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Cisco Nexus 7000 Series NX-OS Layer 2 Switching Command Reference, Release 4.2

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CONTENTS

New and Changed Information

This chapter provides release-specific information for each new and changed feature in the *Cisco Nexus 7000 Series NX-OS Layer 2 Switching Command Reference, Release 4.2*. The latest version of this document is available at the following Cisco website:
http://www.cisco.com/en/US/docs/switches/datacenter/sw/4_1/nx-os/layer2/command/reference/l2_cmd_ref.html

To check for additional information about Cisco NX-OS Release 4.2, see the *Cisco Nexus 7000 Series NX-OS Release Notes, Release 4.2* available at the following Cisco website:
http://www.cisco.com/en/US/docs/switches/datacenter/sw/4_1/nx-os/release/notes/41_nx-os_release_note.html

Table 1 summarizes the new and changed features for the *Cisco Nexus 7000 Series NX-OS Layer 2 Switching Command Reference, Release 4.2*.

Table 1 New and Changed Information for Release 4.2

Feature	Change Description	Changed in Release
VTP commands added	The commands for the VLAN Trunking Protocol (VTP) were added.	4.1(2)
Layer 2 consistency check	A command to check the consistency of the MAC addresses on the module and the supervisor was added.	4.1(2)
MAC address table	The MAC address table **show** commands were enhanced to display virtual port channel (vPC) information.	4.1(3)
Spanning Tree Protocol display	The STP **show** commands were enhanced to display when a part is part of a vPC.	4.1(3)
Static MAC address on Layer 3 interface	A command to add a static MAC address to a Layer 3 interface was added.	4.2(1)

Preface

This preface describes the audience, organization, and conventions of the *Cisco Nexus 7000 Series NX-OS Layer 2 Switching Command Reference, Release 4.2*. It also provides information on how to obtain related documentation.

This chapter includes the following sections:

Audience

This publication is for experienced users who configure and maintain NX-OS devices.

Organization

This reference is organized as follows:

Chapter and Title	Description
Chapter 1, “Cisco NX-OS Layer 2 Commands”	Describes the Cisco NX-OS Layer 2 commands.

Document Conventions

Command descriptions use these conventions:

Convention	Description
boldface font	Commands and keywords are in boldface.
italic font	Arguments for which you supply values are in italics.
[ ]	Elements in square brackets are optional.

[x | y | z]	Optional alternative keywords are grouped in brackets and separated by vertical bars.
string	A nonquoted set of characters. Do not use quotation marks around the string or the string will include the quotation marks.

Screen examples use these conventions:

`screen font`	Terminal sessions and information that the switch displays are in screen font.
`boldface screen font`	Information you must enter is in boldface screen font.
`italic screen font`	Arguments for which you supply values are in italic screen font.
< >	Nonprinting characters, such as passwords, are in angle brackets.
[ ]	Default responses to system prompts are in square brackets.
!, #	An exclamation point (!) or a pound sign (#) at the beginning of a line of code indicates a comment line.

This document uses the following conventions:

Note Means reader *take note*. Notes contain helpful suggestions or references to material not covered in the manual.

Caution Means *reader be careful*. In this situation, you might do something that could result in equipment damage or loss of data.

Tip Means *the following information will help you solve a problem.*

Related Documentation

Cisco NX-OS includes the following documents:

Release Notes

Cisco Nexus 7000 Series NX-OS Release Notes, Release 4.2

NX-OS Configuration Guides

Cisco Nexus 7000 Series NX-OS Getting Started with Virtual Device Contexts, Release 4.2

Cisco Nexus 7000 Series NX-OS Fundamentals Configuration Guide, Release 4.2

Cisco Nexus 7000 Series NX-OS Interfaces Configuration Guide, Release 4.2

Cisco Nexus 7000 Series NX-OS Layer 2 Switching Configuration Guide, Release 4.2

Cisco Nexus 7000 Series NX-OS Quality of Service Configuration Guide, Release 4.2

Cisco Nexus 7000 Series NX-OS Unicast Routing Configuration Guide, Release 4.2

Cisco Nexus 7000 Series NX-OS Multicast Routing Configuration Guide, Release 4.2

Cisco Nexus 7000 Series NX-OS Security Configuration Guide, Release 4.2

Cisco Nexus 7000 Series NX-OS Virtual Device Context Configuration Guide, Release 4.2

Cisco Nexus 7000 Series NX-OS Software Upgrade and Downgrade Guide, Release 4.2

Cisco Nexus 7000 Series NX-OS Licensing Guide, Release 4.2

Cisco Nexus 7000 Series NX-OS High Availability and Redundancy Guide, Release 4.2

Cisco Nexus 7000 Series NX-OS System Management Configuration Guide, Release 4.2

Cisco Nexus 7000 Series NX-OS XML Management Interface User Guide, Release 4.2

Cisco NX-OS System Messages Reference

Cisco Nexus 7000 Series NX-OS MIB Quick Reference

NX-OS Command References

Cisco Nexus 7000 Series NX-OS Command Reference Master Index, Release 4.2

Cisco Nexus 7000 Series NX-OS Fundamentals Command Reference, Release 4.2

Cisco Nexus 7000 Series NX-OS Interfaces Command Reference, Release 4.2

Cisco Nexus 7000 Series NX-OS Layer 2 Switching Command Reference, Release 4.2

Cisco Nexus 7000 Series NX-OS Quality of Service Command Reference, Release 4.2

Cisco Nexus 7000 Series NX-OS Unicast Routing Command Reference, Release 4.2

Cisco Nexus 7000 Series NX-OS Multicast Routing Command Reference, Release 4.2

Cisco Nexus 7000 Series NX-OS Security Command Reference, Release 4.2

Cisco Nexus 7000 Series NX-OS Virtual Device Context Command Reference, Release 4.2

Cisco Nexus 7000 Series NX-OS System Management Command Reference, Release 4.2

Other Software Document

Cisco Nexus 7000 Series NX-OS Troubleshooting Guide, Release 4.x

Obtaining Documentation and Submitting a Service Request

For information on obtaining documentation, submitting a service request, and gathering additional information, see the monthly *What's New in Cisco Product Documentation*, which also lists all new and revised Cisco technical documentation, at:

http://www.cisco.com/en/US/docs/general/whatsnew/whatsnew.html

Subscribe to the *What's New in Cisco Product Documentation* as a Really Simple Syndication (RSS) feed and set content to be delivered directly to your desktop using a reader application. The RSS feeds are a free service and Cisco currently supports RSS version 2.0.

Cisco NX-OS Layer 2 Commands

This chapter describes the Cisco NX-OS Layer 2 commands.

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

address *mac_addr*	(Optional) Specifies the MAC address to remove from the table. Use the format XXXX.XXXX.XXXX.
vlan *vlan_id*	(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.
interface {*type slot/port* | **port-channel** *number*}]	(Optional) Specifies the interface. Use either the type of interface, the slot number, and the port number, or the port-channel number.

Defaults

None

Command Modes

Any command mode

SupportedUserRoles

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

Defaults

None

Command Modes

Any command mode

SupportedUserRoles

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 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 interface-num	Module and port number.
port-channel channel-num	Port-channel number.

Defaults

None

Command Modes

Any command mode

SupportedUserRoles

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) VLAN ID you want to clear. Valid values are from 1 to 4096.
vlan-id	VLAN that you want to clear.

Defaults

None

Command Modes

Any command mode

SupportedUserRoles

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.

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.17

Defaults

Disabled

Command Modes

Global configuration

SupportedUserRoles

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

feature vtp

To enable VTPs, 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.

Defaults

Disabled

Command Modes

Global configuration

SupportedUserRoles

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.

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.

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 Description5

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

Defaults

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

Command Modes

mst configuration submode

SupportedUserRoles

network-admin

vdc-admin

Command History

Release	Modification
4.0	This command was introduced.

Usage Guidelines

The **vlans** *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.

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

mac-address	MAC address for the Layer 3 interface. Use the format XXXX.XXXX.XXXX.

Defaults

VDC MAC address

Command Modes

Interface configuration

SupportedUserRoles

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, Release 4.2* 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-1f)# mac-address 02c4.1e42.a3b2
```

Related Commands

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

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

seconds	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 *vlan_id*	(Optional) Specifies the VLAN to apply the changed aging time.

Defaults

1800 seconds

Command Modes

Global configuration

SupportedUserRoles

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 the 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 may or may not be the default value of 300 seconds depending if the global configuration of the device for aging time has been changed.

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 *mac-address* **vlan** *vlan-id* {[**drop** | **interface** {*type slot/port* | **port-channel** *number*]}

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

Syntax Description

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

Defaults

None

Command Modes

Global configuration

SupportedUserRoles

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 MAC address table.

media ethernet

Note You can have *only* Ethernet VLANs on the DC-OS. 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.

Defaults

Ethernet is the only media type supported.

Command Modes

VLAN configuration submode

SupportedUserRoles

network-admin

vdc-admin

Usage Guidelines

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

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** form of this command.

name *vlan-name*

no name

Syntax Description

vlan-name	Name of the VLAN; you can use up to 32 alphanumeric, case-sensitive characters. **Note** The name must be unique within each VDC.

Defaults

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

Command Modes

VLAN configuration submode

SupportedUserRoles

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

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

Defaults

None

Command Modes

mst configuration submode

SupportedUserRoles

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.

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 {**isolated** | **community** | **primary**}

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.

Defaults

None

Command Modes

VLAN configuration submode

SupportedUserRoles

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.

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 [type]	Displays information about private VLANs.

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	Associates a secondary VLAN to a primary VLAN.
secondary-vlan-list	Number of the secondary VLAN.
remove	Clears the association between a secondary VLAN and a primary VLAN.

Defaults

None

Command Modes

VLAN configuration submode

SupportedUserRoles

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.

See the *Cisco DC-OS Layer 2 Switching Configuration Guide* for additional configuration guidelines.

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 [type]	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	Maps the secondary VLAN to the primary VLAN.
secondary-vlan-list	VLAN ID of the secondary VLANs to map to the primary VLAN.
remove	Removes the mapping between the secondary VLAN and the primary VLAN.

Defaults

None

Command Modes

Interface configuration

SupportedUserRoles

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 NX-OS Interfaces Configuration Guide* 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 secondary private VLAN mapping to VLAN interface.

private-vlan synchronize

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

private-vlan synchronize

Syntax Description

This command has no keywords or arguments.

Defaults

This command has no default settings.

Command Modes

mst configuration submode

SupportedUserRoles

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.

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

version	Revision number for the MST region configuration; the range of valid values is from 0 to 65535.

Defaults

0

Command Modes

mst configuration submode

SupportedUserRoles

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.

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

module	Specifies the module number that you are comparing with the supervisor MAC address table.

Defaults

None

Command Modes

Any command mode.

SupportedUserRoles

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 exactly 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 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

module	Specifies the module number.
address {*mac-address*}	(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.
ethernet {*slot/port* | **port-channel** *number*}]	(Optional) Specifies the interface. Use either ethernet with the slot number and the port number, or the port-channel number.
vlan {*vlan-id*}	(Optional) Specifies the VLAN number.
dynamic	(Optional) Specifies dynamic entries only.
static	(Optional) Specifies static entries only.

Defaults

None

Command Modes

Any command mode.

SupportedUserRoles

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 hardware.
- PI—Primary entry.
- BD—bridge domain.
- MAC—MAC address.
- Index—Destination index; identifies the port on which MAC was learned.
- Static—Statically configured entry.Hardware will not modify this entry. This entry will not be aged by the line card process.
- SW—3-bit software value associated with this entry.
- Modified—MAC entry was modified by hardware since last notification. This is set when index value changes.
- Age byte—Age timer value when last packet arrived with this entry's MAC as source MAC.
- Tmr sel—Age timer used for updating the age for this entry. Based on aging value configured for the VLAN, one of the four timers will be used for updating the age.
- GM—Specifies gateway MAC or not.
- Secure—Secured MAC.
- TRAP—When this bit is set, the system drops any packet received with this source MAC as this entry's MAC.
- NTFY—Notify. When Secured and Notify bits are both set, the system redirects packets to the supervisor when hardware updates the index value.
- RM—Router MAC.
- RMA—Router MAC active.

Note The RM and RMA fields are not supported on the Nexus 7000.

- Capture—When this bit is set, any packet sent to this destination will be copied by setting CAP1 bit.
- Fld—Flood bit. When this bit is set, any packet sent to this destination MAC will cause the flood bit to be set in the result.
- Always learn—Always learn. When this bit is set, the hardware modifies the index value irrespective of whether this entry is marked static or not.

This command does not require a license.

Examples

This example shows how to display hardware information about all the MAC addresses VLAN 1 on module 2:

```
switch# show hardware mac address-table 2 vlan 1

Valid| PI| BD |      MAC      |  Index |Stat| SW| Modi| Age| Tmr| GM| Sec| TR | NT | RM | RMA | Cap|Fld| Always
     |   |    |               |        |  ic|   | fied|Byte| Sel|   |ure| AP | FY |    |     |TURE|   |  Learn
-----+---+----+---------------+--------+----+---+-----+----+----+---+---+----+----+----+-----+----+---+-------
  1    0    1  0100.0cff.fffe  0x00421    1   1    0   152   0     0   0    0    0    0     0   1    0      0
```

Related Commands

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

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

type slot/port	(Optional) Type of interface, slot number, and port number.

Defaults

None

Command Modes

Any command mode.

SupportedUserRoles

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
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.

Defaults

None

Command Modes

Any command mode

SupportedUserRoles

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
private-vlan mapping	Creates a mapping between the primary and secondary VLANs so that both VLANs share the same primary VLAN interface.

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 vlan	Displays summary information about all VLANs.

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

vlan-id	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 specified VLAN.
status	(Optional) Displays information about the status for a specified VLAN.

Defaults

None

Command Modes

Any command mode

SupportedUserRoles

network-admin

vdc-admin

Command History

Release	Modification
4.0	This command was introduced.
4.2(1)	Display of configured static MAC address 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 switchports, including those configured for private VLANs,
show interface vlan counters	Displays the statistics for VLANs.
show vlan	Displays summary information for all VLANs.
show vlan private-vlan	Displays summary information for all private 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

vlan-id	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.

Defaults

None

Command Modes

Any command mode

SupportedUserRoles

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:
  l3_average_input_bits                          9947168160
  l3_average_input_packets                         20723267
  l3_routed_bytes_in                           39054410460
  l3_routed_pkts_in                              650906841
  l3_ucast_bytes_in                            39054410460
  l3_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.              l3_ipv4_ucast_bytes_in = 0
   1.               l3_ipv4_ucast_pkts_in = 0
   2.              l3_ipv4_mcast_bytes_in = 0
   3.               l3_ipv4_mcast_pkts_in = 0
   4.              l3_ipv6_ucast_bytes_in = 0
   5.               l3_ipv6_ucast_pkts_in = 0
   6.              l3_ipv6_mcast_bytes_in = 0
   7.               l3_ipv6_mcast_pkts_in = 0
   8.             l3_ipv4_ucast_bytes_out = 0
   9.              l3_ipv4_ucast_pkts_out = 0
  10.             l3_ipv4_mcast_bytes_out = 0
  11.              l3_ipv4_mcast_pkts_out = 0
  12.             l3_ipv6_ucast_bytes_out = 0
  13.              l3_ipv6_ucast_pkts_out = 0
  14.             l3_ipv6_mcast_bytes_out = 0
  15.              l3_ipv6_mcast_pkts_out = 0
  16.              l3_average_input_bytes = 0
  17.            l3_average_input_packets = 0
  18.             l3_average_output_bytes = 0
  19.           l3_average_output_packets = 0
  20.                  l3_routed_bytes_in = 0
  21.                   l3_routed_pkts_in = 0
  22.                   l3_ucast_bytes_in = 0
  23.                    l3_ucast_pkts_in = 0
  24.                   l3_mcast_bytes_in = 0
  25.                    l3_mcast_pkts_in = 0
  26.                 l3_routed_bytes_out = 0
  27.                  l3_routed_pkts_out = 0
  28.                  l3_ucast_bytes_out = 0
  29.                   l3_ucast_pkts_out = 0
  30.                  l3_mcast_bytes_out = 0
  31.                   l3_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

num	(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 *mac-address*	(Optional) Displays information about the MAC address table for a specific MAC address.
count	(Optional) Displays number of MAC address entries for dynamic and static.
interface {*type slot/port* | **port-channel** *number*}]	(Optional) Specifies the interface. Use either the type of interface, the slot number, and the port number, or the port-channel number.
static	(Optional) Displays information about the static MAC address table entries only.
vlan *vlan-id*	(Optional) Displays information for a specific VLAN only; the range of valid values is from 1 to 4094.

Defaults

None

Command Modes

Any command mode

SupportedUserRoles

network-admin

vdc-admin

Command History

Release	Modification
4.0	This command was introduced.

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.

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

Related Commands

Command	Description
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 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 *vlan-id*	(Optional) Displays information for a specific VLAN only; the range of valid values is from 1 to 4094.

Defaults

None

Command Modes

Any command mode

SupportedUserRoles

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 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 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.

Defaults

None

Command Modes

Any command mode

SupportedUserRoles

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
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

vlan-id	Number of VLAN or range of VLANs. Valid numbers range from 1 to 4096.

Defaults

None

Command Modes

Any command mode

SupportedUserRoles

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 are also displayed.

This command does not require a license.

Examples

This example shows how to display the running configuration for VLAN50:

```
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

Defaults

None

Command Modes

Any command mode

SupportedUserRoles

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 VLAN50:

```
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** 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.

Defaults

None

Command Modes

Any command mode

SupportedUserRoles

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).

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)
```

Table 1-1 describes the fields that are shown in the examples.

Table 1-1 show spanning-tree Command Output Options

Field	Definition and Options
Role	Current port STP role. Valid values are as follows: • Desg (designated) • Root • Altn (alternate) • Back (backup)
Sts	Current port STP state. Valid values are as follows: • BLK (blocking) • DIS (disabled) • LRN (learning) • FWD (forwarding)
Type	Status information; valid values are as follows: • P2p/Shr—The interface is considered as a point-to-point (resp. shared) interface by the spanning tree. • 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.
show spanning-tree bridge	Displays the bridge ID, timers, and protocol for the local bridge on the device.

Command	Description
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.

Defaults

None

Command Modes

Any command mode

SupportedUserRoles

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 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.
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.

Defaults

None

Command Modes

Any command mode

SupportedUserRoles

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
```

```
                                                    Hello  Max  Fwd
MST Instance                 Bridge ID               Time  Age  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.

Defaults

None

Command Modes

Any command mode

SupportedUserRoles

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 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
```

```
  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.

Defaults

None

Command Modes

Any command mode

SupportedUserRoles

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 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
   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 {*slot/port*} | **port-channel** {*channel-number*}	Enters the interface that you want to display.
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.
Sts	Current port STP state. Valid values are as follows: • BLK (blocking) • DIS (disabled) • LRN (learning) • FWD (forwarding)

Defaults

None

Command Modes

Any command mode

SupportedUserRoles

network-admin

vdc-admin

Command History

Release	Modification
4.0	This command was introduced.

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 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.
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 on 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**]]

instance-id	(Optional) MST instance that you want to display.
detail	(Optional) Displays detailed MST information.
ethernet [*slot/port*] | **port-channel** [*channel-number*]	Enter the interface or range of interfaces that you want to display.
configuration	(Optional) Displays current MST regional information. Displays VLAN-to-instance mapping of all VLANs.
digest	(Optional) Displays information about the MD5 digest.

Defaults

None

Command Modes

Any command mode

SupportedUserRoles

network-admin

vdc-admin

Command History

Release	Modification
4.0	This command was introduced.

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  0x27BF112A75B72781ED928D9EC5BB4251
```

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.

Defaults

None

Command Modes

Any command mode

SupportedUserRoles

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.

Defaults

None

Command Modes

Any command mode

SupportedUserRoles

network-admin

vdc-admin

Command History

Release	Modification
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: VLAN0002
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                     41         0        0          1         42
VLAN0002                      0         0        0         42         42
---------------------- -------- --------- -------- ---------- ----------
2 vlans                      41         0        0         43         84
```

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

vlan-id	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 [*slot/port*] **| port-channel** [*channel-number*]	Enter the interface for the specified VLANs that you want to display.

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: • 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.

Defaults

None

Command Modes

Any command mode

SupportedUserRoles

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 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.
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

vlan-id	Number of VLAN or range of VLANs. Valid numbers range from 1 to 4096.

Defaults

None

Command Modes

Any command mode

SupportedUserRoles

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.

Defaults

None

Command Modes

Any command mode

SupportedUserRoles

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 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 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 *name*	(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.

Defaults

None

Command Modes

Any command mode

SupportedUserRoles

network-admin

vdc-admin

Command History

Release	Modification
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 commands 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    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

VLAN Type
---- -----
1    enet
5    enet
6    enet
7    enet
8    enet
9    enet
10   enet
50   enet
100  enet

Remote SPAN VLANs
------------------------------------------------------------------------------

Primary  Secondary  Type             Ports
-------  ---------  ---------------  -----------------------------------------
```

This example shows how to display the VLANs and all ports for each VLAN:

```
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 statistic for a specified VLAN or for all VLANs, use the **show vlan counters** command.

show vlan [**id** {*vlan-id*}] **counters**

Syntax Description

id	(Optional) VLAN ID you want to clear. Valid values are from 1 to 4096.
vlan-id	VLAN that you want to clear.

Defaults

None

Command Modes

Any command mode

SupportedUserRoles

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.

Defaults

None

Command Modes

Any command mode

SupportedUserRoles

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

id	Number of VLAN or range of VLANs. Valid numbers are 1 to 4096.
counters	Statistics about specified VLANs.

Defaults

None

Command Modes

Any command mode

SupportedUserRoles

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 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	Displays information about 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

vlan-id	(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).

Defaults

None

Command Modes

Any command mode

SupportedUserRoles

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 in private switch ports 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 status

To display VTP information, use the **show vtp status** command.

show vtp status

Syntax Description

This command has no keywords or arguments.

Defaults

None

Command Modes

Any command mode

SupportedUserRoles

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(config)# show vtp status

VTP Version                     : 1
Configuration Revision          : 0
Maximum VLANs supported locally : 1005
VTP Operating Mode              : Transparent
VTP Domain Name                 : accounting
VTP Pruning Mode                : Disabled
VTP V2 Mode                     : Disabled
VTP Traps Generation            : Disabled
```

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.

Defaults

no shutdown

Command Modes

VLAN configuration submode

SupportedUserRoles

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 reenable, or recreate, 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.

spanning-tree bpdufilter

To enable BPDU Filtering on the interface, use the **spanning-tree bpdufilter** command. To return to the default settings, use the **no** form of this command.

spanning-tree bpdufilter {**enable** | **disable**}

no spanning-tree bpdufilter

Syntax Description

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

Defaults

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

Command Modes

Interface configuration

SupportedUserRoles

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 bpdufilter enable** command on specified interfaces. Explicitly configuring BPDU Filtering on a port this is not connected to a host can cause a bridging loop because the port will ignore any BPDU that it receives, and the port moves to the STP forwarding state.

Entering the **spanning-tree bpdufilter 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 bpdufilter 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 bpdufilter enable
switch(config-if)#
```

Related Commands

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

spanning-tree bpduguard

To enable 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.

Defaults

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

Command Modes

Interface configuration

SupportedUserRoles

network-admin

vdc-admin

Command History

Release	Modification
4.0	This command was introduced.

Usage Guidelines

BPDU Guard prevents a port from receiving BPDUs. If the port still receives a BPDU, it is put in the error-disabled state as a protective measure.

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 **spanning-tree port type edge bpduguard default** for more information on the global command for BPDU Guard. However, when you enable this feature on an *interface*, it applies to that interface *regardless* of the spanning tree port type.

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
show spanning-tree summary	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.

Defaults

Enabled

Command Modes

Global configuration

SupportedUserRoles

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 network** command 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 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 *vlan-id*	(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.
value	Value of the port cost. The available cost range depends on the path-cost calculation method as follows: • short—The range is 1 to 65536. • long—The range is 1 to 200,000,000.
auto	Sets the value of the port cost by the media speed of the interface (see to Table 1-2 for the values).

Defaults

auto

Command Modes

Interface configuration

SupportedUserRoles

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 Table 1-2). See the spanning-tree pathcost method command for information on setting the pathcost calculation method for Rapid PVST+.

Table 1-2 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

Table 1-2 Default Port Cost (continued)

Bandwidth	Short Path-Cost Method Port Cost	Long Path-Cost Method Port Cost
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 PVST+. Use the **spanning-tree mst cost** command to set the port cost for 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.

Defaults

Disabled

Command Modes

Interface configuration

SupportedUserRoles

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.

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.

Defaults

auto

Command Modes

Interface configuration

SupportedUserRoles

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.

Defaults

Disabled

Command Modes

Global configuration

SupportedUserRoles

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.

Defaults

Rapid PVST+

Command Modes

Global configuration

SupportedUserRoles

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 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 the 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 keywords or arguments.

Defaults

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

SupportedUserRoles

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 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 displays:

```
% 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 the 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

instance-id	Instance ID number; the range of valid values is from 0 to 4094.
cost	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.

Defaults

auto

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

Command Modes

Interface configuration

SupportedUserRoles

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 has no licensing requirements.

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 [detail]	Displays the 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

seconds	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.

Defaults

15

Command Modes

Global configuration

SupportedUserRoles

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 [detail]	Displays the 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

seconds	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 seconds.

Defaults

2

Command Modes

Global configuration

SupportedUserRoles

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 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 set the hello-time delay timer:

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

Related Commands

Command	Description
show spanning-tree mst [detail]	Displays the 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

seconds	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.

Defaults

20

Command Modes

Global configuration

SupportedUserRoles

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 [detail]	Displays the 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

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

Defaults

20

Command Modes

Global configuration

SupportedUserRoles

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 [detail]	Displays the 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

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

Defaults

priority is 128.

Command Modes

Interface configuration

SupportedUserRoles

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 [detail]	Displays the information about the MST protocol.
spanning-tree port-priority	Configures 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, 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 keywords or arguments.

Defaults

None

Command Modes

Global configuration

SupportedUserRoles

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 0 root priority 4096
switch(config)#
```

Related Commands

Command	Description
show spanning-tree mst [interface {interface}] [detail]	Displays detailed information about the MST protocol for the specified interface.

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

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

Defaults

priority-value default is 32768.

Command Modes

Global configuration

SupportedUserRoles

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 0 root priority 4096
switch(config)#
```

Related Commands

Command	Description
show spanning-tree mst [detail]	Displays the 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

instance-id	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 *dia*	(Optional) Specifies the timer values for the bridge that are based on the network diameter.
hello-time *hello-time*	(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.

Defaults

spanning-tree mst root has no default settings.

Command Modes

Global configuration

SupportedUserRoles

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 [detail]	Displays the 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 reenable 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 keywords or arguments.

Defaults

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

Command Modes

Interface configuration

SupportedUserRoles

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) BPDU move into the 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 **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 reenable 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+. The default is enabled.

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 keywords or arguments.

Defaults

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

Command Modes

Global configuration

Interface configuration

SupportedUserRoles

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. The default is enabled.

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.

Defaults

short

Command Modes

Global configuration

SupportedUserRoles

network-admin

vdc-admin

Command History

Release	Modification
4.0	This command was introduced.

Usage Guidelines

Note This command applies only to the Rapid 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 valued 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 has no licensing requirements.

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.

Defaults

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

SupportedUserRoles

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 is the same 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 {*type*/*slot*} **edge**	Displays information about the spanning tree state.

spanning-tree port type edge bpdufilter default

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

spanning-tree port type edge bpdufilter default

no spanning-tree port type edge bpdufilter default

Syntax Description

This command has no keywords or arguments.

Defaults

Disabled

Command Modes

Global configuration

SupportedUserRoles

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, 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 bpdufilter default** command by configuring BPDU Filtering at the interface level. See the **spanning-tree bpdufilter** 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 bpdufilter default
switch(config)#
```

Related Commands

Command	Description
show spanning-tree summary	Displays the information about the spanning tree configuration.
spanning-tree bpdufilter	Enables BPDU Filtering on the interface.
spanning-tree port type edge	Configure 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 keywords or arguments.

Defaults

Disabled

Command Modes

Global configuration

SupportedUserRoles

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 **spanning-tree bpduguard** 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 the information about the spanning tree configuration.
spanning-tree bpduguard	Enables BPDU guard on the interface.
spanning-tree port type edge	Configure 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.

Defaults

Disabled

Command Modes

Global configuration

SupportedUserRoles

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 will 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	Configure 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.

Defaults

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

SupportedUserRoles

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 will 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 {*type*/*slot*} **detail**	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.

Defaults

Disabled

Command Modes

Global configuration

SupportedUserRoles

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 will automatically move into the blocking state.

If you have enabled Bridge Assurance on the device, all network ports will 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 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 *vlan-id*	(Optional) Specifies the VLAN identification number; the range of valid values is from 0 to 4094.
value	Port priority; valid values are from 1 to 224 in increments of 32.

Defaults

value is 128.

Command Modes

Interface configuration

SupportedUserRoles

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 PVST+ spanning tree mode, which is the default STP mode. To configure the port priority for 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 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

vlan-id	VLAN identification number; the range of valid values is from 0 to 4094.
forward-time *value*	(Optional) Specifies the STP forward-delay time; the range of valid values is from 4 to 30 seconds.
hello-time *value*	(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 *value*	(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 *value*	(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 *dia*	(Optional) Specifies the maximum number of bridges between any two points of attachment between end stations.

Defaults

The defaults are as follows:

- **forward-time**—15 seconds
- **hello-time**—2 seconds
- **max-age**—20 seconds
- **priority**—32768

Command Modes

Global configuration

SupportedUserRoles

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.

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, then 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** commands 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)#
```

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

state

To set the operational state for a VLAN, use the **state** {**active** | **suspend**} 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.

Defaults

active

Command Modes

VLAN configuration submode

SupportedUserRoles

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 keywords or arguments.

Defaults

None

Command Modes

Interface configuration

SupportedUserRoles

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, that port 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 switchports.

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 keywords or arguments.

Defaults

None

Command Modes

Interface configuration

SupportedUserRoles

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, that port 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 switchports.

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

primary-vlan-id	Number of the primary VLAN of the private VLAN relationship.
secondary-vlan-id	Number of the secondary VLAN of the private VLAN relationship.

Defaults

None

Command Modes

Interface configuration

SupportedUserRoles

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 [type]	Displays information on private VLANs.

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

vlan-id	Number of the VLAN; the range of valid values is from 1 to 4094. **Note** You cannot create, delete, or modify VLAN1 or any of the internally allocated VLANs.
vlan-range	Range of configured VLANs; see the "Usage Guidelines" section for a list of valid values.

Defaults

None

Command Modes

Global configuration

Note You can also create and delete VLANs in the VLAN configuration submode using these same commands.

SupportedUserRoles

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.

vtp domain

To configure the VTP domain name, 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

domain-name	Name of the VTP domain. The default is blank.

Defaults

None

Command Modes

Global configuration

SupportedUserRoles

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 VPT domain name and that are inconnected 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 acconting
switch(config)#
```

Related Commands

Command	Description
show vtp status	Displays VTP information.

vtp mode transparent

To configure the VTP mode, use the **vtp mode** command.

vtp mode transparent

Syntax Description

This command has no keywords or arguments.

Defaults

None

Command Modes

Global configuration

SupportedUserRoles

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.

vtp version

To configure the VTP version you want to employ, 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.

Defaults

1

Command Modes

Global configuration

SupportedUserRoles

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 VLAN 1 is required on all trunk ports used for switch interconnects if VTP is supported in the network. Pruning VLAN 1 from any of these ports prevents VTP from functioning.

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.