 20
spanning-tree mst 0 priority 32768
spanning-tree mst configuration
    name
    revision 0
    instance 0 vlan 1-4094
configure interface Ethernet8/1
    spanning-tree port-priority 128

```

Related Commands

Command	Description
show spanning-tree	Displays information about STP.

show running-config vlan

To display the running configuration for a specified VLAN, use the **show running-config vlan** command.

show running-config vlan *vlan-id*

Syntax Description

<i>vlan-id</i>	Number of the VLAN or range of VLANs. Valid numbers range from 1 to 4096.
----------------	---------------------------------------------------------------------------

Command Default

None

Command Modes

Any command mode
Supported User Roles
network-admin
vdc-admin

Command History

Release	Modification
4.0	This command was introduced.

Usage Guidelines

This command provides information about the specified VLAN, including private VLANs.

The display varies with your configuration. If you configure the name, shutdown status, or suspended status, these settings.

This command does not require a license.

Examples

This example shows how to display the running configuration for VLAN 50:

```
switch(config)# show running-config vlan 50
version 4.0(1)
vlan 50
```

Related Commands

Command	Description
show vlan	Displays information about all the VLANs on the device.

show running-config vtp

To display the running configuration for the VLAN Trunking Protocol (VTP), use the **show running-config vtp** command.

show running-config vtp

Syntax Description This command has no arguments or keywords.

Command Default None

Command Modes Any command mode
Supported User Roles
network-admin
vdc-admin

Command History	Release	Modification
	4.1(2)	This command was introduced.

Usage Guidelines This command provides information about VTP.
This command does not require a license.

Examples This example shows how to display the running configuration for VTP:

```
switch(config)# show running-config vtp
version 4.1(2)
feature vtp
vtp mode transparent
vtp domain accounting
```

Related Commands

Command	Description
show vtp status	Displays information about VTP on the device.

show spanning-tree

To display information about the Spanning Tree Protocol (STP), use the **show spanning-tree** command.

show spanning-tree [**blockedports**] [**inconsistentports**] [**pathcost method**]

Syntax Description

blockedports	(Optional) Displays the alternate ports blocked by STP.
inconsistentports	(Optional) Displays the ports that are in an inconsistent STP state.
pathcost method	(Optional) Displays whether the short or long path-cost method is used. Note The method type differs for Rapid Per VLAN Spanning Tree (Rapid PVST+) and Multiple Spanning Tree (MST):- With Rapid PVST+, this value is configurable and the default is short.- With MST, this value is nonconfigurable and the operational value is always long.

Command Default

None

Command Modes

Any command mode
Supported User Roles
network-admin
vdc-admin

Command History

Release	Modification
4.0	This command was introduced.
4.1(3)	This command was enhanced to display when a port is part of a virtual port channel (vPC).
4.1.2	This command was enhanced to display vPC information.

Usage Guidelines

The STP port type displays only when you have configured the port as either an STP edge port or an STP network port. If you have not configured the STP port type, no port type displays.

**Note**

The display output differs slightly depending on whether you are running Rapid PVST+ or MST.

This command does not require a license.

Examples

This example shows how to display STP when you are running Rapid PVST+:

```
switch# show spanning-tree
VLAN0001
  Spanning tree enabled protocol rstp
  Root ID      Priority      32769
              Address      000d.eca3.9f01
              Cost         4
              Port         4105 (port-channel10)
              Hello Time   2 sec   Max Age 20 sec   Forward Delay 15 sec
  Bridge ID    Priority      32769 (priority 32768 sys-id-ext 1)
              Address      0022.5579.7641
              Hello Time   2 sec   Max Age 20 sec   Forward Delay 15 sec
Interface      Role Sts Cost          Prio.Nbr Type
-----
Po10           Root FWD 2            128.4105 (vPC peer-link) P2p
Po20           Desg FWD 1            128.4115 (vPC) P2p
Po30           Root FWD 1            128.4125 (vPC) P2p
VLAN0002
  Spanning tree enabled protocol rstp
  Root ID      Priority      32770
              Address      000d.eca3.9f01
              Cost         4
              Port         4105 (port-channel10)
              Hello Time   2 sec   Max Age 20 sec   Forward Delay 15 sec
  Bridge ID    Priority      32770 (priority 32768 sys-id-ext 2)
              Address      0022.5579.7641
              Hello Time   2 sec   Max Age 20 sec   Forward Delay 15 sec
Interface      Role Sts Cost          Prio.Nbr Type
-----
Po10           Root FWD 2            128.4105 (vPC peer-link) P2p
Po20           Desg FWD 1            128.4115 (vPC) P2p
Po30           Root FWD 1            128.4125 (vPC) P2p
VLAN0003
  Spanning tree enabled protocol rstp
  Root ID      Priority      32771
              Address      000d.eca3.9f01
              Cost         4
              Port         4105 (port-channel10)
              Hello Time   2 sec   Max Age 20 sec   Forward Delay 15 sec
  Bridge ID    Priority      32771 (priority 32768 sys-id-ext 3)
              Address      0022.5579.7641
              Hello Time   2 sec   Max Age 20 sec   Forward Delay 15 sec
Interface      Role Sts Cost          Prio.Nbr Type
-----
Po10           Root FWD 2            128.4105 (vPC peer-link) P2p
Po20           Desg FWD 1            128.4115 (vPC) P2p
Po30           Root FWD 1            128.4125 (vPC) P2p
VLAN0004
  Spanning tree enabled protocol rstp
  Root ID      Priority      32772
              Address      000d.eca3.9f01
              Cost         4
              Port         4105 (port-channel10)
              Hello Time   2 sec   Max Age 20 sec   Forward Delay 15 sec
  Bridge ID    Priority      32772 (priority 32768 sys-id-ext 4)
              Address      0022.5579.7641
              Hello Time   2 sec   Max Age 20 sec   Forward Delay 15 sec
Interface      Role Sts Cost          Prio.Nbr Type
-----
Po10           Root FWD 2            128.4105 (vPC peer-link) P2p
Po20           Desg FWD 1            128.4115 (vPC) P2p
Po30           Root FWD 1            128.4125 (vPC) P2p
```

This example shows how to display STP information when you are running MST:

```
switch# show spanning-tree
MST0000
  Spanning tree enabled protocol mstp
  Root ID      Priority      32768
              Address      0018.bad8.fc150
              Cost        0
              Port        258 (Ethernet 2/2)
              Hello Time  2 sec  Max Age 20 sec  Forward Delay 15 sec
  Bridge ID    Priority      32768 (priority 32768 sys-id-ext 0)
              Address      0018.bad8.239d
              Hello Time  2 sec  Max Age 20 sec  Forward Delay 15 sec
Interface      Role Sts Cost          Prio.Nbr  Type
-----
Eth2/1         Altn BKN 20000       128.257   Network, P2p  BA_Inc.
Eth2/2         Root FWD 20000       128.258   Edge, P2p
Eth3/48        Desg FWD 20000       128.43228 P2p
```

This example shows how to display the blocked ports in spanning tree:

```
switch(config)# show spanning-tree blockedports
Name          Blocked Interfaces List
-----
VLAN0001      Eth8/2
VLAN0002      Eth8/2
VLAN0003      Eth8/2
VLAN0004      Eth8/2
VLAN0005      Eth8/2
VLAN0006      Eth8/2
VLAN0007      Eth8/2
VLAN0008      Eth8/2
VLAN0009      Eth8/2
VLAN0010      Eth8/2
```

This example shows how to determine if any ports are in any STP-inconsistent state:

```
switch#
show spanning-tree inconsistentports
Name          Interface          Inconsistency
-----
MST0000      Eth8/1             Bridge Assurance Inconsistent
MST0000      Eth8/2             Bridge Assurance Inconsistent
```

This example shows how to display the path-cost method when you are running Rapid PVST+:

```
switch(config)# show spanning-tree pathcost method
Spanning tree default pathcost method used is short
```

This example shows how to display the path-cost method when you are running MST:

```
switch(config)# show spanning-tree pathcost method
Spanning tree default pathcost method used is short (Operational value is long)
show spanning-tree, on page 165 describes the fields that are shown in the examples.
```

Table 2: show spanning-tree Command Output Options

Field	Definition and Options
Role	<p>Current port STP role. Valid values are as follows:</p> <ul style="list-style-type: none"> • Desg (designated) • Root • Altn (alternate) • Back (backup)
State	<p>Current port STP state. Valid values are as follows:</p> <ul style="list-style-type: none"> • BLK (blocking) • DIS (disabled) • LRN (learning) • FWD (forwarding)
Type	<p>Status information; valid values are as follows:</p> <ul style="list-style-type: none"> • P2p/Shr—The interface is considered as a point-to-point interface by the spanning tree. • vPC—The port-channel interface is part of a VPC domain. • vPC peer-link—The port-channel interface is part of a VPC peer link. • Edge—The port is configured as an STP edge port (either globally using the default command or directly on the interface) and no BPDU has been received. • Network—The port is configured as an STP network port (either globally using the default command or directly on the interface). • *ROOT_Inc, *LOOP_Inc, *PVID_Inc, *BA_Inc, and *TYPE_Inc—The port is in a broken state (BKN*) for an inconsistency. The port would be Root inconsistent, Loopguard inconsistent, PVID inconsistent, Bridge Assurance inconsistent, or Type inconsistent.

Related Commands

Command	Description
show spanning-tree mst	Displays information about the MST STP.
show spanning-tree active	Displays information about the STP active interfaces only.

Command	Description
show spanning-tree bridge	Displays the bridge ID, timers, and protocol for the local bridge on the device.
show spanning-tree brief	Displays a brief summary of STP information.
show spanning-tree detail	Displays detailed information about STP.
show spanning-tree interface	Displays the STP interface status and configuration of specified interfaces.
show spanning-tree root	Displays the status and configuration of the root bridge for the STP instance to which this device belongs.
show spanning-tree summary	Displays summary information about STP.
show spanning-tree vlan	Displays STP information about specified VLANs.

show spanning-tree active

To display Spanning Tree Protocol (STP) information on STP-active interfaces only, use the **show spanning-tree active** command.

show spanning-tree active [**brief**] **detail**

Syntax Description

brief	(Optional) Displays a brief summary of STP interface information.
detail	(Optional) Displays a detailed summary of STP interface information.

Command Default

None

Command Modes

Any command mode
Supported User Roles
network-admin
vdc-admin

Command History

Release	Modification
4.0	This command was introduced.
4.1.2	This command was enhanced to display vPC information.

Usage Guidelines

This command does not require a license.

Examples

This example shows how to display STP information on the STP active interfaces:

```
switch# show spanning-tree active
VLAN0001
  Spanning tree enabled protocol rstp
  Root ID    Priority    32769
            Address    000d.eca3.9f01
            Cost      4
            Port      4105 (port-channel10)
            Hello Time 2 sec  Max Age 20 sec  Forward Delay 15 sec
  Bridge ID  Priority    32769 (priority 32768 sys-id-ext 1)
            Address    0022.5579.7641
            Hello Time 2 sec  Max Age 20 sec  Forward Delay 15 sec
Interface   Role Sts Cost      Prio.Nbr Type
-----
-----
```

```

Po10          Root FWD 2          128.4105 (vPC peer-link) P2p
Po20          Desg FWD 1          128.4115 (vPC) P2p
Po30          Root FWD 1          128.4125 (vPC) P2p
VLAN0002
  Spanning tree enabled protocol rstp
  Root ID     Priority 32770
             Address 000d.eca3.9f01
             Cost   4
             Port   4105 (port-channel10)
             Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec
  Bridge ID   Priority 32770 (priority 32768 sys-id-ext 2)
             Address 0022.5579.7641
             Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec
Interface    Role Sts Cost      Prio.Nbr Type
-----
Po10         Root FWD 2          128.4105 (vPC peer-link) P2p
Po20         Desg FWD 1          128.4115 (vPC) P2p
Po30         Root FWD 1          128.4125 (vPC) P2p
VLAN0003
  Spanning tree enabled protocol rstp
  Root ID     Priority 32771
             Address 000d.eca3.9f01
             Cost   4
             Port   4105 (port-channel10)
             Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec
  Bridge ID   Priority 32771 (priority 32768 sys-id-ext 3)
             Address 0022.5579.7641
             Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec
Interface    Role Sts Cost      Prio.Nbr Type
-----
Po10         Root FWD 2          128.4105 (vPC peer-link) P2p
Po20         Desg FWD 1          128.4115 (vPC) P2p
Po30         Root FWD 1          128.4125 (vPC) P2p
VLAN0004
  Spanning tree enabled protocol rstp
  Root ID     Priority 32772
             Address 000d.eca3.9f01
             Cost   4
             Port   4105 (port-channel10)
             Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec
  Bridge ID   Priority 32772 (priority 32768 sys-id-ext 4)
             Address 0022.5579.7641
             Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec
Interface    Role Sts Cost      Prio.Nbr Type
-----
Po10         Root FWD 2          128.4105 (vPC peer-link) P2p
Po20         Desg FWD 1          128.4115 (vPC) P2p
Po30         Root FWD 1          128.4125 (vPC) P2p

```

Related Commands

Command	Description
show spanning-tree mst	Displays information about the MST STP.
show spanning-tree	Displays information about STP.
show spanning-tree bridge	Displays the bridge ID, timers, and protocol for the local bridge on the device.
show spanning-tree brief	Displays a brief summary of STP information.
show spanning-tree detail	Displays detailed information about STP.
show spanning-tree interface	Displays the STP interface status and configuration about specified interfaces.

Command	Description
show spanning-tree root	Displays the status and configuration of the root bridge for the STP instance to which this device belongs.
show spanning-tree summary	Displays summary information about STP.
show spanning-tree vlan	Displays STP information about specified VLANs.

show spanning-tree bridge

To display the status and configuration of the Spanning-Tree Protocol (STP) local bridge, use the **show spanning-tree bridge** command.

show spanning-tree bridge [**address**] **brief** **detail** **forward-time** **hello-time** **id** **max-age** **priority** [**system-id**] **protocol**

Syntax Description

address	(Optional) Displays the MAC address for the STP local bridge.
brief	(Optional) Displays a brief summary of the status and configuration for the STP bridge.
detail	(Optional) Displays a detailed summary of the status and configuration for the STP bridge.
forward-time	(Optional) Displays the STP forward delay interval for the bridge.
hello-time	(Optional) Displays the STP hello time for the bridge.
id	(Optional) Displays the STP bridge identifier for the bridge.
max-age	(Optional) Displays the STP maximum-aging time for the bridge.
priority	(Optional) Displays the bridge priority for this bridge.
system-id	(Optional) Displays the bridge priority with the system ID extension for this bridge.
protocol	(Optional) Displays which STP protocol is active, Rapid Per VLAN Spanning Tree (Rapid PVST+) or Multiple Spanning Tree (MST) on the device.

Command Default

None

Command Modes

Any command mode
Supported User Roles
network-admin
vdc-admin

Command History

Release	Modification
4.0	This command was introduced.

Usage Guidelines

This command does not require a license.

Examples

This example shows how to display STP information for the bridge:

```
switch(config)# show spanning-tree bridge
```

MST Instance	Bridge ID	Hello Time	Max Age	Fwd Dly	Protocol
MST0000	32768 (32768,0) 0018.bad7.fc15	2	20	15	mstp

Related Commands

Command	Description
show spanning-tree mst	Displays information about the MST STP.
show spanning-tree	Displays information about STP.
show spanning-tree active	Displays information about the STP active interfaces only.
show spanning-tree brief	Displays a brief summary of STP information.
show spanning-tree detail	Displays detailed information about STP.
show spanning-tree interface	Displays the STP interface status and configuration of specified interfaces.
show spanning-tree root	Displays the status and configuration of the root bridge for the STP instance to which this device belongs.
show spanning-tree summary	Displays summary information about STP.
show spanning-tree vlan	Displays STP information about specified VLANs.

show spanning-tree brief

To display a brief summary of the Spanning Tree Protocol (STP) status and configuration on the device, use the **show spanning-tree brief** command.

show spanning-tree brief [active]

Syntax Description

active	(Optional) Displays information about the STP active interfaces only .
---------------	------------------------------------------------------------------------

Command Default

None

Command Modes

Any command mode
Supported User Roles
network-admin
vdc-admin

Command History

Release	Modification
4.0	This command was introduced.
4.1(2)	This command was enhanced to display vPC information.

Usage Guidelines

This command does not require a license.

Examples

This example shows how to display a brief summary of STP information:

```
switch(config)# show spanning-tree brief
VLAN0001
  Spanning tree enabled protocol rstp
  Root ID    Priority    32769
            Address    000d.eca3.9f01
            Cost      4
            Port      4105 (port-channel10)
            Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec
  Bridge ID  Priority    32769 (priority 32768 sys-id-ext 1)
            Address    0022.5579.7641
            Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec
Interface   Role Sts Cost      Prio.Nbr Type
-----
Po10        Root FWD 2         128.4105 (vPC peer-link) P2p
Po20        Desg FWD 1         128.4115 (vPC) P2p
Po30        Root FWD 1         128.4125 (vPC) P2p
VLAN0002
```

show spanning-tree brief

```

Spanning tree enabled protocol rstp
Root ID    Priority    32770
           Address    000d.eca3.9f01
           Cost      4
           Port     4105 (port-channel10)
           Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec
Bridge ID  Priority    32770 (priority 32768 sys-id-ext 2)
           Address    0022.5579.7641
           Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec
Interface  Role Sts Cost      Prio.Nbr Type
-----
Po10      Root FWD 2         128.4105 (vPC peer-link) P2p
Po20      Desg FWD 1         128.4115 (vPC) P2p
Po30      Root FWD 1         128.4125 (vPC) P2p

```

Related Commands

Command	Description
show spanning-tree mst	Displays information about the MST STP.
show spanning-tree	Displays information about STP.
show spanning-tree active	Displays information about the STP active interfaces only.
show spanning-tree bridge	Displays the bridge ID, timers, and protocol for the local bridge on the device.
show spanning-tree detail	Displays detailed information about STP.
show spanning-tree interface	Displays the STP interface status and configuration of specified interfaces.
show spanning-tree root	Displays the status and configuration of the root bridge for the STP instance to which this device belongs.
show spanning-tree summary	Displays summary information about STP.
show spanning-tree vlan	Displays STP information about specified VLANs.

show spanning-tree detail

To display detailed information on the Spanning Tree Protocol (STP) status and configuration on the device, use the **show spanning-tree detail** command.

show spanning-tree detail [active]

Syntax Description

active	(Optional) Displays information about the STP active interfaces only .
---------------	------------------------------------------------------------------------

Command Default

None

Command Modes

Any command mode

Supported User Roles

network-admin

vdc-admin

Command History

Release	Modification
4.0	This command was introduced.
4.1.2	This command was enhanced to display vPC information.

Usage Guidelines

This command does not require a license.

Examples

This example shows how to display detailed information about the STP configuration:

```
switch(config)# show spanning-tree detail
VLAN0001 is executing the rstp compatible Spanning Tree protocol
 Bridge Identifier has priority 32768, sysid 1, address 0022.5579.7641
 Configured hello time 2, max age 20, forward delay 15
 Current root has priority 32769, address 000d.eca3.9f01
 Root port is 4105 (port-channel10), cost of root path is 4
 Topology change flag not set, detected flag not set
 Number of topology changes 1 last change occurred 20:24:36 ago
   from port-channel10
 Times: hold 1, topology change 35, notification 2
       hello 2, max age 20, forward delay 15
 Timers: hello 0, topology change 0, notification 0
 Port 4105 (port-channel10, vPC Peer-link) of VLAN0001 is root forwarding
 Port path cost 2, Port priority 128, Port Identifier 128.4105
 Designated root has priority 32769, address 000d.eca3.9f01
 Designated bridge has priority 32769, address 0022.5579.7341
 Designated port id is 128.4105, designated path cost 2
```

show spanning-tree detail

```

Timers: message age 16, forward delay 0, hold 0
Number of transitions to forwarding state: 1
Link type is point-to-point by default
BPDU: sent 36729, received 36739
Port 4115 (port-channel20, vPC) of VLAN0001 is designated forwarding
Port path cost 1, Port priority 128, Port Identifier 128.4115
Designated root has priority 32769, address 000d.eca3.9f01
Designated bridge has priority 32769, address 0022.5579.7341
Designated port id is 128.4115, designated path cost 2
Timers: message age 0, forward delay 0, hold 0
Number of transitions to forwarding state: 0
Link type is point-to-point by default
BPDU: sent 0, received 0
Port 4125 (port-channel30, vPC) of VLAN0001 is root forwarding
Port path cost 1, Port priority 128, Port Identifier 128.4125
Designated root has priority 32769, address 000d.eca3.9f01
Designated bridge has priority 32769, address 000d.eca3.9f01
Designated port id is 128.4125, designated path cost 0
Timers: message age 0, forward delay 0, hold 0
Number of transitions to forwarding state: 0
Link type is point-to-point by default
BPDU: sent 0, received 0

```

Related Commands

Command	Description
show spanning-tree mst	Displays information about the MST STP.
show spanning-tree	Displays information about STP.
show spanning-tree active	Displays information about the STP active interfaces only.
show spanning-tree bridge	Displays the bridge ID, timers, and protocol for the local bridge on the device.
show spanning-tree brief	Displays brief summary information about STP.
show spanning-tree interface	Displays the STP interface status and configuration about specified interfaces.
show spanning-tree root	Displays the status and configuration of the root bridge for the STP instance to which this device belongs.
show spanning-tree summary	Displays summary information about STP.
show spanning-tree vlan	Displays STP information about specified VLANs.

show spanning-tree interface

To display information about the Spanning Tree Protocol (STP) interface status and configuration of specified interfaces, use the **show spanning-tree interface** command.

```
show spanning-tree interface {ethernet slot/port| port-channel channel-number} [active [brief| detail]|
brief [active]| cost| detail [active]| edge| inconsistency| priority| rootcost| state]
```

Syntax Description

ethernet <i>slot/port</i>	Displays the Ethernet interface and slot or port number. The range is from 1 to 253.
port-channel <i>channel-number</i>	Port channel number. The range is from 1 to 4096.
active	(Optional) Displays information about the STP active interfaces only on the specified interfaces.
brief	(Optional) Displays a brief summary about the specified STP interfaces .
detail	(Optional) Displays detailed information about the specified STP interfaces .
cost	(Optional) Displays the STP path cost for the specified interfaces.
edge	(Optional) Displays the STP-type edge port information for the specified interfaces.
inconsistency	(Optional) Displays the port STP inconsistency state for the specified interfaces.
priority	(Optional) Displays the STP port priority for the specified interfaces.
rootcost	(Optional) Displays the path cost to the root for specified interfaces.
<i>state</i>	Current port STP state. Valid values are as follows: <ul style="list-style-type: none"> • BLK (blocking) • DIS (disabled) • LRN (learning) • FWD (forwarding)

Command Default None

Command Modes Any command mode
Supported User Roles
network-admin
vdc-admin

Release	Modification
4.0	This command was introduced.
4.1.2	This command was enhanced to display vPC information.

Usage Guidelines The STP port type displays only when you have configured the port as either an STP edge port or an STP network port. If you have not configured the STP port type, no port type displays.
If you specify an interface that is not running STP, the device returns an error message.
When you are running MST, this command displays the PVST simulation setting.



Note If you are running MST, use the **show spanning-tree mst** command to show more detail on the specified interfaces.

This command does not require a license.

Examples This example shows how to display STP information about a specified interface when you are running Rapid PVST+:

```
switch(config)# show spanning-tree interface ethernet 8/2
```

```
Vlan          Role Sts Cost      Prio.Nbr Type
-----
VLAN0001      Altn BLK 20000    128.1025 P2p
VLAN0002      Desg FWD 20000    128.1025 P2p
```

This example shows how to display STP information about a specified interface when you are running MST:

```
switch(config)# show spanning-tree interface ethernet 2/50
```

```
Mst Instance  Role Sts Cost      Prio.Nbr Type
-----
MST0000      Desg FWD 20000    128.1281 P2p
```

This example shows how to display detailed STP information about a specified interface when you are running Rapid PVST+:

```
switch(config)# show spanning-tree interface ethernet 8/1 detail
```

```
Port 1025 (Ethernet8/1) of VLAN0001 is alternate blocking
  Port path cost 20000, Port priority 128, Port Identifier 128.1025
  Designated root has priority 28672, address 0018.bad8.239d
  Designated bridge has priority 28672, address 0018.bad8.239d
```

```

Designated port id is 128.1281, designated path cost 0
Timers: message age 15, forward delay 0, hold 0
Number of transitions to forwarding state: 1
Link type is point-to-point by default
The port type is network by default.
BPDU: sent 4657, received 188
Port 1025 (Ethernet8/1) of VLAN0002 is designated forwarding
Port path cost 20000, Port priority 128, Port Identifier 128.1025
Designated root has priority 32770, address 0018.bad7.fc15
Designated bridge has priority 32770, address 0018.bad7.fc15
Designated port id is 128.1025, designated path cost 0
Timers: message age 0, forward delay 0, hold 0
Number of transitions to forwarding state: 1
Link type is point-to-point by default The port type is network by default.
BPDU: sent 4838, received 0
    
```

This example shows how to display detailed STP information about a specified interface when you are running MST:

```

switch(config)# show spanning-tree interface ethernet 10/1 detail
Port 1281 (Ethernet10/1) of MST0000 is designated forwarding
Port path cost 20000, Port priority 128, Port Identifier 128.1281
Designated root has priority 28672, address 0018.bad8.239d
Designated bridge has priority 28672, address 0018.bad8.239d
Designated port id is 128.1281, designated path cost 0
Timers: message age 0, forward delay 0, hold 0
Number of transitions to forwarding state: 1
Link type is point-to-point by default, Internal
PVST Simulation is enabled by default
BPDU: sent 290, received 0
    
```

This example shows how to display detailed STP information about a specified port-channel interface when you are running a virtual port channel (vPC):

```

switch(config)# show spanning-tree interface port-channel 10
-----
Vlan          Role Sts Cost          Prio.Nbr Type
-----
VLAN0001      Root FWD 2             128.4105 (vPC peer-link) P2p
VLAN0002      Root FWD 2             128.4105 (vPC peer-link) P2p
VLAN0003      Root FWD 2             128.4105 (vPC peer-link) P2p
VLAN0004      Root FWD 2             128.4105 (vPC peer-link) P2p
    
```

Related Commands

Command	Description
show spanning-tree mst	Displays information about the MST STP.
show spanning-tree	Displays information about STP.
show spanning-tree active	Displays information about the STP active interfaces only.
show spanning-tree bridge	Displays the bridge ID, timers, and protocol for the local bridge on the device.
show spanning-tree brief	Displays brief summary information about STP.
show spanning-tree detail	Displays detailed information about STP.
show spanning-tree root	Displays the status and configuration of the root bridge for the STP instance to which this device belongs.

Command	Description
show spanning-tree summary	Displays summary information about STP.
show spanning-tree vlan	Displays STP information about specified VLANs.

show spanning-tree mst

To display information about the Multiple Spanning Tree (MST) status and configuration, use the **show spanning-tree mst** command.

```
show spanning-tree mst [instance-id [detail] interface {ethernet slot/port|port-channel channel-number}
[detail]]] [configuration [digest]] [detail] [interface ethernet slot/port|port-channel channel-number
[detail]]
```

Syntax Description

<i>instance-id</i>	(Optional) MST instance that you want to display.
detail	(Optional) Displays detailed MST information.
interface	Displays the interface or range of interfaces that you want to display.
ethernet <i>slot/port</i>	Displays the Ethernet interface and slot or port number. The range is from 1 to 253.
port-channel <i>channel-number</i>	Displays the port-channel number. The range is from 1 to 4096.
configuration	(Optional) Displays current MST regional information. Displays VLAN-to-instance mapping of all VLANs.
digest	(Optional) Displays information about the MD5 digest.

Command Default

None

Command Modes

Any command mode
Supported User Roles
network-admin
vdc-admin

Command History

Release	Modification
4.0	This command was introduced.
4.1.2	This command was enhanced to display vPC information.

Usage Guidelines

If you are not running in Spanning Tree Protocol (STP) Multiple Spanning Tree (MST) mode but are running in STP Rapid Per VLAN Spanning Tree (Rapid PVST+) mode, when you enter this command, the device returns the following message:

```
ERROR: Switch is not in mst mode
```

See [Table 1-1](#) for information on valid values for fields.

This command does not require a license.

Examples

This example shows how to display STP information about MST instance information for the VLAN ports that are currently active:

```
switch# show spanning-tree mst
##### MST0      vlans mapped: 1-4094
Bridge          address 0018.bad7.fc15 priority      32768 (32768 sysid 0)
Root            this switch for the CIST
Regional Root   this switch
Operational     hello time 2 , forward delay 15, max age 20, txholdcount 6
Configured     hello time 2 , forward delay 15, max age 20, max hops 20
Interface       Role Sts Cost          Prio.Nbr Type
-----
Eth8/1          Desg FWD 20000      128.1025 P2p
Eth8/2          Desg FWD 20000      128.1026 P2p
```

This example shows how to display STP information about a specific MST instance:

```
switch)# show spanning-tree mst 0
##### MST0      vlans mapped: 1-4094
Bridge          address 0018.bad7.fc15 priority      32768 (32768 sysid 0)
Root            this switch for the CIST
Regional Root   this switch
Operational     hello time 2 , forward delay 15, max age 20, txholdcount 6
Configured     hello time 2 , forward delay 15, max age 20, max hops 20
Interface       Role Sts Cost          Prio.Nbr Type
-----
Eth8/1          Desg FWD 20000      128.1025 P2p
Eth8/2          Desg FWD 20000      128.1026 P2p
```

This example shows how to display detailed STP information about the MST protocol:

```
switch)# show spanning-tree mst detail
##### MST0      vlans mapped: 1-4094
Bridge          address 0018.bad7.fc15 priority      32768 (32768 sysid 0)
Root            this switch for the CIST
Regional Root   this switch
Operational     hello time 2 , forward delay 15, max age 20, txholdcount 6
Configured     hello time 2 , forward delay 15, max age 20, max hops 20
Eth8/1 of MST0 is designated forwarding
Port info       port id      128.1025 priority    128 cost     20000
Designated root address 0018.bad7.fc15 priority    32768 cost     0
Design. regional root address 0018.bad7.fc15 priority    32768 cost     0
Designated bridge address 0018.bad7.fc15 priority    32768 port id 128.1025
Timers: message expires in 0 sec, forward delay 0, forward transitions 1
Bpdus sent 1379, received 3
Eth8/2 of MST0 is designated forwarding
Port info       port id      128.1026 priority    128 cost     20000
Designated root address 0018.bad7.fc15 priority    32768 cost     0
Design. regional root address 0018.bad7.fc15 priority    32768 cost     0
Designated bridge address 0018.bad7.fc15 priority    32768 port id 128.1026
Timers: message expires in 0 sec, forward delay 0, forward transitions 1
Bpdus sent 1380, received 2
```


This example shows how to display STP information about specified MST interfaces:

```
switch)# show spanning-tree mst interface ethernet 8/2
Eth8/2 of MST0 is designated forwarding
Port Type: normal (default) port guard : none (default)
Link type: point-to-point (auto) bpdu filter: disable (default)
Boundary : internal bpdu guard : disable (default)
Bpdus sent 1423, received 2
-----
Instance Role Sts Cost Prio.Nbr Vlans mapped
-----
0 Desg FWD 20000 128.1026 1-4094
```

This example shows how to display information about the MST configuration:

```
switch)# show spanning-tree mst configuration
Name: [mst-bldg-sj6/3]
Revision: 1 Instances Configured: 3
Instance Vlans mapped
-----
0 1
2000 2-2000
4094 2001-4094
-----
```

This example shows how to display the MD5 digest included in the current MST configuration:

```
switch)# show spanning-tree mst configuration digest
Name [mst-config]
Revision 10 Instances configured 25
Digest 0x40D5ECA178C657835C83BBCB16723192
Pre-std Digest 0x27BF112A75E72781ED928D9EC5BB4251
```

Related Commands

Command	Description
show spanning-tree	Displays information about STP.
show spanning-tree active	Displays information about the STP active interfaces only.
show spanning-tree bridge	Displays the bridge ID, timers, and protocol for the local bridge on the device.
show spanning-tree brief	Displays brief summary information about STP.
show spanning-tree detail	Displays detailed information about STP.
show spanning-tree interface	Displays the STP interface status and configuration of specified interfaces.
show spanning-tree root	Displays the status and configuration of the root bridge for the STP instance to which this device belongs.
show spanning-tree summary	Displays summary information about STP.
show spanning-tree vlan	Displays STP information about specified VLANs.

show spanning-tree root

To display the status and configuration of the Spanning Tree Protocol (STP) root bridge, use the **show spanning-tree root** command.

show spanning-tree root [**address**] **brief** **cost** **detail** **forward-time** **hello-time** **id** **max-age** **port** **priority** [**system-id**]

Syntax Description

address	(Optional) Displays the MAC address for the STP root bridge.
brief	(Optional) Displays a brief summary of the status and configuration for the the root bridge.
cost	(Optional) Displays the path cost from the root to this bridge.
detail	(Optional) Displays detailed information about the status and configuration for the root bridge.
forward-time	(Optional) Displays the STP forward delay interval for the root bridge.
hello-time	(Optional) Displays the STP hello time for the root bridge.
id	(Optional) Displays the STP bridge identifier for the root bridge.
max-age	(Optional) Displays the STP maximum-aging time for the root bridge.
port	(Optional) Displays which port is the root port.
priority	(Optional) Displays the bridge priority for the root bridge.
system-id	(Optional) Displays the bridge identifier with the system ID extension for the root bridge.

Command Default

None

Command Modes

Any command mode
Supported User Roles

network-admin

vdc-admin

Command History

Release	Modification
4.0	This command was introduced.

Usage Guidelines

This command does not require a license.

Examples

This example shows how to display information for the root bridge:

```
switch(config)# show spanning-tree root
MST Instance          Root ID          Cost   Time Age Dly   Root Port
-----
MST0000              32768 0018.bad7.fc15  0     2   20  15   This bridge is root
```

Related Commands

Command	Description
show spanning-tree mst	Displays information about the MST STP.
show spanning-tree	Displays information about STP.
show spanning-tree active	Displays information about the STP active interfaces only.
show spanning-tree bridge	Displays the bridge ID, timers, and protocol for the local bridge on the device.
show spanning-tree brief	Displays a brief summary about STP information.
show spanning-tree detail	Displays detailed information about STP.
show spanning-tree interface	Displays the STP interface status and configuration of specified interfaces.
show spanning-tree summary	Displays summary information about STP.
show spanning-tree vlan	Displays STP information about specified VLANs.

show spanning-tree summary

To display summary Spanning Tree Protocol (STP) information on the device, use the **show spanning-tree summary** command.

show spanning-tree summary [totals]

Syntax Description

totals	(Optional) Displays totals only of STP information.
---------------	-----------------------------------------------------

Command Default

None

Command Modes

Any command mode

Command History

Release	Modification
5.2(1)	Updated the example to display information for STP-lite. For more information about STP-lite, see the Cisco NX-OS FCoE Configuration Guide for Cisco Nexus 7000 and Cisco MDS 9500.
4.0	This command was introduced.

Usage Guidelines

The display output for this command differs when you are running Rapid Per VLAN Spanning Tree (Rapid PVST+) or Multiple Spanning Tree (MST).

This command does not require a license.

Examples

This example shows how to display a summary of STP information about the device when you are running Rapid PVST+:

```
switch(config)# show spanning-tree summary
Switch is in rapid-pvst mode
Root bridge for: VLAN0001
Port Type Default          is disable
Edge Port [PortFast] BPDU Guard Default is disabled
Edge Port [PortFast] BPDU Filter Default is disabled
Bridge Assurance           is enabled
Loopguard Default         is disabled
Pathcost method used      is short
Name          Blocking Listening Learning Forwarding STP Active
-----
VLAN0001      1          0          0          1          2
VLAN0002      2          0          0          0          2
VLAN0003      2          0          0          0          2
-----
3 vlans      5          0          0          1          6
STP-lite running in the following VLAN instances
```

 VLAN0002

VLAN0003

This example shows how to display a summary of STP information about the device when you are running MST:

```
switch(config)# show spanning-tree summary
Switch is in mst mode (IEEE Standard)
Root bridge for: MST0000
Port Type Default          is disable
Edge Port [PortFast] BPDU Guard Default is disabled
Edge Port [PortFast] BPDU Filter Default is disabled
Bridge Assurance           is enabled
Loopguard Default         is disabled
Pathcost method used      is long
PVST Simulation           is enabled
Name           Blocking Listening Learning Forwarding STP Active
-----
MST0000           0           0           0           2           2
-----
1 mst             0           0           0           2           2
```

Related Commands

Command	Description
show spanning-tree mst	Displays information about the MST STP.
show spanning-tree	Displays information about STP.
show spanning-tree active	Displays information about the STP active interfaces only.
show spanning-tree bridge	Displays the bridge ID, timers, and protocol for the local bridge on the device.
show spanning-tree brief	Displays a brief summary about STP information.
show spanning-tree detail	Displays detailed information about STP.
show spanning-tree interface	Displays the STP interface status and configuration of specified interfaces.
show spanning-tree root	Displays the status and configuration of the root bridge for the STP instance to which this device belongs.
show spanning-tree vlan	Displays STP information about specified VLANs.

show spanning-tree vlan

To display Spanning Tree Protocol (STP) information for specified VLANs, use the **show spanning-tree vlan** command.

```
show spanning-tree vlan vlan-id [active [brief detail]] blockedports| bridge [address]| brief| detail|
forward-time| hello-time| id| max-age| priority [system-id]| protocol| brief [active]| detail| inconsistentports|
interface {ethernet slot/port| port-channel channel-number} [active [brief detail]]| brief [active]| cost|
detail [active]| edge| inconsistency| priority| rootcost| state| root [address| brief| cost| detail| forward-time|
hello-time| id| max-age| port| priority [system-id]]| summary
```

Syntax Description

<i>vlan-id</i>	VLAN or range of VLANs that you want to display. The range is from 1 to 4096.
active	(Optional) Displays information on STP VLANs and active ports.
brief	(Optional) Displays a brief summary of STP information for the specified VLANs.
detail	(Optional) Displays detailed STP information for the specified VLANs.
blockedports	(Optional) Displays the STP alternate ports in the blocked state for the specified VLANs.
bridge	(Optional) Displays the status and configuration of the bridge for the specified VLANs.
address	(Optional) Displays the MAC address for the specified STP bridge for the specified VLANs.
forward-time	(Optional) Displays the STP forward delay interval for the bridge for the specified VLANs.
hello-time	(Optional) Displays the STP hello time for the bridge for the specified VLANs.
id	(Optional) Displays the STP bridge identifier for the specified VLANs.
max-age	(Optional) Displays the STP maximum-aging time for the specified VLANs.
priority	(Optional) Displays the STP priority for the specified VLANs.

system-id	(Optional) Displays the bridge identification with the system ID added for the specified VLANs.
protocol	(Optional) Displays which STP protocol is active on the device.
inconsistentports	(Optional) Displays the ports that are in an inconsistent STP state for specified VLANs.
ethernet <i>slot/port</i>	Displays the Ethernet interface and slot or port number. The range is from 1 to 253.
port-channel <i>channel-number</i>	Displays the port channel interface. The range is from 1 to 4096.
cost	(Optional) Displays the STP path cost for the specified VLANs.
edge	(Optional) Displays the STP-type edge port information for the specified interface for the specified VLANs.
inconsistency	(Optional) Displays the STP port inconsistency state for the specified interface for the specified VLANs.
priority	(Optional) Displays the STP priority for the specified VLANs.
rootcost	(Optional) Displays the path cost to the root for specified interfaces for the specified VLANs.
state	Current port STP state. Valid values are as follows: <ul style="list-style-type: none"> • BLK (blocking) • DIS (disabled) • LRN (learning) • FWD (forwarding)
port	(Optional) Displays information about the root port for the specified VLANs,
summary	(Optional) Displays summary STP information about the specified VLANs.

Command Default None

Command Modes

Any command mode
Supported User Roles
network-admin
vdc-admin

Command History

Release	Modification
4.0	This command was introduced.
4.1.2	This command was enhanced to display vPC information.

Usage Guidelines

This command does not require a license.

Examples

This example shows how to display STP information about VLAN 4:

```
switch# show spanning-tree vlan 4
VLAN0004
  Spanning tree enabled protocol rstp
  Root ID      Priority    32772
             Address    000d.eca3.9f01
             Cost        4
             Port        4105 (port-channel10)
             Hello Time  2 sec   Max Age 20 sec   Forward Delay 15 sec
  Bridge ID    Priority    32772 (priority 32768 sys-id-ext 4)
             Address    0022.5579.7641
             Hello Time  2 sec   Max Age 20 sec   Forward Delay 15 sec
Interface      Role Sts Cost          Prio.Nbr Type
-----
Po10           Root FWD 2            128.4105 (vPC peer-link) P2p
Po20           Desg FWD 1            128.4115 (vPC) P2p
Po30           Root FWD 1            128.4125 (vPC) P2p
```

Related Commands

Command	Description
show spanning-tree mst	Displays information about the MST STP.
show spanning-tree	Displays information about STP.
show spanning-tree active	Displays information about the STP active interfaces only.
show spanning-tree bridge	Displays the bridge ID, timers, and protocol for the local bridge on the device.
show spanning-tree brief	Displays brief summary information about STP.
show spanning-tree detail	Displays detailed information about STP.

Command	Description
show spanning-tree interface	Displays the STP interface status and configuration of specified interfaces.
show spanning-tree root	Displays the status and configuration of the root bridge for the STP instance to which this device belongs.
show spanning-tree summary	Displays summary information about STP.

show startup-config vlan

To display VLAN configuration information in the startup configuration, use the **show startup-config vlan** command.

show startup-config vlan *vlan-id*

Syntax Description

<i>vlan-id</i>	Number of VLAN or range of VLANs. Valid numbers range from 1 to 4096.
----------------	-----------------------------------------------------------------------

Command Default

None

Command Modes

Any command mode
Supported User Roles
network-admin
vdc-admin

Command History

Release	Modification
4.1(2)	This command was introduced.

Usage Guidelines

This command does not require a license.

Examples

This example shows how to display the VLAN information in the startup configuration:

```
switch(config)# show startup-config vlan
version 4.1(2)
vlan 1
ip arp inspection vlan 1
```

Related Commands

Command	Description
show vlan	Displays information about all the VLANs on the device.

show startup-config vtp

To display VLAN Trunking Protocol (VTP) configuration information in the startup configuration, use the **show startup-config vtp** command.

show startup-config vtp

Syntax Description This command has no arguments or keywords.

Command Default None

Command Modes Any command mode

Command History	Release	Modification
	4.1(2)	This command was introduced.

Usage Guidelines This command does not require a license.

Examples This example shows how to display the VTP information in the startup configuration:

```
switch(config)# show startup-config vtp
version 4.1(2)
feature vtp
vtp mode transparent
vtp domain accounting
```

Related Commands	Command	Description
	show vtp status	Displays information about VTP on the device.

show system vlan reserved

To display the system reserved VLAN range, use the **show system vlan reserved** command.

show system vlan reserved

Syntax Description This command has no arguments or keywords.

Command Default None

Command Modes

- Any command mode
- Supported User Roles
- network-admin
- network-operator
- vdc-admin
- vdc-operator

Command History

Release	Modification
5.2(1)	This command was introduced.

Usage Guidelines

This command does not require a license.

Examples

This example shows how to display the system reserved VLAN range:

```
switch# show system vlan reserved
system current running vlan reservation: 3968-4095
switch#
```

Related Commands

Command	Description
system vlan reserve	Configures the reserved VLAN range.
write erase all	Reverts to the default reserved VLAN range.

show vlan

To display VLAN information, use the **show** vlan command.

show vlan [**all-ports**] [**brief**] [**name** *name*] [**summary**]

Syntax Description

all-ports	(Optional) Displays all ports on VLANs.
brief	(Optional) Displays only a single line for each VLAN, naming the VLAN, status, and ports.
name <i>name</i>	(Optional) Displays information about a single VLAN that is identified by the VLAN name; valid values are an ASCII string from 1 to 32 characters.
summary	(Optional) Displays the number of existing VLANs on the device.

Command Default

None

Command Modes

Any command mode

Supported User Roles

network-admin

vdc-admin

Command History

Release	Modification
5.1(1)	Changed the command output.
4.0	This command was introduced.

Usage Guidelines

This command displays information for all VLANs, including private VLANs, on the device.

Each access port can belong to only one VLAN. Trunk ports can be on multiple VLANs.



Note

Although a port can be associated with a VLAN as an access VLAN, a native VLAN, or one of the trunk allowed ports, the display under Ports for this command lists only access VLANs.

If you shut down a VLAN using the **state suspend** or the **state active** command, these values appear in the Status field:

- suspended—The VLAN is suspended.
- active—The VLAN is active.

If you shut down a VLAN using the **shutdown** command, these values appear in the Status field:

- act/lshut—The VLAN status is active but shut down locally.
- sus/lshut—The VLAN status is suspended but shut down locally.

If a VLAN is shut down internally, these values appear in the Status field:

- act/ishut—The VLAN status is active but shut down internally.
- sus/ishut—The VLAN status is suspended but shut down internally.

If a VLAN is shut down locally and internally, the value that is displayed in the Status field is act/ishut or sus/ishut. If a VLAN is shut down locally only, the value that is displayed in the Status field is act/lshut or sus/lshut.

Examples

This example shows how to display information for all VLANs on the device:

```
switch# show vlan
VLAN Name                Status    Ports
-----
1    default                active    Eth5/1, Eth5/2, Eth5/3, Eth5/4
                                           Eth5/5, Eth5/6, Eth5/7, Eth5/8
                                           Eth5/9, Eth5/10, Eth5/11
                                           Eth5/12, Eth5/13, Eth5/14
                                           Eth5/15, Eth5/16, Eth5/17
                                           Eth5/18, Eth5/19, Eth5/20
                                           Eth5/21, Eth5/22, Eth5/23
                                           Eth5/24, Eth5/25, Eth5/26
                                           Eth5/27, Eth5/28, Eth5/29
                                           Eth5/30, Eth5/31, Eth5/32
                                           Eth7/1

10   VLAN0010                active
VLAN Type  Vlan-mode
-----
1    enet  CE
10   enet  FABRICPATH
Remote SPAN VLANs

Primary  Secondary  Type          Ports
-----
switch#
```

This example shows how to display the VLANs and all ports for each VLAN:

```
switch#
switch# show vlan all-ports
VLAN Name                Status    Ports
-----
1    default                active    Po5, Po37, Po50, Eth2/1, Eth2/2
                                           Eth2/3, Eth2/5, Eth2/7, Eth2/8
                                           Eth2/9, Eth2/10, Eth2/15
                                           Eth2/21, Eth2/22, Eth2/23
                                           Eth2/24, Eth2/25, Eth2/26
                                           Eth2/27, Eth2/28, Eth2/46
                                           Eth2/47, Eth2/48

5    VLAN0005                active
```

```

6    VLAN0006          active
7    VLAN0007          active
8    test              active
9    VLAN0009          active
10   VLAN0010          active
50   VLAN0050          active    Eth2/6
100  trunked           active
200  VLAN0200          active
201  VLAN0201          active
202  VLAN0202          active
    
```

This example shows how to display the VLAN name, status, and associated ports only:

```

switch#
show vlan brief
VLAN Name                Status    Ports
-----
1    default              active    Eth2/5, Eth2/7, Eth2/8, Eth2/9
                                   Eth2/10, Eth2/15, Eth2/47
                                   Eth2/48
5    VLAN0005              active
6    VLAN0006              active
7    VLAN0007              active
8    test                  active
9    VLAN0009              active
10   VLAN0010              active
50   VLAN0050              active    Eth2/6
100  trunked               active.
    
```

This example shows how to display the VLAN information for a specific VLAN by name:

```

switch#
show vlan name test
VLAN Name                Status    Ports
-----
8    test                  active
VLAN Type
-----
8    enet
Remote SPAN VLAN
-----
Disabled
Primary Secondary Type          Ports
-----
                                     100
    
```

This example shows how to display information about the number of VLANs configured on the device:

```

switch# show vlan summary
Number of existing VLANs      : 9
Number of existing user VLANs : 9
Number of existing extended VLANs : 0
    
```

Related Commands

Command	Description
show interface switchport	Displays information about the switch ports, including those switch ports in private VLANs,
show vlan private-vlan	Displays private VLAN information.

show vlan counters

To display the statistics for a specified VLAN or for all VLANs, use the **show vlan counters** command.

show vlan [*id vlan-id*] **counters**

Syntax Description

id	(Optional) Displays the VLAN ID that you want to clear .
<i>vlan-id</i>	Number of the VLAN that you want to clear . The range is from 1 to 4096.

Command Default

None

Command Modes

Any command mode
Supported User Roles
network-admin
vdc-admin

Command History

Release	Modification
4.0	This command was introduced.

Usage Guidelines

This command displays the counters for all the VLANs, including the private VLANs, on the device.

If you omit the VLAN ID, the system displays statistics for all the VLANs on the device. This command displays:

- Transmitted and received unicast, multicast, and routed packets and octets
- Information about Layer 2, IPv4, and IPv6 unicast, multicast, and unknown packets and octets

Separate VLAN ranges with a hyphen, and separate VLANs with a comma and no spaces in between. For example, you can enter the following:

```
switch# show vlan id 1-4,3,7,5-20
```

This command does not require a license.

Examples

This example shows how to display statistics for VLAN 9:

```
switch(config)# show vlan id 9 counters
Vlan Id                :10
L2 IPv4 Unicast Octets :0
L2 IPv4 Unicast Packets :0
L2 IPv4 Multicast Octets :0
L2 IPv4 Multicast Packets :0
L2 IPv6 Unicast Octets :0
L2 IPv6 Unicast Packets :0
L2 IPv6 Multicast Octets :0
L2 IPv6 Multicast Packets :0
L2 Unicast Octets      :25600000
L2 Unicast Packets     :400000
L2 Multicast Octets    :0
L2 Multicast Packets   :0
L2 Broadcast Octets    :12800000
L2 Broadcast Packets   :200000
L2 Unknown Unicast Octets :19200000
L2 Unknown Unicast Packets :300000
L3 Routed Octets In    :0
L3 Routed Packets In   :0
L3 Routed Octets Out   :0
L3 Routed Packets Out  :0
L3 Multicast Octets In :0
L3 Multicast Packets In :0
L3 Multicast Octets Out :0
L3 Multicast Packets Out :0
L3 Unicast Octets In   :0
L3 Unicast Packets In  :0
L3 Unicast Octets Out  :0
L3 Unicast Packets Out :0
```

Related Commands

Command	Description
clear vlan counters	Clears the counters for all or specified VLANs on the device.

show vlan dot1q tag native

To display the status of tagging on the native VLANs, use the **show vlan dot1q tag native** command.

show vlan dot1q tag native

Syntax Description This command has no arguments or keywords.

Command Default None

Command Modes Any command mode
Supported User Roles
network-admin
vdc-admin

Command History	Release	Modification
	4.0	This command was introduced.

Usage Guidelines This command does not require a license.

Examples This example shows how to display the status of native VLAN tagging on the device:

```
switch# show vlan dot1q tag native
vlan dot1q native tag is disabled
```

Related Commands	Command	Description
	vlan dot1q tag native	Enables 802.1Q tagging for all the VLANs in a trunk on the device.

show vlan id

To display information and statistics for an individual VLAN or a range of VLANs, use the **show vlan id** command.

show vlan *id* [counters]

Syntax Description

<i>id</i>	Number of the VLAN or range of VLANs. The range is from 1 to 4096.
counters	Displays the statistics about specified VLANs.

Command Default

None

Command Modes

Any command mode
Supported User Roles
network-admin
vdc-admin

Command History

Release	Modification
4.0	This command was introduced.

Usage Guidelines

Use this command to display information and statistics about an individual VLAN or a range of VLANs, including private VLANs.

When you use the **counters** argument, this command displays the following statistics for the individual VLAN or range of VLANs:

- Transmitted and received unicast, multicast, and routed packets and octets
- Information on Layer 2, IPv4, and IPv6 unicast, multicast, and unknown packets and octets



Note

You can also display information about individual VLANs by using the **show vlan name** command.

This command does not require a license.

Examples

This example shows how to display information for VLAN 50:

```
switch# show vlan id 50

VLAN Name                Status    Ports
-----
50   VLAN0050                active    Eth2/6
VLAN Type
-----
50   enet
Remote SPAN VLAN
-----
Disabled
Primary  Secondary  Type          Ports
-----
```

This example shows how to display statistics for VLAN 10:

```
switch(config)# show vlan id 10 counters
Vlan Id                :10
L2 IPv4 Unicast Octets :0
L2 IPv4 Unicast Packets :0
L2 IPv4 Multicast Octets :0
L2 IPv4 Multicast Packets :0
L2 IPv6 Unicast Octets :0
L2 IPv6 Unicast Packets :0
L2 IPv6 Multicast Octets :0
L2 IPv6 Multicast Packets :0
L2 Unicast Octets      :25600000
L2 Unicast Packets     :400000
L2 Multicast Octets    :0
L2 Multicast Packets   :0
L2 Broadcast Octets    :12800000
L2 Broadcast Packets   :200000
L2 Unknown Unicast Octets :19200000
L2 Unknown Unicast Packets :300000
L3 Routed Octets In    :0
L3 Routed Packets In   :0
L3 Routed Octets Out   :0
L3 Routed Packets Out  :0
L3 Multicast Octets In :0
L3 Multicast Packets In :0
L3 Multicast Octets Out :0
L3 Multicast Packets Out :0
L3 Unicast Octets In   :0
L3 Unicast Packets In  :0
L3 Unicast Octets Out  :0
L3 Unicast Packets Out :0
```

Related Commands

Command	Description
clear vlan counters	Clears the counters for all or specified VLANs on the device.

show vlan private-vlan

To display private VLAN information, use the **show vlan private-vlan** command.

show vlan [*id vlan-id*] **private-vlan** [*type*]

Syntax Description

id	(Optional) Displays the VLAN or range of VLANs. The range is from 1 to 4096.
<i>vlan-id</i>	(Optional) Private VLAN information for the specified VLAN. The range is from 1 to 4096.
type	(Optional) Displays the private VLAN type (primary, isolated, or community).

Command Default

None

Command Modes

Any command mode

Supported User Roles

network-admin

vdc-admin

Command History

Release	Modification
4.0	This command was introduced.

Usage Guidelines

This command does not require a license.

Examples

This example shows how to display information about all private VLANs on the device:

```
switch(config)# show vlan private-vlan
Primary  Secondary  Type           Ports
-----  -
200      201        isolated      Eth2/26, Eth2/27
200      202        community     Eth2/26, Eth2/28
```

This example shows how to display information for a specific private VLAN:

```
switch(config)# show vlan id 202 private-vlan
Primary  Secondary  Type           Ports
-----  -
200      202        community     Eth2/26, Eth2/28
```

This example shows how to display information about the types of all private VLANs on the device:

```
switch(config)# show vlan private-vlan type
Vlan Type
-----
200 primary
201 isolated
202 community
```

This example shows how to display information on the type for the specified private VLAN:

```
switch(config)# show vlan id 202 private-vlan type
Vlan Type
-----
202 community
```

Related Commands

Command	Description
show interface switchport	Displays information about the switch ports, including those switch ports in private VLANs.
show interface private-vlan mapping	Displays information about the private VLAN mapping between the primary and secondary VLANs so that both VLANs share the same primary VLAN interface.
show vlan	Displays information about all the VLANs on the device.

show vtp counter

To display the Virtual Trunking Protocol (VTP) statistics information, use the **show vtp counter** command.

show vtp counter

Syntax Description This command has no arguments or keywords.

Command Default None

Command Modes Any command mode
Supported User Roles
network-admin
vdc-admin

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 display statistics information about VTP on the device:

```
switch# show vtp counter
VTP statistics:
Summary advertisements received      : 544
Subset advertisements received      : 270
Request advertisements received      : 0
Summary advertisements transmitted  : 260
Subset advertisements transmitted    : 5
Request advertisements transmitted   : 274
Number of config revision errors     : 0
Number of config digest errors       : 270
Number of V1 summary errors          : 0

VTP pruning statistics:

Trunk          Join Transmitted Join Received      Summary advts received from
-----
Ethernet1/31   12977          12982          542
switch#
```

Related Commands

Command	Description
feature vtp	Enables VTP on the device.
vtp domain	Configures the VTP domain name.
vtp version	Configures the VTP version.

show vtp devices

To display information about all VLAN Trunking Protocol (VTP) version 3 devices in the domain, use the **show vtp devices** command.

show vtp devices [conflicts]

Syntax Description

conflicts	(Optional) Displays information about conflicts.
------------------	--------------------------------------------------

Command Default

None

Command Modes

Any command mode

Supported User Roles

network-admin

vdc-admin

Command History

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

Usage Guidelines

The **show vtp devices** displays information about all VTP version 3 devices in the domain. The optional **conflicts** keyword displays information about VTP version 3 devices with conflicting primary servers. The **show vtp devices** command does not display information when the switch is in transparent or off mode. This command does not require a license.

Examples

This example shows how to display information about all VTP version 3 devices in the domain:

```
switch# show vtp devices
Gathering information from the domain, please wait.
VTP Database Conf switch ID      Primary Server Revision  System Name
-----
-----
VLAN          Yes  00b0.8e50.d000  000c.0412.6300 12354  main.cisco.com
MST           No   00b0.8e50.d000  0004.AB45.6000 24     main.cisco.com
VLAN          Yes  000c.0412.6300=000c.0412.6300 67     qwerty.cisco.com
```

Related Commands

Command	Description
feature vtp	Enables VTP on the device.

Command	Description
vtp version	Configures the VTP version.

show vtp interface

To display the Virtual Trunking Protocol (VTP) interface status and configuration, use the **show vtp interface** command.

show vtp interface [*if-identifier*]

Syntax Description

if-identifier

(Optional) Identifier of an interface. Examples are ethernet 3/22 or port channel 120.

Command Default

None

Command Modes

Any command mode

Supported User Roles

network-admin

vdc-admin

Command History

Release	Modification
5.1(1)	This command was introduced.

Usage Guidelines

If a single interface is specified, the information for that interface alone is presented to the user; otherwise, the command applies to all currently active interfaces.

This command does not require a license.

Examples

This example shows how to display the VTP interface status and configuration on the device:

```
switch# show vtp interface ethernet 3/22
```

```
  Interface          VTP Status
  -----
Ethernet3/22        Enabled
switch#
```

```
switch# show vtp interface
```

```
  Interface          VTP Status
  -----
Ethernet1/8          Enabled
Ethernet3/2          Disabled
Ethernet3/22         Enabled
switch#
```

Related Commands

Command	Description
show vtp counters	Displays VTP statistics information.
show interface pruning	Displays interface trunk VTP pruning information.
show interface counters	Displays information about the statistics for the specified VLANs.

show vtp password

To display a Virtual Trunking Protocol (VTP) password, use the **show vtp password** command.

```
show vtp password
```

Syntax Description This command has no arguments or keywords.

Command Default None

Command Modes Any command mode
Supported User Roles
network-admin
vdc-admin

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 display a VTP password on the device:

```
switch# show vtp password squirrel
VTP password:
switch#
```

Related Commands	Command	Description
	feature vtp	Enables VTP on the device.
	vtp domain	Configures the VTP domain name.
	vtp version	Configures the VTP version.

show vtp status

To display the Virtual Trunking Protocol (VTP) information, use the **show vtp status** command.

show vtp status

Syntax Description This command has no arguments or keywords.

Command Default None

Command Modes Any command mode
Supported User Roles
network-admin
vdc-admin

Command History	Release	Modification
	4.1(2)	This command was introduced.

Usage Guidelines This command is not available if VTP is not enabled.



Note You cannot enable or configure VTP pruning or V2 modes.

This command does not require a license.

Examples This example shows how to display information about VTP on the device:

```
switch# show vtp status
VTP Status Information
-----
VTP Version                : 2 (capable)
Configuration Revision     : 1
Maximum VLANs supported locally : 1005
Number of existing VLANs   : 17
VTP Operating Mode         : Server
VTP Domain Name            :
VTP Pruning Mode           : Disabled (Operationally Disabled)
VTP V2 Mode                 : Disabled
MD5 Digest                  : 0x8D 0x0D 0xB4 0xE8 0xC3 0x3C 0x7F 0x99
Configuration last modified by 0.0.0.0 at 6-30-10 18:05:13
VTP version running        : 1
switch#
```

Related Commands

Command	Description
feature vtp	Enables VTP on the device.
vtp domain	Configures the VTP domain name.
vtp version	Configures the VTP version.

shutdown (VLAN configuration)

To shut down the local traffic on a VLAN, use the **shutdown** command. To return a VLAN to its default operational state, use the **no** form of this command.

shutdown

no shutdown

Syntax Description This command has no arguments or keywords.

Command Default no shutdown

Command Modes VLAN configuration submode
Supported User Roles
network-admin
vdc-admin

Command History	Release	Modification
	4.0	This command was introduced.

Usage Guidelines You cannot shut down, or disable, VLAN 1 or VLANs 1006 to 4094.

Once you shut down a VLAN, the traffic ceases to flow on that VLAN. Access ports on that VLAN are also brought down; trunk ports continue to carry traffic for the other VLANs allowed on that port. However, the interface associations for the specified VLAN remain, and when you reenables, or recreates, that specified VLAN, the device automatically reinstates all the original ports to that VLAN.

To find out if a VLAN has been shut down internally, check the Status field in the **show vlan** command output. If a VLAN is shut down internally, one of these values appears in the Status field:

- act/lshut—VLAN status is active and shut down internally.
- sus/lshut—VLAN status is suspended and shut down internally.



Note If the VLAN is suspended and shut down, you use both the **no shutdown** and **state active** commands to return the VLAN to the active state.

This command does not require a license.

Examples

This example shows how to restore local traffic on VLAN 2 after you have shut down, or disabled, the VLAN:

```
switch(config)# vlan 2  
switch(config-vlan)# no shutdown  
switch(config-vlan)#
```

Related Commands

Command	Description
show vlan	Displays VLAN information.

show forwarding consistency l2

To display information about discrepant, missing, or extra MAC addresses between the supervisor and the module, use the **show forwarding consistency l2** command.

show forwarding consistency l2 *module*

Syntax Description

<i>module</i>	Module number that you are comparing with the supervisor MAC address table.
---------------	-----------------------------------------------------------------------------

Command Default

None

Command Modes

Any command mode
Supported User Roles
network-admin
vdc-admin

Command History

Release	Modification
4.1(2)	This command was introduced.

Usage Guidelines

Optimally, all the MAC address tables on each module match the MAC address table on the supervisor. This command does not require a license.

Examples

This example shows how to display hardware information about all the MAC addresses for VLAN 1 on module 2:

```
switch# show forwarding consistency l2 9
Legend:      * - primary entry, G - Gateway MAC, (R) - Routed MAC      age - seconds
since last seen
Missing entries in the MAC Table  VLAN      MAC Address      Type      age      Secure
NTFY  Ports
-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
G    -    0018.bad7.e115    static    -        False  False  sup-eth1(R)
* 1    0001.1234.5600    static    -        False  False  Eth9/25G
2    0018.bad7.e115    static    -        False  False  sup-eth1(R)G
3    0018.bad7.e115    static    -        False  False  sup-eth1(R)
Extra and Discrepant entries in the MAC Table
      VLAN      MAC Address      Type      age      Secure  NTFY  Ports
-----+-----+-----+-----+-----+-----+-----+-----+
G    -    0018.bad7.dc15    static    -        False  False  sup-eth1(R)
* 1    0001.1234.5601    static    -        False  False  Eth9/25
```

Related Commands

Command	Description
show mac address-table	Displays information about the MAC address table.

show hardware mac address-table

To display information about the hardware MAC addresses, use the **show hardware mac address-table** command.

show hardware mac address table *module*

address *mac-address* [**interface** {**ethernet slot/port**|**port-channel channel-number**}] [**vlan** *vlan-id*]

dynamic [**address** *mac-address*] [**interface** {**ethernet slot/port**|**port-channel channel-number**}] [**vlan** *vlan-id*]

interface {**ethernet slot/port**|**port-channel channel-number**} [**address** *mac-address*] [**vlan** *vlan-id*]

static [**address** *mac-address*] [**interface** {**ethernet slot/port**|**port-channel channel-number**}] [**vlan** *vlan-id*]

vlan *vlan-id* [**address** *mac-address*] [**interface** {**ethernet slot/port**|**port-channel channel-number**}]

Syntax Description

<i>module</i>	Module number.
address <i>macaddress</i>	(Optional) Specifies the MAC address in the format of X.X.X, XX-XX-XX-XX-XX-XX, XX:XX:XX:XX:XX:XX, XXXX.XXXX.XXXX.
interface	(Optional) Specifies the interface.
ethernet <i>slot/port</i>	Displays the Ethernet interface. Use either the type of interface, the slot number, or the port number. The range is from 1 to 253.
port-channel <i>channel-number</i>	Displays the port channel interface and port-channel number. The range is from 1 to 4096.
vlan <i>vlan-id</i>	(Optional) Specifies the VLAN number .
dynamic	(Optional) Specifies dynamic entries only .
static	(Optional) Specifies static entries only .

Command Default

None

Command Modes

Any command mode
Supported User Roles
network-admin
vdc-admin

Command History

Release	Modification
4.0	This command was introduced.

Usage Guidelines

The fields are as follows:

- Valid—Entry is valid in the hardware.
- PI—Primary entry.
- BD—Bridge domain.
- MAC—MAC address.
- Index—Destination index; identifies the port on which the MAC address was learned.
- Static—Statically configured entry. The hardware does not modify this entry. This entry is not be aged by the line card process.
- SW—3-bit software value associated with this entry.
- Modified—MAC address entry that was modified by the hardware since the last notification. This value is set when index value changes.
- Age byte—Age timer value when the last packet arrived with this entry's MAC address as the source MAC address.
- Tmr sel—Age timer used for updating the age for this entry. Based on the aging value configured for the VLAN, one of the four timers is used for updating the age.
- GM—Gateway MAC address.
- Secure—Secured MAC address.
- TRAP—When this bit is set, the system drops any packet received with this source MAC address as this entry's trap bit MAC address.
- NTFY—Notify bit. When the Secured and Notify bits are both set, the system redirects packets to the supervisor when the hardware updates the index value.
- RM—Router MAC address.
- RMA—Router MAC address that is active.

**Note**

The RM and RMA fields are not supported on the Cisco Nexus 7000. Series device.

- Capture bit—When this bit is set, any packet sent to this destination is copied by setting the CAP1 bit.
- Fld—Flood bit. When this bit is set, any packet sent to this destination MAC causes the flood bit to be set in the result.

show interface mac-address

To display information about the MAC address and the burned-in MAC address, use the **show interface mac-address** command.

show interface [*type slot/port*] **mac-address**

Syntax Description

<i>type slot/port</i>	(Optional) T ype of interface, slot number, and port number.
-----------------------	--------------------------------------------------------------

Command Default

None

Command Modes

Any command mode

Supported User Roles

network-admin

vdc-admin

Command History

Release	Modification
4.0	This command was introduced.

Usage Guidelines

If you do not specify the interface, the system displays all the MAC addresses. This command displays both the burned-in MAC address and the configured MAC address.

This command does not require a license.

Examples

This example shows how to display information about all the MAC addresses for the device:

```
switch# show interface mac-address
```

```
-----
Interface                Mac-Address          Burn-in Mac-Address
-----
mgmt0                    0019.076c.1a78      0019.076c.1a78
Ethernet2/1              0000.0000.0000      0019.076c.4dac
Ethernet2/2              0000.0000.0000      0019.076c.4dad
Ethernet2/3              0000.0000.0000      0019.076c.4dae
Ethernet2/4              0000.0000.0000      0019.076c.4daf
Ethernet2/5              0000.0000.0000      0019.076c.4db0
Ethernet2/6              0000.0000.0000      0019.076c.4db1
Ethernet2/7              0000.0000.0000      0019.076c.4db2
Ethernet2/8              0000.0000.0000      0019.076c.4db3
Ethernet2/9              0000.0000.0000      0019.076c.4db4
Ethernet2/10             0000.0000.0000      0019.076c.4db5
Ethernet2/11             0000.0000.0000      0019.076c.4db6
```

show interface mac-address

```

Ethernet2/12          0000.0000.0000  0019.076c.4db7
Ethernet2/13          0000.0000.0000  0019.076c.4db8
Ethernet2/14          0000.0000.0000  0019.076c.4db9
Ethernet2/15          0000.0000.0000  0019.076c.4dba
Ethernet2/16          0000.0000.0000  0019.076c.4dbb
Ethernet2/17          0000.0000.0000  0019.076c.4dbc
Ethernet2/18          0000.0000.0000  0019.076c.4dbd
Ethernet2/19          0000.0000.0000  0019.076c.4dbe
Ethernet2/20          0000.0000.0000  0019.076c.4dbf
Ethernet2/21          0000.0000.0000  0019.076c.4dc0
Ethernet2/22          0000.0000.0000  0019.076c.4dc1
Ethernet2/23          0000.0000.0000  0019.076c.4dc2
Ethernet2/24          0000.0000.0000  0019.076c.4dc3
Ethernet2/25          0000.0000.0000  0019.076c.4dc4
Ethernet2/26          0000.0000.0000  0019.076c.4dc5
Ethernet2/27          0000.0000.0000  0019.076c.4dc6
Ethernet2/28          0000.0000.0000  0019.076c.4dc7
Ethernet2/29          0000.0000.0000  0019.076c.4dc8
Ethernet2/30          0000.0000.0000  0019.076c.4dc9
Ethernet2/31          0000.0000.0000  0019.076c.4dca
Ethernet2/32          0000.0000.0000  0019.076c.4dcb
Ethernet2/33          0000.0000.0000  0019.076c.4dcc
Ethernet2/34          0000.0000.0000  0019.076c.4dcd
Ethernet2/35          0000.0000.0000  0019.076c.4dce
Ethernet2/36          0000.0000.0000  0019.076c.4dcf
Ethernet2/37          0000.0000.0000  0019.076c.4dd0
Ethernet2/38          0000.0000.0000  0019.076c.4dd1
Ethernet2/39          0000.0000.0000  0019.076c.4dd2
Ethernet2/40          0000.0000.0000  0019.076c.4dd3
Ethernet2/41          0000.0000.0000  0019.076c.4dd4
Ethernet2/42          0000.0000.0000  0019.076c.4dd5
Ethernet2/43          0000.0000.0000  0019.076c.4dd6
Ethernet2/44          0000.0000.0000  0019.076c.4dd7
Ethernet2/45          0000.0000.0000  0019.076c.4dd8
Ethernet2/46          0000.0000.0000  0019.076c.4dd9
Ethernet2/47          0000.0000.0000  0019.076c.4dda
Ethernet2/48          0000.0000.0000  0019.076c.4ddb
port-channel5        0000.0000.0000  0000.0000.0000
port-channel20       0000.0000.0000  0000.0000.0000
port-channel30       0000.0000.0000  0000.0000.0000
port-channel50       0000.0000.0000  0000.0000.0000

```

Related Commands

Command	Description
show mac address-table	Displays information about the MAC address table.
mac address-table static	Adds static entries to the MAC-address table or configures a static MAC address with IGMP snooping disabled for that address.

show interface private-vlan mapping

To display information about the private VLAN mapping for the primary VLAN interfaces, use the **show interface private-vlan mapping** command.

show interface private-vlan mapping

Syntax Description This command has no arguments or keywords.

Command Default None

Command Modes Any command mode
Supported User Roles
network-admin
vdc-admin

Command History	Release	Modification
	4.0	This command was introduced.

Usage Guidelines You can use this command to display the primary and secondary VLAN mapping that allows both VLANs to share the VLAN interface of the primary VLAN.

This command does not require a license.

Examples This example shows how to display information about the primary and secondary private VLAN mapping:

```
switch# show interface private-vlan mapping
switch(config)# show interface private-vlan mapping
Interface Secondary VLAN Type
-----
vlan200    201          isolated
vlan200    202          community
```

Related Commands

Command	Description
show interface switchport	Displays information about the switchports, including those in private VLANs.
show vlan private-vlan	Displays information about all private VLANs on the device.

show interface private-vlan mapping

show interface pruning

To display interface trunk Virtual Trunking Protocol (VTP) pruning information, use the **show interface pruning** command.

show interface pruning

Syntax Description This command has no arguments or keywords.

Command Default None

Command Modes Any command mode
Supported User Roles
network-admin
vdc-admin

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 display interface trunk VTP pruning information on the device:

```
switch# show interface pruning
Port                Vlans pruned for lack of request by neighbor
Ethernet1/33        10
Ethernet1/34        10

Port                Vlan traffic requested of neighbor
Ethernet1/33        1 <<<<<
Ethernet1/34        1 <<<<<
switch#
```

Related Commands

Command	Description
feature vtp	Enables VTP on the device.
vtp domain	Configures the VTP domain name.
vtp version	Configures the VTP version.



V Commands

- [vtp password, page 230](#)
- [vtp primary-server, page 231](#)
- [vtp pruning, page 233](#)
- [vtp version, page 234](#)
- [vlan \(global configuration mode\), page 235](#)
- [vlan configuration, page 237](#)
- [vtp domain, page 238](#)
- [vtp file, page 239](#)
- [vtp mode, page 240](#)
- [vtp mode transparent, page 242](#)

vtp password

To create a Virtual Trunking Protocol (VTP) password, use the `vtp password` command. To delete the password, use the `no` form of this command.

vtp password password-value

no vtp password

Syntax Description

<i>password-value</i>	ASCII password for the VTP administrative domain. The maximum size is 64 characters.
-----------------------	--------------------------------------------------------------------------------------

Command Default

None

Command Modes

Global configuration
Supported User Roles
network-admin
vdc-admin

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 create a VTP password:

```
switch(config)# vtp password sqlrrel
switch(config)#
```

This example shows how to delete a VTP password:

```
switch(config)# no vtp password sqlrrel
switch(config)#
```

Related Commands

Command	Description
show vtp password	Displays the VTP password value.

vtp primary-server

To specify a VLAN Trunking Protocol (VTP) Version 3 primary server type, use the **vtp primary-server** command.

vtp primary-server [vlan| mst] [force]

Syntax Description

vlan	(Optional) Specifies that this device is the primary server for the VTP VLAN feature.
mst	(Optional) Specifies that this device is the primary server for the VTP Multiple Spanning Tree (MST) feature.
force	(Optional) Forces the device to become the primary server.

Command Default

The switch will send a takeover message for the VLAN database.

Command Modes

EXEC mode

Command History

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

Usage Guidelines

The **vtp primary-server** command does not have a **no** form. To return to the secondary server status, one of the following conditions must be met:

- System reload.
- Switchover between redundant supervisors.
- Takeover from another server.
- Change in the mode configuration.
- Any domain configuration change (version, domain name, domain password).

The takeover mechanism has two functions:

- 1 Changes the operational state of the switch from a secondary server to a primary server.
- 2 Advertises the configuration of the switch to the entire domain and removes any existing partitions.

**Note**

If a password is configured with the **vtp password password-value hidden** or **vtp password password-value secret** command, you will be prompted to re-enter it.

If the **force** keyword is not specified, the switch first tries to discover the conflicting servers in the domain. Conflicting servers are servers that are following a primary server other than the one in which the takeover was issued. The switch will prompt for confirmation before proceeding to do the takeover. Taking over the domain implies overwriting the configuration of the conflicting servers.

If the **vlan** or **mst** keywords are not specified, the switch will send a takeover message for the VLAN database. If a **vlan** or **mst** keyword is specified, the switch will start a takeover for the specified feature.

This command does not require a license.

Examples

This example shows how to configure this device as the primary server for the VTP VLAN feature when the domain VTP password is set with the **hidden** or **secret** keyword:

```
switch# vtp primary-server vlan
Enter VTP password: cisco
This switch is becoming Primary server for vlan feature in the VTP domain
VTP Database Conf Switch ID      Primary Server Revision System Name
-----
VLANDB      Yes  00d0.00b8.1400=00d0.00b8.1400 1          stp7
Do you want to continue (y/n) [n]?
y
switch#
```

Related Commands

Command	Description
show vtp password	Displays the VTP password value.
show vtp status	Displays VTP information.
vtp password	Creates a VTP password,

vtp pruning

To set the Virtual Trunking Protocol (VTP) administrative domain to permit pruning, use the **vtp pruning** command. To remove the VTP domain permit pruning, use the **no** form of this command.

vtp pruning

no vtp pruning

Syntax Description This command has no arguments or keywords.

Command Default Disabled

Command Modes Global configuration
Supported User Roles
network-admin
vdc-admin

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 set the VTP administrative domain to permit pruning:

```
switch(config)# vtp pruning
Pruning switched on.
switch(config)#
```

This example shows how to remove the VTP administrative domain to permit pruning:

```
switch(config)# no vtp pruning
Pruning switched off.
switch(config)#
```

Related Commands

Command	Description
show vtp status	Displays VTP information.

vtp version

To configure the Virtual Trunking Protocol (VTP) version you want to use, use the **vtp version** command. To return to default values, use the **no vtp version** command.

vtp version {1| 2}

no vtp version

Syntax Description

1	Specifies VTP version 1.
2	Specifies VTP version 2.

Command Default

1

Command Modes

Global configuration
Supported User Roles
network-admin
vdc-admin

Command History

Release	Modification
4.1 (2)	This command was introduced.

Usage Guidelines

This command is not available if VTP is not enabled.
This command does not require a license.

Examples

This example shows how to configure the VTP version:

```
switch(config)# vtp version 2
switch(config)#
```

Related Commands

Command	Description
show vtp status	Displays VTP information.

vlan (global configuration mode)

To add a VLAN or to enter the VLAN configuration mode, use the **vlan** command. To delete the VLAN and exit the VLAN configuration mode, use the **no** form of this command.

vlan {*vlan-id*| *vlan-range*}

no vlan {*vlan-id*| *vlan-range*}

Syntax Description

<i>vlan-id</i>	Number of the VLAN; the range of valid values is from 1 to 4094. Note You cannot create, delete, or modify VLAN 1 or any of the internally allocated VLANs.
<i>vlan-range</i>	Range of configured VLANs; see the “Usage Guidelines” section for a list of valid values.

Command Default

None

Command Modes

Global configuration



Note

You can also create and delete VLANs in the VLAN configuration submode using these same commands.

Supported User Roles

network-admin

vdc-admin

Command History

Release	Modification
4.0	This command was introduced.

Usage Guidelines

When you enter the **vlan** *vlan-id* command, a new VLAN is created with all default parameters and causes the CLI to enter VLAN configuration submode. If the *vlan-id* argument that you entered matches an existing VLAN, nothing happens except that you enter VLAN configuration submode.

You can enter the *vlan-range* using a comma (,), a dash (-), and the number.

VLAN 1 parameters are factory configured and cannot be changed; you cannot create or delete this VLAN. Additionally, you cannot create or delete VLAN 4095 or any of the internally allocated VLANs.

When you delete a VLAN, all the access ports in that VLAN are shut down and no traffic flows. On trunk ports, the traffic continues to flow for the other VLANs allowed on that port, but the packets for the deleted VLAN are dropped. However, the system retains all the VLAN-to-port mapping for that VLAN, and when you reenable, or recreate, that specified VLAN, the device automatically reinstates all the original ports to that VLAN.

This command does not require a license.

Examples

This example shows how to add a new VLAN and enter VLAN configuration submode:

```
switch(config)# vlan 2
switch(config-vlan)#
```

This example shows how to add a range of new VLANs and enter VLAN configuration submode:

```
switch(config)# vlan 2,5,10-12,20,25,4000
switch(config-vlan)#
```

This example shows how to delete a VLAN:

```
switch(config)# no vlan 2
switch(config)#
```

Related Commands

Command	Description
show vlan	Displays VLAN information.

vlan configuration

To configure a VLAN prior to or without needing to actually create the VLAN, use the `vlan configuration` command.

`vlan configuration vlan-id`

Syntax Description

<i>vlan-id</i>	VLAN ID. The range is from 1 to 2499 and from 2628 to 4093. The VLAN range can be specified in the format shown in this example: 1-5, 10 or 2-5,7-19.
----------------	-------------------------------------------------------------------------------------------------------------------------------------------------------

Command Default

None

Command Modes

Global configuration mode (config)

Command History

Release	Modification
5.2(1)	This command was introduced.

Usage Guidelines

If you use the `vlan configuration` command to configure a VLAN that you have not yet created and you later want to create that VLAN, use the `vlan` command to create the configured VLAN.

The `show vlan` command does not display any VLAN until and unless you actually create the VLAN.

This command does not require a license.

Examples

This example shows how to configure a VLAN and enter the VLAN configuration mode:

```
switch# configure terminal
switch(config)# vlan configuration 2-5,7-19
switch(config-vlan-config)#
```

Related Commands

Command	Description
<code>show running-config vlan</code>	Displays the running configuration for a specified VLAN.

vtp domain

To set the name of the Virtual Trunking Protocol (VTP) administrative domain, use the **vtp domain** command. To remove the VTP domain name, use the **no** form of this command.

vtp domain *domain-name*

no vtp domain *domain-name*

Syntax Description

<i>domain-name</i>	Name of the VTP administrative domain. The domain name can be a maximum of 32 characters.
--------------------	-------------------------------------------------------------------------------------------

Command Default

None

Command Modes

Global configuration
Supported User Roles
network-admin
vdc-admin

Command History

Release	Modification
4.1 (2)	This command was introduced.

Usage Guidelines

This command is not available if VTP is not enabled.

A network device can be in only one VTP domain. A VTP domain is made up of one or more network devices that share the same VTP domain name and that are interconnected with trunk interfaces.

This command does not require a license.

Examples

This example shows how to configure the VTP domain name:

```
switch(config)# vtp domain accounting
switch(config)#
```

Related Commands

Command	Description
show vtp status	Displays VTP information.

vtp file

To set the name of a Virtual Trunking Protocol (VTP) file, use the **vtp file** command.

vtp file *file-name*

Syntax Description

<i>file-name</i>	ASCII name of the IFS file system file where VTP configuration is stored.
------------------	---------------------------------------------------------------------------

Command Default

None

Command Modes

Global configuration
Supported User Roles
network-admin
vdc-admin

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 set a name of a VTP file:

```
switch(config)# vtp file eng_vlans.info
switch(config)#
```

Related Commands

Command	Description
show vtp status	Displays VTP information.

vtp mode

To configure the Virtual Trunking Protocol (VTP) device mode, use the **vtp mode** command. To return to default values, use the **no** form of this command.

vtp mode {client| off| server| transparent}

no vtp mode

Syntax Description

client	Sets the device to client mode.
off	Sets the device to off mode.
server	Sets the device to server mode.
transparent	Sets the device to transparent mode.

Command Default

None

Command Modes

Global configuration
Supported User Roles
network-admin
vdc-admin

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 set the device to client mode:

```
switch(config)# vtp mode client
switch(config)#
```

This example shows how to set the device to off mode:

```
switch(config)# vtp mode off
switch(config)#
```


This example shows how to set the device to server mode:

```
switch(config)# vtp mode server
switch(config)#
```

Related Commands

Command	Description
show vtp status	Displays VTP information.

vtp mode transparent

To configure the Virtual Trunking Protocol (VTP) mode, use the **vtp mode transparent** command.

vtp mode transparent

Syntax Description This command has no arguments or keywords.

Command Default None

Command Modes Global configuration
Supported User Roles
network-admin
vdc-admin

Command History	Release	Modification
	4.1 (2)	This command was introduced.

Usage Guidelines This command is not available if VTP is not enabled. This command is optional because VTP runs only in transparent mode.

This command does not require a license.

Examples This example shows how to configure the VTP mode:

```
switch(config)# vtp mode transparent
switch(config)#
```

Related Commands

Command	Description
show vtp status	Displays VTP information.