



VLAN Range

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The VLAN Range feature allows you to organize VLAN subinterfaces into groups (or ranges) so that any commands applied to the group can also apply to each subinterface within the group.

Finding Feature Information

Your software release may not support all the features documented in this module. For the latest feature information and caveats, see the release notes for your platform and software release. To find information about the features documented in this module, and to see a list of the releases in which each feature is supported, see the [“Feature Information for the VLAN Range Feature”](#) section on page 8.

Use Cisco Feature Navigator to find information about platform support and Cisco IOS and Catalyst OS software image support. To access Cisco Feature Navigator, go to <http://www.cisco.com/go/cfn>. An account on Cisco.com is not required.

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Restrictions for the VLAN Range Feature

- Each command you enter while you are in interface configuration mode with the **interface range** command is executed as you enter the command. The commands are not grouped together for execution after you exit interface configuration mode. If you exit interface configuration mode while the commands are being executed, some commands might not be executed on some interfaces in the range. Wait until the command prompt reappears before exiting interface configuration mode.
- The **no interface range** command is not supported. You must delete individual subinterfaces to delete a range.

Information About the VLAN Range Feature

Before configuring the VLAN Range feature, you should be familiar with the following concepts.

- [Virtual Local Area Network Definition, page 2](#)
- [Benefits of the VLAN Range Feature, page 2](#)

Virtual Local Area Network Definition

A virtual local area network (VLAN) is a switched network that is logically segmented on an organizational basis, by functions, project teams, or applications rather than on a physical or geographical basis. For example, all workstations and servers used by a particular workgroup team can be connected to the same VLAN, regardless of their physical connections to the network or whether they are intermingled with other teams. Reconfiguration of the network can be done through software rather than by physically unplugging and moving devices or wires.

A VLAN can be thought of as a broadcast domain that exists within a defined set of switches. A VLAN consists of a number of end systems, either hosts or network equipment (such as bridges and routers), connected by a single bridging domain. The bridging domain is supported on various pieces of network equipment; for example, LAN switches that operate bridging protocols between them with a separate bridge group for each VLAN.

VLANs are created to provide the segmentation services traditionally provided by routers in LAN configurations. VLANs address scalability, security, and network management issues. Routers in VLAN topologies provide broadcast filtering, security, address summarization, and traffic flow management. The switches within the defined group will not bridge any frames, not even broadcast frames, between two VLANs.

For more information about VLANs, see the [“Configuring Routing Between VLANs”](#) module.

Benefits of the VLAN Range Feature

The VLAN Range feature provides the following benefits:

- Simultaneous configurations
Identical commands can be entered once for a range of subinterfaces, rather than being entered separately for each subinterface.
- Overlapping range configurations
Overlapping ranges of subinterfaces can be configured.

- Customized subinterfaces
Individual subinterfaces within a range can be customized or deleted.

How to Configure the VLAN Range Feature

This section contains the following procedures:

- [Configuring a Range of VLAN Subinterfaces](#) (Required)
- [Verifying the VLAN Range Configuration, page 4](#) (Optional)

Configuring a Range of VLAN Subinterfaces

To configure a range of VLAN subinterfaces, perform the following steps.

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **interface range** {**fastethernet** *number - number* | **gigabitethernet** *number - number* | **loopback** *number* | **tunnel** *number* | **port-channel** *number* | **vlan** *number* | **macro** *word*}
4. **encapsulation dot1Q** *vlan-id*
5. **end**

DETAILED STEPS

	Command or Action	Purpose
Step 1	enable Example: Router> enable	Enables privileged EXEC mode. <ul style="list-style-type: none"> • Enter your password if prompted.
Step 2	configure terminal Example: Router# configure terminal	Enters global configuration mode.
Step 3	interface range { fastethernet <i>number - number</i> gigabitethernet <i>number - number</i> loopback <i>number</i> tunnel <i>number</i> port-channel <i>number</i> vlan <i>number</i> macro <i>word</i> } Example: Router(config)# interface range fastethernet 1 - 5	Selects the range of subinterfaces to be configured and enters interface range configuration mode. <ul style="list-style-type: none"> • Enter the range of subinterfaces to be configured. <p>Note The spaces around the dash are required. For example, the command interface range fastethernet 1 - 5 is valid; the command interface range fastethernet 1-5 is not valid.</p>

	Command or Action	Purpose
Step 4	<p><code>encapsulation dot1q vlan-id</code></p> <p>Example: Router(config-int-range)# encapsulation dot1q 101</p>	<p>Applies a unique VLAN ID to each subinterface within the range.</p> <ul style="list-style-type: none"> Enter the unique VLAN ID. The allowed range is from 1 to 4095 <p>Note The VLAN ID specified by the <i>vlan-id</i> argument is applied to the first subinterface in the range. Each subsequent interface is assigned a VLAN ID, which is the specified <i>vlan-id</i> plus the subinterface number minus the first subinterface number (VLAN ID + subinterface number – first subinterface number).</p>
Step 5	<p><code>end</code></p> <p>Example: Router(config-int-range)# end</p>	Exits global configuration mode.

Verifying the VLAN Range Configuration

To verify the VLAN Range configuration, perform the following steps.

SUMMARY STEPS

1. `enable`
2. `show running-config`
3. `show interfaces`
4. `end`

DETAILED STEPS

	Command or Action	Purpose
Step 1	<p><code>enable</code></p> <p>Example: Router> enable</p>	<p>Enables privileged EXEC mode.</p> <ul style="list-style-type: none"> Enter your password if prompted.
Step 2	<p><code>show running-config</code></p> <p>Example: Router# show running-config</p>	Displays the contents of the current running configuration file or the configuration for a specific module, Layer 2 VLAN, class map, interface, map class, policy map, or virtual circuit (VC) class.

	Command or Action	Purpose
Step 3	show interfaces Example: Router# show interfaces	Displays statistics for all interfaces configured on the router or access server.
Step 4	end Example: Router# end	Exits privileged EXEC mode.

VLAN Range Configuration Examples

This section provides the following configuration example:

- [VLAN Range Configuration: Example, page 5](#)

VLAN Range Configuration: Example

The following is a sample VLAN range configuration. This sample configures Fast Ethernet subinterfaces within the range 5/1.1 and 5/1.4 and applies the following VLAN IDs to those subinterfaces:

- Fast Ethernet5/1.1 = VLAN ID 301 (*vlan-id*)
- Fast Ethernet5/1.2 = VLAN ID 302 (*vlan-id* = 301 + 2 - 1 = 302)
- Fast Ethernet5/1.3 = VLAN ID 303 (*vlan-id* = 301 + 3 - 1 = 303)
- Fast Ethernet5/1.4 = VLAN ID 304 (*vlan-id* = 301 + 4 - 1 = 304)

```
Router(config)# interface range fastethernet5/1.1 - fastethernet5/1.4
Router(config-if)# encapsulation dot1q 301
Router(config-if)# no shutdown
Router(config-if)#
*Oct 6 08:24:35: %LINK-3-UPDOWN: Interface FastEthernet5/1.1, changed state to up
*Oct 6 08:24:35: %LINK-3-UPDOWN: Interface FastEthernet5/1.2, changed state to up
*Oct 6 08:24:35: %LINK-3-UPDOWN: Interface FastEthernet5/1.3, changed state to up
*Oct 6 08:24:35: %LINK-3-UPDOWN: Interface FastEthernet5/1.4, changed state to up
*Oct 6 08:24:36: %LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet5/1.1,
changed state to up
*Oct 6 08:24:36: %LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet5/1.2,
changed state to up
*Oct 6 08:24:36: %LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet5/1.3,
changed state to up
*Oct 6 08:24:36: %LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet5/1.4,
changed state to up
```

Additional References

The following sections provide references related to the VLAN Range feature.

Related Documents

Related Topic	Document Title
IP LAN switching commands: complete command syntax, command mode, defaults, usage guidelines, and examples	Cisco IOS LAN Switching Services Command Reference
VLANs	“Configuring Routing Between VLANs” module
Specifying interface ranges	“Interface Range Specification” module

Standards

Standard	Title
No new or modified standards are supported by this feature, and support for existing standards has not been modified by this feature.	—

MIBs

MIB	MIBs Link
No new or modified MIBs are supported by this feature, and support for existing MIBs has not been modified by this feature.	To locate and download MIBs for selected platforms, Cisco IOS releases, and feature sets, use Cisco MIB Locator found at the following URL: http://www.cisco.com/go/mibs

RFCs

RFC	Title
No new or modified RFCs are supported by this feature, and support for existing RFCs has not been modified by this feature.	—

Technical Assistance

Description	Link
<p>The Cisco Support website provides extensive online resources, including documentation and tools for troubleshooting and resolving technical issues with Cisco products and technologies.</p> <p>To receive security and technical information about your products, you can subscribe to various services, such as the Product Alert Tool (accessed from Field Notices), the Cisco Technical Services Newsletter, and Really Simple Syndication (RSS) Feeds.</p> <p>Access to most tools on the Cisco Support website requires a Cisco.com user ID and password.</p>	<p>http://www.cisco.com/cisco/web/support/index.html</p>

Feature Information for the VLAN Range Feature

Table 1 lists the release history for this feature.

Not all commands may be available in your Cisco IOS software release. For release information about a specific command, see the command reference documentation.

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Note

Table 1 lists only the Cisco IOS software release that introduced support for a given feature in a given Cisco IOS software release train. Unless noted otherwise, subsequent releases of that Cisco IOS software release train also support that feature.

Table 1 VLAN Range Feature

Feature Name	Releases	Feature Information
VLAN Range	12.2(8)T 12.2(13)T	The VLAN Range feature allows you to organize VLAN subinterfaces into groups (or ranges) so that any commands applied to the group can also apply to each subinterface within the group. The following commands were introduced or modified: interface range, encapsulation dot1q.

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