

# verify

To verify the checksum of a file on a Flash memory file system or compute an MD5 signature for a file, use the **verify** command.

```
verify {{/md5 flash-filesystem} [expected-md5-signature]} | {/ios flash-filesystem} |
flash-filesystem}
```

Syntax Description		
<i>/md5 flash-filesystem</i>		Computes an MD5 signature for a file; valid values are <b>bootflash:</b> , <b>slot0:</b> , <b>disk0:</b> , <b>flash:</b> , <b>sup-slot0:</b> , or <b>sup-bootflash:</b> .
<i>expected-md5-signature</i>		(Optional) MD5 signature.
<i>/ios flash-filesystem</i>		Verifies the compressed Cisco IOS image checksum; valid values are <b>bootflash:</b> , <b>slot0:</b> , <b>disk0:</b> , <b>flash:</b> , <b>sup-slot0:</b> , or <b>sup-bootflash:</b> .
<i>flash-filesystem</i>		Device where the Flash resides; valid values are <b>bootflash:</b> , <b>slot0:</b> , <b>disk0:</b> , <b>flash:</b> , <b>sup-slot0:</b> , or <b>sup-bootflash:</b> .

**Defaults** The default device is the current working device.

**Command Modes** Privileged EXEC mode

Command History	Release	Modification
	12.0(7)XE	Support for this command was introduced on the Catalyst 6500 series switches.
	12.1(1)E	Support for this command on the Catalyst 6500 series switches was extended to the 12.1 E release.
	12.1(8a)E2	This command was changed to include the <b>MD5</b> option.
	12.1(19)E	This command was changed to include the <b>/ios</b> option.

**Usage Guidelines** The **disk0:** keyword (used to access the ATA Flash card) is not supported.

Each software image that is distributed on disk uses a single checksum for the entire image. This checksum is displayed only when the image is copied into Flash memory.

The Readme file, which is included with the image on the disk, lists the name, file size, and checksum of the image. Review the contents of the Readme file before loading or duplicating the new image so that you can verify the checksum when you copy it into Flash memory or onto a server.

Use the **verify /md5** command to verify the MD5 signature of a file before using it. This command validates the integrity of a copied file by comparing a precomputed MD5 signature with the signature computed by this command. If the two MD5 signatures match, the copied file is identical to the original file.

You can find the MD5 signature posted on the Cisco.com page with the image.

You can use the **verify /md5** command in one of the following ways:

- Verify the MD5 signatures manually by entering the **verify /md5 filename** command. Check the displayed signature against the MD5 signature posted on the Cisco.com page.
- Allow the system to compare the MD5 signatures by entering the **verify /md5 {flash-filesystem:filename} {expected-md5-signature}** command.

After completing the comparison, the system returns with a verified message. If an error is detected, the output is similar to the following:

```
Router# verify /md5 slot0:c6msfc2-jsv-mz 0f
.....
.....
.....
.....
.....
.....Done!
%Error verifying slot0:c6msfc2-jsv-mz
Computed signature = 0f369ed9e98756f179d4f29d6e7755d3
Submitted signature = 0f
```

To display the contents of Flash memory, enter the **show flash** command. The Flash contents listing does not include the checksum of individual files. To recompute and verify the image checksum after the image has been copied into Flash memory, enter the **verify** command.

A colon (:) is required after the specified device.

## Examples

This example shows how to use the **verify** command:

```
Router# verify cat6k_r47_1.cbi
.....
File cat6k_r47_1.cbi verified OK.
Router#
```

This example shows how to manually check the MD5 signature:

```
Router# verify /md5 c6msfc2-jsv-mz
.....
.....
.....
.....
.....Done!
verify /md5 (slot0:c6msfc2-jsv-mz) = 0f369ed9e98756f179d4f29d6e7755d3
Router#
```

This example shows how to allow the system to compare the MD5 signatures:

```
Router# verify /md5 slot0:c6msfc2-jsv-mz 0f369ed9e98756f179d4f29d6e7755d3
.....
.....
.....
.....
.....Done!
verified /md5 (slot0:c6sup12-jsv-mz) = 0f369ed9e98756f179d4f29d6e7755d3
Router#
```

This example shows how to verify the compressed Cisco IOS image checksum:

```
Router# verify /ios disk0:c6k222-jsv-mz
Verified compressed IOS image checksum for disk0:c6k222-jsv-mz
Router#
```

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**Related Commands**

[copy /noverify](#)

**show file system (Flash file system)** (refer to the *Cisco IOS Release 12.1 Command Reference*)

**show flash** (refer to the *Cisco IOS Release 12.1 Command Reference*)

[verify](#)

## vlan (config-VLAN submode)

To configure a specific VLAN, use the **vlan** command in config-VLAN submode. Use the **no** form of this command without additional parameters to delete a VLAN.

```
vlan vlan-id [are hops] [backupcrf mode] [bridge type | bridge-num] [exit] [media type] [mtu
mtu-size] [name vlan-name] [parent parent-vlan-id] [private-vlan] [remote-span] [ring
ring-number] [said said-value] [shutdown] [state {suspend | active}] [stp type type] [ste
hops] [tb-vlan1 tb-vlan1-id] [tb-vlan2 tb-vlan2-id]
```

```
no vlan vlan
```

Syntax Description	
<i>vlan-id</i>	Number of the VLAN; see the “Usage Guidelines” section for a list of valid values.
<b>are</b> <i>hops</i>	(Optional) Specifies the maximum number of All Route Explorer hops for this VLAN; valid values are from 0 to 13. Zero is assumed if no value is specified.
<b>backupcrf</b> <i>mode</i>	(Optional) Enables or disables the backup CRF mode of the VLAN; valid values are <b>enable</b> or <b>disable</b> .
<b>bridge</b> <i>type</i>   <i>bridge-num</i>	(Optional) Specifies the bridging characteristics of the VLAN or identification number of the bridge; valid <i>type</i> values are <b>srb</b> or <b>srt</b> . Valid <i>bridge-num</i> values are from 0 to 15.
<b>exit</b>	(Optional) Applies changes, increments the revision number, and exits config-VLAN submode.
<b>media</b> <i>type</i>	(Optional) Specifies the media type of the VLAN; valid values are <b>ethernet</b> , <b>fd-net</b> , <b>fdi</b> , <b>trcrf</b> , and <b>trbrf</b> .
<b>mtu</b> <i>mtu-size</i>	(Optional) Specifies the maximum transmission unit (packet size in bytes) that the VLAN can use; valid values are from 1500 to 18190.
<b>name</b> <i>vlan-name</i>	(Optional) Defines a text string used as the name of the VLAN (1 to 32 characters).
<b>parent</b> <i>parent-vlan-id</i>	(Optional) Specifies the ID number of the parent VLAN of FDDI or Token Ring-type VLANs; valid values are from 1 to 1005.
<b>private-vlan</b>	(Optional) Configures the VLAN as a PVLAN; see the <a href="#">private-vlan</a> command.
<b>remote-span</b>	(Optional) Configures the VLAN as an RSPAN VLAN.
<b>ring</b> <i>ring-number</i>	(Optional) Specifies the ring number of FDDI or Token Ring-type VLANs; valid values are from 0 to 65535.
<b>said</b> <i>said-value</i>	(Optional) Specifies the security association identifier; valid values are from 1 to 4294967294.
<b>shutdown</b>	(Optional) Shuts down VLAN switching.
<b>state</b> { <b>suspend</b>   <b>active</b> }	(Optional) Specifies whether the state of the VLAN is active or suspended. VLANs in the suspended state do not pass packets.
<b>stp type</b> <i>type</i>	(Optional) Specifies the STP type; valid values are <b>ieee</b> , <b>ibm</b> , and <b>auto</b> .
<b>ste</b> <i>hops</i>	(Optional) Specifies the maximum number of hops for Spanning Tree Explorer frames; valid values are from 0 to 13.

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<b>tb-vlan1</b>	<i>tb-vlan1-id</i>	(Optional) Specifies the ID number of the first translational VLAN for this VLAN; valid values are from 1 to 1005. Zero is assumed if no value is specified.
<b>tb-vlan2</b>	<i>tb-vlan2-id</i>	(Optional) Specifies the ID number of the second translational VLAN for this VLAN; valid values are from 1 to 1005. Zero is assumed if no value is specified.

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## Defaults

The defaults are as follows:

- *vlan-name* is “VLANxxxx” where “xxxx” represents four numeric digits (including leading zeroes) equal to the VLAN ID number.
- **media type** is **ethernet**.
- **state** is **active**.
- *said-value* is 100000 plus the VLAN ID number.
- *mtu-size* default is dependent upon the VLAN type:
  - **ethernet**—1500
  - **fddi**—1500
  - **trcrf**—1500 if V2 is not enabled, 4472 if it is enabled
  - **fd-net**—1500
  - **trbrf**—1500 if V2 is not enabled, 4472 if it is enabled
- *ring-number* is no ring number is specified.
- *bridge-number* is no bridge number is specified.
- *parent-vlan-id* is no parent VLAN is specified.
- *type* is no STP type is specified.
- *tb-vlan1* and *tb-vlan2* is 0, which means that no translational bridge VLAN is specified.

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## Command Modes

config-VLAN submode

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## Command History

Release	Modification
12.1(8)ES	Support for this command was introduced on the Catalyst 6500 series switches.
12.1(13)E	This command was changed to support remote SPAN and extended range VLANs.

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## Usage Guidelines

VLAN 1 parameters are factory configured and cannot be changed. You cannot delete VLAN 1.

The VLANs created or modified are not committed until you exit config-VLAN submode.

If you define *vlan-range* in global configuration mode, you are not allowed to set the *vlan-name* in config-vlan submode.

The maximum length of a Layer 2 VLAN name is 32 characters.

If your system is configured with a Supervisor Engine 1, valid values for *vlan-id* are from 1 to 1005. If your system is configured with a Supervisor Engine 2, valid values for *vlan-id* are from 1 to 4094. Extended-range VLANs are not supported on systems configured with a Supervisor Engine 1.

For extended-range VLANs (1006 to 4094), only the **private-vlan**, **rspan**, and **mtu** VLAN parameters are configurable. The rest of the VLAN parameters for extended-range VLANs are set to default.

When you define *vlan-name*, the name must be unique within the administrative domain.

The SAID is documented in 802.10. When the **no** form is used, the VLAN's SAID is returned to the default settings. When you define the *said-value*, the name must be unique within the administrative domain.

The **bridge** *bridge-number* argument is used only for Token Ring-net and FDDI-net VLANs and is ignored in other types of VLANs. When the **no** form is used, the VLAN's source-routing bridge number returns to the default settings.

The parent VLAN resets to the default settings if the parent VLAN is deleted or the **media** keyword changes the VLAN type or the VLAN type of the parent VLAN.

The *tb-vlan1* and *tb-vlan2* are used to configure translational bridge VLANs of a specified type of VLAN and are not allowed in other VLAN types. Translational bridge VLANs must be different VLAN types than the affected VLAN; if two VLANs are specified, the two must be different VLAN types.

A translational bridge VLAN resets to the default settings if you delete the translational bridge VLAN or if you enter the **media** keyword to change the VLAN type or the VLAN type of the corresponding translational bridge VLAN.

The **shutdown** option does not supported extended-range VLANs.

## Examples

This example shows how to add a new VLAN with all default parameters to the new VLAN database:

```
Router(config-vlan)# vlan 2
Router(config-vlan)#
```



### Note

If the VLAN already exists, no action occurs.

This example shows how to cause the device to add a new VLAN, specify the media type and parent VLAN ID number 3, and set all other parameters to the default settings:

```
Router(config-vlan)# vlan 2 media ethernet parent 3
VLAN 2 modified:
  Media type ETHERNET
  Parent VLAN 3
Router(config-vlan)#
```

This example shows how to delete VLAN 2:

```
Router(config-vlan)# no vlan 2
Router(config-vlan)#
```

This example shows how to return the MTU to the default settings for its type and translational bridging VLANs to the default settings:

```
Router(config-vlan)# no vlan 2 mtu tb-vlan1 tb-vlan2
Router(config-vlan)#
```

## Related Commands

[show vlan](#)

## vlan (global configuration mode)

To add a VLAN and enter config-VLAN submode, use the **vlan** command. Use the **no** form of this command to delete the VLAN.

```
vlan {vlan-id | vlan-range}
```

```
no vlan {vlan-id | vlan-range}
```

### Syntax Description

<i>vlan-id</i>	Number of the VLAN; see the “Usage Guidelines” section for a list of valid values.
<i>vlan-range</i>	Range of configured VLANs; see the “Usage Guidelines” section for a list of valid values.

### Defaults

This command has no default settings.

### Command Modes

Global configuration

### Command History

Release	Modification
12.1(8a)EX	Support for this command was introduced on the Catalyst 6500 series switches.
12.1(11b)EX	This command was changed to supported extended-range VLANs.
12.1(13)E	Support for this command on the Catalyst 6500 series switches was extended to the 12.1 E release.

### Usage Guidelines

If your system is configured with a Supervisor Engine 1, valid values for *vlan-id* and *vlan-range* are from 1 to 1005. If your system is configured with a Supervisor Engine 2, valid values for *vlan-id* and *vlan-range* are from 1 to 4094. Extended-range VLANs are not supported on systems configured with a Supervisor Engine 1.

VLAN 1 parameters are factory configured and cannot be changed.

The specified VLAN is added or modified in the VLAN database when you exit config-VLAN submode.

When you enter the **vlan** *vlan-id* command, a new VLAN is created with all default parameters in a temporary buffer and causes the CLI to enter config-VLAN submode. If the *vlan-id* you entered matches an existing VLAN, nothing happens except that you enter config-VLAN submode.

If you define *vlan-range*, you are not allowed to set the *vlan-name* in config-VLAN submode.

You can enter the *vlan-range* using a comma (,), a dash (-), and the number.

See the [vlan \(config-VLAN submode\)](#) command for information on the commands available under config-VLAN submode.

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**Examples**

This example shows how to add a new VLAN and enter config-VLAN submode:

```
Router (config)# vlan 2  
Router (config-vlan)#
```

This example shows how to add a range of new VLANs and enter config-VLAN submode:

```
Router (config)# vlan 2,5,10-12,20,25,4000  
Router (config-vlan)#
```

This example shows how to delete a VLAN:

```
Router (config)# no vlan 2  
Router (config)#
```

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**Related Commands**

**exit** (see Cisco IOS documentation)  
**vlan (config-VLAN submode)**

## vlan (VLAN configuration submode)

Use the **vlan** command in VLAN configuration mode to configure a specific VLAN. Use the **no** form of this command without additional parameters to delete a VLAN.

```
vlan vlan-id [are hops] [backupcrf mode] [bridge type | bridge-num] [media type] [mtu mtu-size]
  [name vlan-name] [parent parent-vlan-id] [ring ring-number] [said said-value] [state
  {suspend | active}] [stp type type] [tb-vlan1 tb-vlan1-id] [tb-vlan2 tb-vlan2-id]
```

```
no vlan vlan
```

Syntax	Description
<i>vlan-id</i>	Number of the VLAN; valid values are from 1 to 1005.
<b>are</b> <i>hops</i>	(Optional) Specifies the maximum number of All Route Explorer hops for this VLAN; valid values are from 0 to 13. Zero is assumed if no value is specified.
<b>backupcrf</b> <i>mode</i>	(Optional) Enables or disables the backup CRF mode of the VLAN; valid values are <b>enable</b> or <b>disable</b> .
<b>bridge</b> <i>type</i>   <i>bridge-num</i>	(Optional) Specifies the bridging characteristics of the VLAN or identification number of the bridge; valid <i>type</i> values are <b>srb</b> or <b>srt</b> . Valid <i>bridge-num</i> values are from 0 to 15.
<b>media</b> <i>type</i>	(Optional) Specifies the media type of the VLAN; valid values are <b>ethernet</b> , <b>fd-net</b> , <b>fddi</b> , <b>trcrf</b> , and <b>trbrf</b> .
<b>mtu</b> <i>mtu-size</i>	(Optional) Specifies the maximum transmission unit (packet size in bytes) that the VLAN can use; valid values are from 576 to 18190.
<b>name</b> <i>vlan-name</i>	(Optional) Defines a text string used as the name of the VLAN (1 to 32 characters).
<b>parent</b> <i>parent-vlan-id</i>	(Optional) Specifies the ID number of the parent VLAN of FDDI or Token Ring-type VLANs; valid values are from 1 to 1005.
<b>ring</b> <i>ring-number</i>	(Optional) Specifies the ring number of FDDI or Token Ring-type VLANs; valid values are from 1 to 1005.
<b>said</b> <i>said-value</i>	(Optional) Specifies the security association identifier; valid values are from 1 to 4294967294.
<b>state</b> { <b>suspend</b>   <b>active</b> }	(Optional) Specifies whether the state of the VLAN is active or suspended. VLANs in suspended state do not pass packets.
<b>stp</b> <i>type</i> <i>type</i>	(Optional) Specifies the STP type; valid values are <b>ieee</b> , <b>ibm</b> , and <b>auto</b> .
<b>tb-vlan1</b> <i>tb-vlan1-id</i>	(Optional) Specifies the ID number of the first translational VLAN for this VLAN; valid values are from 1 to 1005. Zero is assumed if no value is specified.
<b>tb-vlan2</b> <i>tb-vlan2-id</i>	(Optional) Specifies the ID number of the second translational VLAN for this VLAN; valid values are from 1 to 1005. Zero is assumed if no value is specified.

**Defaults**

The defaults are as follows:

- *vlan-name* is “VLANxxxx” where “xxxx” represents four numeric digits (including leading zeroes) equal to the VLAN ID number.
- **media type** is **ethernet**.
- **state** is **active**.
- *said-value* is 100000 plus the VLAN ID number.
- *mtu-size* default is dependent upon the VLAN type:
  - **ethernet**—1500
  - **fddi**—1500
  - **trcrf**—1500 if V2 is not enabled, 4472 if it is enabled
  - **fd-net**—1500
  - **trbrf**—1500 if V2 is not enabled, 4472 if it is enabled
- *ring-number* is no ring number is specified.
- *bridge-number* is no bridge number is specified.
- *parent-vlan-id* is no parent VLAN is specified.
- *type* is no STP type is specified.
- *tb-vlan1* and *tb-vlan2* is 0, which means that no translational bridge VLAN is specified.

**Command Modes**

VLAN configuration mode

**Command History**

Release	Modification
12.0(7)XE	Support for this command was introduced on the Catalyst 6500 series switches.
12.1(1)E	Support for this command on the Catalyst 6500 series switches was extended to the 12.1 E release.
12.1(8)ES	This command was replaced by the <a href="#">vlan (config-VLAN submode)</a> command but kept for backward compatibility.

**Usage Guidelines**

This command, which is similar to the VLAN 1 parameters, is factory configured and cannot be changed.

Extended-range VLANs are not supported in VLAN configuration mode.

When you define *vlan-name*, the name must be unique within the administrative domain.

The SAID is documented in 802.10. When the **no** form is used, the VLAN’s SAID is returned to the default settings.

When you define the *said-value*, the name must be unique within the administrative domain.

The **bridge** *bridge-number* argument is used only for Token Ring-net and FDDI-net VLANs and is ignored in other VLAN types. When the **no** form is used, the VLAN’s source-routing bridge number returns to the default settings.

The parent VLAN resets to the default settings if you delete the parent VLAN or if you enter the **media** keyword to change the VLAN type or the VLAN type of the parent VLAN.

The *tb-vlan1* and *tb-vlan2* are used to configure translational bridge VLANs of a specified VLAN type and are not allowed in other VLAN types. Translational bridge VLANs must be different VLAN types as the affected VLAN; if you specify two VLANs, the two must be different VLAN types.

A translational bridge VLAN resets to the default settings if you delete the translational bridge VLAN or you enter the **media** keyword to change the VLAN type or the VLAN type of the corresponding translational bridge VLAN.

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**Examples**

This example shows how to add a new VLAN with all default parameters to the new VLAN database:

```
Router(vlan)# vlan 2
```

**Note**

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If the VLAN already exists, no action occurs.

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This example shows how to cause the device to add a new VLAN, specify the media type and parent VLAN ID number 3, and set all other parameters to the default settings:

```
Router(vlan)# vlan 2 media ethernet parent 3  
VLAN 2 modified:  
Media type ETHERNET  
Parent VLAN 3
```

This example shows how to delete VLAN 2:

```
Router(vlan)# no vlan 2  
Router(vlan)#
```

This example shows how to return the MTU to the default settings for its type and translational bridging VLANs to the default settings:

```
Router(vlan)# no vlan 2 mtu tb-vlan1 tb-vlan2  
Router(vlan)#
```

---

**Related Commands**

[show vlan](#)

## vlan access-log

To configure the VACL logging properties, including log table size, redirect packet rate, and logging threshold, use the **vlan access-log** command. Use the **no** form of this command to return to the default settings.

```
vlan access-log { {maxflow max-number} | {ratelimit pps} | {threshold pkt-count}}
```

```
no vlan access-log {maxflow | ratelimit | threshold}
```

### Syntax Description

<b>maxflow</b> <i>max-number</i>	Specifies the maximum log table size; valid values are from 0 to 2048. Zero (0) deletes the contents of the log table.
<b>ratelimit</b> <i>pps</i>	Specifies the maximum redirect VACL logging packet rate; valid values are from 0 to 5000.
<b>threshold</b> <i>pkt-count</i>	Specifies the logging update threshold; valid values are from 0 to 2147483647. Zero (0) means that the threshold is not set.

### Defaults

The defaults are as follows:

- The maximum log table size is 500.
- The maximum packet rate is 2000 pps.
- The threshold is not set.

### Command Modes

Global configuration

### Command History

Release	Modification
12.1(8a)EX	Support for this command was introduced on the Catalyst 6500 series switches.

### Usage Guidelines

VACL logging is supported on Catalyst 6500 series switches configured with a Supervisor Engine 2 only.

Due to the rate-limiting function for redirected packets, VACL logging counters may not be accurate.

Only denied IP packets are logged.

When the log table size is full, logging packets from new flows are dropped by software.

Packets that exceed the maximum redirect VACL logging packet rate limit are dropped by hardware.

A logging message is displayed if the flow threshold is reached before the 5-minute interval.

If you do not configure the maximum log table size, maximum packet rate, or threshold, or if you enter the **no** form of the commands, the default values are assumed.

---

**Examples**

This example shows how to set the maximum log table size:

```
Router(config)# vlan access-log maxflow 500  
Router(config)#
```

This example shows how to set the maximum redirect VACL logging packet rate after which packets are dropped:

```
Router(config)# vlan access-log ratelimit 200  
Router(config)#
```

This example shows how to set the logging update threshold:

```
Router(config)# vlan access-log threshold 3500  
Router(config)#
```

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**Related Commands**

[show vlan access-log](#)

# vlan access-map

To create a VLAN access map or enter VLAN access-map command mode, use the **vlan access-map** command. Use the **no** form of this command to remove a mapping sequence or the entire map.

**vlan access-map** *name* [*seq#*]

**no vlan access-map** *name* [*seq#*]

Syntax Description	<i>name</i>	VLAN access-map tag.
	<i>seq#</i>	(Optional) Map sequence number; valid values are 0 to 65535.

**Defaults** This command has no default settings.

**Command Modes** Global configuration

Command History	Release	Modification
	12.1(8a)EX	Support for this command was introduced on the Catalyst 6500 series switches.

**Usage Guidelines**

If you enter the sequence number of an existing map sequence, you enter VLAN access-map mode.

If you do not specify a sequence number, a number is automatically assigned. You can enter one match clause and one action clause per map sequence.

If you enter the **no vlan access-map name** [*seq#*] command without entering a sequence number, the whole map is removed.

Once you enter VLAN access-map mode, the following commands are available:

- **action**—Specify the packet action clause; see the **action** command section.
- **default**—Set a command to its defaults.
- **end**—Exit from configuration mode.
- **exit**—Exit from VLAN access-map configuration mode.
- **match**—Specify the match clause; see the **match** command section.
- **no**—Negate a command or set its defaults.

**Examples**

This example shows how to enter VLAN access-map mode:

```
Router(config)# vlan access-map Bob  
Router(config-access-map)#
```

**Related Commands**

[action](#)  
[match](#)  
[show vlan access-map](#)

# vlan database

To enter VLAN configuration submode, use the **vlan database** command.

**vlan database**

**Syntax Description** This command has no arguments or keywords.

**Defaults** This command has no default settings.

**Command Modes** Privileged EXEC

Command History	Release	Modification
	12.0(7)XE	Support for this command was introduced on the Catalyst 6500 series switches.
	12.1(1)E	Support for this command on the Catalyst 6500 series switches was extended to the 12.1 E release.
	12.1(8a)EX	Equivalent commands to accomplish the <b>vlan</b> subcommand operations were created under the <b>vlan (global configuration mode)</b> and <b>vlan mapping</b> commands. Equivalent commands to accomplish the <b>vtp</b> subcommand operations were created under the commands.

## Usage Guidelines



### Note

If you are running in RPR+ mode, do not perform VLAN configuration in VLAN database mode. Performance problems might occur during configuration synchronization between the active and standby supervisor engines.

Once you are in VLAN configuration submode, you can access the VLAN database editing buffer manipulation commands, including:

- **abort**—Exit mode without applying the changes.
- **apply**—Apply current changes and increment the revision number.
- **exit**—Apply changes, increment the revision number, and exit mode.
- **no**—Negate a command or set its defaults; valid values are **vlan** and **vtp**.
- **reset**—Abandon current changes and reread the current database.
- **show**—Display database information.
- **vlan**—Access subcommands to add, delete, or modify values associated with a single VLAN. For information about the **vlan** subcommands, see the **vlan (VLAN configuration submode)** command.
- **vtp**—Access subcommands to perform VTP administrative functions. For information about the **vtp** subcommands, see the **vtp** command.

---

**Examples**

This example shows how to enter VLAN configuration mode:

```
Router# vlan database  
Router(vlan)#
```

This example shows how to exit VLAN configuration mode without applying changes after you are in VLAN configuration mode:

```
Router(vlan)# abort  
Aborting...  
Router#
```

This example shows how to delete a VLAN after you are in VLAN configuration mode:

```
Router(vlan)# no vlan 100  
Deleting VLAN 100...  
Router(vlan)#
```

This example shows how to turn off pruning after you are in VLAN configuration mode:

```
Router(vlan)# no vtp pruning  
Pruning switched OFF  
Router(vlan)#
```

---

**Related Commands**    [show vlan](#)

# vlan dot1q tag native

To enable dot1q tagging for all VLANs in a trunk, use the **vlan dot1q tag native** command. Use the **no** form of this command to clear the configuration.

**vlan dot1q tag native**

**no vlan dot1q tag native**

**Syntax Description** This command has no arguments or keywords.

**Defaults** Disabled

**Command Modes** Global configuration

Command History	Release	Modification
	12.1(11b)EX	Support for this command was introduced on the Catalyst 6500 series switches.
	12.1(13)E	Support for this command on the Catalyst 6500 series switches was extended to the 12.1 E release.

**Usage Guidelines** The **vlan dot1q tag native** command configures the switch to tag native VLAN traffic and admit only 802.1Q tagged frames on 802.1Q trunks, dropping any untagged traffic, including untagged traffic in the native VLAN.

Follow these configuration guidelines when configuring Layer 2 protocol tunneling:

- On all the service provider edge switches, you must enable spanning tree BPDU filtering on the 802.1Q tunnel ports by entering the **spanning-tree bpdupfilter enable** command.
- Ensure that at least one VLAN is available for native VLAN tagging. If you use all the available VLANs and then enter the **vlan dot1q tag native** command, native VLAN tagging will not be enabled.
- On all the service provider core switches, enter the **vlan dot1q tag native** command to tag native VLAN egress traffic and drop untagged native VLAN ingress traffic.
- On all the customer switches, either enable or disable native VLAN tagging on each switch.



**Note** If this feature is enabled on one switch and disabled on another switch, all traffic is dropped; you must identically configure this feature on each switch.

**Examples**

This example shows how to enable dot1q tagging for all VLANs in a trunk:

```
Router(config)# vlan dot1q tag native  
Router(config)#
```

**Related Commands**

[show vlan dot1q tag native](#)

# vlan filter

To apply a VLAN access map, use the **vlan filter** command. Use the **no** form of this command to clear the VLAN access maps from VLANs or interfaces.

**vlan filter** *map-name* { **vlan-list** *vlan-list* | **interface** *interface number* }

**no vlan filter** *map-name* { **vlan-list** [*vlan-list*] | **interface** [*interface interface-number*] }

## Syntax Description

<i>map-name</i>	VLAN access-map tag.
<i>vlan-list</i>	VLAN list; valid values are from 1 to 4094.
<b>interface</b> <i>interface</i>	Specifies the interface type; valid values are <b>pos</b> , <b>atm</b> , or <b>serial</b> . See the “Usage Guidelines” section for additional information.
<i>interface-number</i>	Interface number; see the “Usage Guidelines” section for additional information.

## Defaults

This command has no default settings.

## Command Modes

Global configuration

## Command History

Release	Modification
12.1(8a)EX	Support for this command was introduced on the Catalyst 6500 series switches.
12.1(11b)EX	The command was changed to support extended-range VLANs and WAN interfaces.
12.1(13)E	Support for this command on the Catalyst 6500 series switches was extended to the 12.1 E release.

## Usage Guidelines

If your system is configured with a Supervisor Engine 1, valid values for *vlan-id* are from 1 to 1005. If your system is configured with a Supervisor Engine 2, valid values for *vlan-id* are from 1 to 4094. Extended-range VLANs are not supported on systems configured with a Supervisor Engine 1.

When configuring an action clause in a VLAN access map, note the following:

- You can apply the VLAN access map to one or more VLANs or WAN interfaces.
- The *vlan-list* parameter can be a single VLAN ID, a list of VLAN IDs, or VLAN ID ranges (*vlan-id-vlan-id*). Multiple entries are separated by “-” (hyphen) or “,” (comma).
- If you delete a WAN interface that has a VACL applied, the VACL configuration on the interface is also removed.

- You can apply only one VLAN access map to each VLAN or WAN interface.
- VACLs applied to VLANs are active only for VLANs with a Layer 3 VLAN interface configured. VACLs applied to VLANs without a Layer 3 VLAN interface are inactive. With Release 12.1(11b)EX and later, applying a VLAN access map to a VLAN without a Layer 3 VLAN interface creates an administratively down Layer 3 VLAN interface to support the VLAN access map. If creation of the Layer 3 VLAN interface fails, the VACL is inactive.

When entering the **no** form of this command, the *vlan-list* parameter is optional (but the keyword **vlan-list** is required). If you do not enter the *vlan-list* parameter, the VACL is removed from all VLANs where the *map-name* is applied.

When entering the **no** form of this command for WAN interfaces, the *interface* parameter is optional (but the keyword **interface** is required). If you do not enter the *interface* parameter, the VACL is removed from interfaces where the *map-name* is applied.

The **vlan filter map-name interface** command accepts only ATM, POS, or serial interface types. If your system is not configured with any of these interface types, the **interface interface interface-number** option is not provided.

The *interface-number* format can be *mod/port* or *slot/port\_adapter/port*; it can include a subinterface or channel group descriptor.

---

### Examples

This example shows how to apply a VLAN access map on VLANs 7 through 9:

```
Router(config)# vlan filter ganymede vlan-list 7-9
Router(config)#
```

---

### Related Commands

[action](#)  
[match](#)  
[show vlan filter](#)

# vlan internal allocation policy

To configure the internal VLAN allocation scheme, use the **vlan internal allocation policy** command. Use the **no** form of this command to return to the default settings.

**vlan internal allocation policy {ascending | descending}**

**no vlan internal allocation policy**

Syntax Description	
<b>ascending</b>	Allocates internal VLANs from 1006 to 4094.
<b>descending</b>	Allocates internal VLANs from 4094 to 1006.

Defaults	
	ascending

Command Modes	
	Global configuration

Command History	Release	Modification
	12.1(13)E	Support for this command was introduced on the Catalyst 6500 series switches.

Usage Guidelines	
	<p>Prior to Release 12.1(11b)EX, internal VLAN allocation was from 4094 and down, not 1006 and up. With Release 12.1(13)E and later releases, you can configure internal VLAN allocation to be from 1006 and up or from 4094 and down.</p> <p>Internal VLANs and user-configured VLANs share the 1006 to 4094 VLAN spaces. A “first come, first served” policy is used in allocating these spaces.</p> <p>The <b>vlan internal allocation policy</b> command allows you to configure the allocation direction of the internal VLAN.</p> <p>During system bootup, internal VLANs required for features in the startup-config file are allocated first. Then user-configured VLANs in the startup-config file are configured. If you configure a VLAN that conflicts with an existing internal VLAN, the VLAN you configured is put into a nonoperational status until the internal VLAN is freed and becomes available.</p> <p>After you enter the <b>write mem</b> command and the system reloads, the reconfigured allocation scheme is used by the port manager.</p>

---

**Examples**

This example shows how to configure VLANs in a descending order as the internal VLAN allocation policy:

```
Router(config)# vlan internal allocation policy descending  
Router(config)#
```

---

**Related Commands**

[show cwan](#)  
[show vlan internal usage](#)

# vlan mapping

To map an 802.1Q VLAN to an ISL VLAN, use the **vlan mapping** command. Use the **no** form of this command to remove a specified mapping or all 802.1Q VLAN to ISL VLAN mappings.

```
vlan mapping {dot1q dot1q-vlan-id} {isl isl-vlan-id}
```

```
no vlan mapping {dot1q dot1q-vlan-id | all}
```

## Syntax Description

<b>dot1q</b> <i>dot1q-vlan-id</i>	Specifies the VLAN ID number of the 802.1Q VLAN from which the mapping occurs as traffic leaves and enters 802.1Q trunks on the local device; valid values are from 1 to 4094.
<b>isl</b> <i>isl-vlan-id</i>	Specifies the VLAN ID of the ISL VLAN onto which the mapping occurs as traffic leaves and enters 802.1Q trunks on the local device. Also, the VLAN ID number of the 802.1Q VLAN for which to discard traffic as it arrives at a local device; valid values are from 1 to 4094.
<b>all</b>	Removes all 802.1Q VLAN to ISL VLAN mappings.

## Defaults

The default for 802.1Q VLAN IDs 1 to 4094 is an identity mapping.

## Command Modes

Global configuration

## Command History

Release	Modification
12.0(7)XE	Support for this command was introduced on the Catalyst 6500 series switches.
12.1(1)E	Support for this command on the Catalyst 6500 series switches was extended to the 12.1 E release.
12.1(11b)EX	The command was changed to support extended-range VLANs.

## Usage Guidelines

VLAN 1 parameters are factory configured and cannot be changed.

You can map up to eight VLANs. You can map only one 802.1Q VLAN to an ISL VLAN. For example, if 802.1Q VLAN 800 has been automatically mapped to ISL VLAN 800, do not manually map any other 802.1Q VLANs to ISL VLAN 800.

You cannot overwrite existing 802.1Q VLAN mapping. If the 802.1Q VLAN number already exists, the command is aborted. You must first clear that mapping.

If the table is full, the command is aborted with an error message indicating the table is full.

---

**Examples**

This example shows how to map traffic arriving on 802.1Q trunks on VLAN 1001 to ISL VLAN 888 on the local device, discard traffic arriving on 802.1Q trunks on VLAN 888, and map traffic on ISL VLAN 888 on the local device to 802.1Q VLAN 1001 as it leaves the device:

```
Router(config)# vlan mapping dot1q 1001 isl 888  
Router(config)#
```

This example shows how to clear the mapping of 802.1Q VLAN 1001 to ISL VLAN 888. The result is that 802.1Q VLAN 1001 traffic is discarded when it arrives on the local device and 802.1Q VLAN 888 traffic is mapped to ISL VLAN 888 (both are their default states):

```
Router(config)# no vlan mapping dot1q 1001  
No mapping for 1022  
Router(config)#
```

---

**Related Commands**

[show vlan](#)  
[vlan \(VLAN configuration submode\)](#)  
[vlan database](#)

## vtp

To configure the global VTP state, use the **vtp** command. Use the **no** form of this command to return to the default settings.

```

vtp { domain domain-name }

vtp { file filename }

vtp { interface interface-name } [only]

vtp { mode { client | server | transparent } }

vtp { password password-value }

vtp pruning

vtp { version { 1 | 2 } }

```

Syntax Description		
<b>domain</b> <i>domain-name</i>	Sets the VTP administrative domain name.	
<b>file</b> <i>filename</i>	Sets the ASCII name of the IFS file system file where the VTP configuration is stored.	
<b>interface</b> <i>interface-name</i>	Sets the name of the preferred source for the VTP updater ID for this device.	
<b>only</b>	(Optional) Specifies to use only this interface's IP address as the VTP IP updater address.	
<b>mode client</b>	Sets the type of VTP device mode to client mode.	
<b>mode server</b>	Sets the type of VTP device mode to server mode.	
<b>mode transparent</b>	Sets the type of VTP device mode to transparent mode.	
<b>password</b> <i>password-value</i>	Specifies the administrative domain password.	
<b>pruning</b>	Enables the administrative domain to permit pruning.	
<b>version 1   2</b>	Specifies the administrative domain VTP version number.	

### Defaults

The defaults are as follows:

- **vtp domain** and **vtp interface** commands have no default settings.
- The default *filename* is **const-nvram:vlan.dat**.
- The VTP mode default is server mode.
- No password is configured.
- Pruning is disabled.
- Version 1 is the default.

**Command Modes** Global configuration mode

Command History	Release	Modification
	12.0(7)XE	Support for this command was introduced on the Catalyst 6500 series switches.
	12.1(1)E	Support for this command on the Catalyst 6500 series switches was extended to the 12.1 E release.
	12.1(11b)E	This command was removed from the VLAN submode and moved to the global configuration mode.
	12.1(13)E	The <b>vtp pruning</b> , <b>vtp password</b> , and <b>vtp version</b> commands were deprecated in the privileged EXEC mode and moved to the global configuration mode.
	12.1(13)E10	Supervisor engine redundancy does not support nondefault VLAN data file names or locations.

### Usage Guidelines



#### Note

The **vtp pruning**, **vtp password**, and **vtp version** commands are also available in privileged EXEC mode. We recommend that you use these commands in global configuration mode only; do not use these commands in privileged EXEC mode.

Extended-range VLANs are not supported by VTP.

When you define the *domain-name*, the domain name is case sensitive and can be from 1 to 32 characters.

The *filename* and *interface-name* are ASCII strings from 1 to 255 characters.



#### Note

In a redundant supervisor engine system running in RPR or RPR+ mode, if you use the **vtp {file filename}** command to move the VTP configuration file to a nondefault location, the VTP file in the new location will not synchronize to the standby supervisor engine. The default location in the Catalyst 6500 series switch is `const_nvram:vlan.dat`.

If you have moved the VTP configuration file to a nondefault location, enter the **no vtp file** command on the active supervisor engine to return the VTP configuration file to default location, and then reload the standby supervisor engine to bring it online.

You must configure a password on each network device in the management domain when you are in secure mode.



#### Caution

If you configure VTP in secure mode, the management domain does not function properly if you do not assign a management domain password to each network device in the domain.

A VTP version 2-capable network device can operate in the same VTP domain as a network device running VTP version 1 provided VTP version 2 is disabled on the VTP version 2-capable network device (VTP version 2 is disabled by default).

Do not enable VTP version 2 on a network device unless all of the network devices in the same VTP domain are version 2 capable. When you enable VTP version 2 on a network device, all of the version 2-capable network devices in the domain enable VTP version 2.

In a Token Ring environment, you must enable VTP version 2 for Token Ring VLAN switching to function properly.

Enabling or disabling VTP pruning on a VTP server enables or disables VTP pruning for the entire management domain.

Configuring VLANs as pruning eligible or pruning ineligible on a Catalyst 6500 series switch affects pruning eligibility for those VLANs on that switch only; it does not affect pruning eligibility on all network devices in the VTP domain.

The **vtp password**, **vtp pruning**, and **vtp version** commands are not placed in NVGEN but are included in the VTP transparent-mode startup configuration file.

Extended-range VLANs are not supported by VTP.

You can configure **pruning** in VTP server mode; **version** is configurable in VTP server or transparent mode.

The *password-value* is an ASCII string from 8 to 64 characters identifying the administrative domain for the device.

VTP pruning causes information about each pruning-eligible VLAN to be removed from VTP updates if there are no stations belonging to that VLAN.

All Catalyst 6500 series switches in a VTP domain must run the same version of VTP. VTP version 1 and VTP version 2 do not operate on Catalyst 6500 series switches in the same VTP domain.

If all Catalyst 6500 series switches in a domain are VTP version 2-capable, you only need to enable VTP version 2 on one Catalyst 6500 series switch; the version number is then propagated to the other version 2-capable Catalyst 6500 series switches in the VTP domain.

If you toggle the version 2 mode, certain default VLAN parameters are modified.

## Examples

This example shows how to set the device's management domain:

```
Router(config)# vtp domain DomainChandon
Router(config)#
```

This example shows how to specify the IFS file system file where VTP configuration is stored:

```
Router(config)# vtp file vtpconfig
Setting device to store VLAN database at filename vtpconfig.
Router(config)#
```

This example shows how to set the VTP mode to client:

```
Router(config)# vtp mode client
Setting device to VTP CLIENT mode.
Router(config)#
```

## Related Commands

[show vtp](#)

# wrr-queue bandwidth

To allocate bandwidth between standard transmit queue 1 (low priority) and standard transmit queue 2 (high priority), use the **wrr-queue bandwidth** command. Use the **no** form of this command to return to the default settings.

```
wrr-queue bandwidth weight-1 weight-2 [weight-3]
```

```
no wrr-queue bandwidth
```

## Syntax Description

*weight-1 weight-2* WRR weights; valid values are from 1 to 255.  
[*weight-3*]

## Defaults

These are the defaults:

- QoS enabled—4:255
- QoS disabled—255:1

## Command Modes

Interface configuration

## Command History

Release	Modification
12.0(7)XE	Support for this command was introduced on the Catalyst 6500 series switches.
12.1(1)E	Support for this command on the Catalyst 6500 series switches was extended to the 12.1 E release.
12.1(8a)E	This command was changed to support up to 3 queue weights.

## Usage Guidelines

WRR allows bandwidth sharing at the egress port. This command defines the bandwidths for egress WRR through scheduling weights. Four queues participate in the WRR unless you enable the egress expedite queue. The expedite queue is a strict-priority queue that is used until it is empty before using one of the WRR queues.

There is no order of dependencies for the **wrr-queue bandwidth** command. If you enable the egress priority, the weight ratio is calculated with the first three parameters; otherwise, all four parameters are used.

The WRR weights are used to partition the bandwidth between the queues in the event all queues are nonempty. For example, entering weights of 1:3 means that one queue gets 25 percent of the bandwidth and the other queue gets 75 percent as long as both queues have data.

Entering weights of 1:3 do not necessarily lead to the same results as entering weights at 10:30. Weights at 10:30 mean that more data is serviced from each queue and the latency of packets being serviced from the other queue goes up. You should set the weights so that at least one packet (maximum size) can be serviced from the lower priority queue at a time. For the higher priority queue, set the weights so that multiple packets are serviced at any one time.

**wrr-queue bandwidth****Examples**

This example shows how to allocate a three-to-one bandwidth ratio:

```
Router(config-if)# wrr-queue bandwidth 3 1  
Router(config-if)#
```

**Related Commands**

[show queueing interface](#)  
[wrr-queue queue-limit](#)