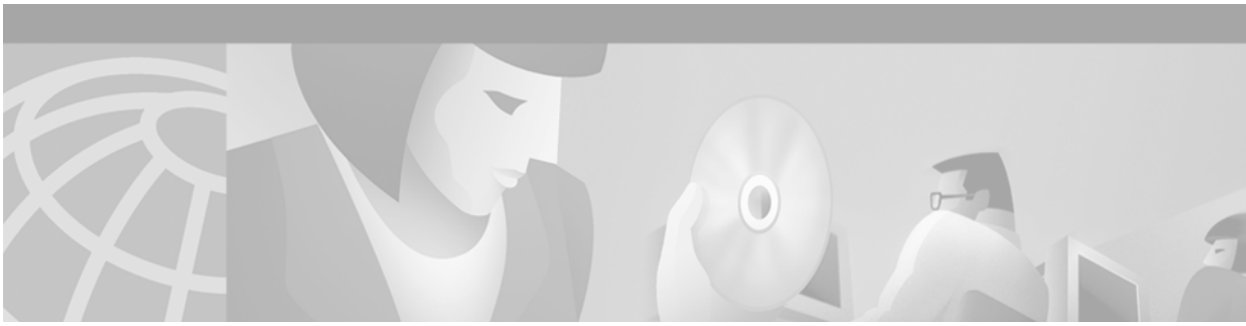

VLAN Range

Feature History

Release	Modification
12.0(7)XE	The **interface range** command was introduced.
12.1(5)T	The **interface range** command was integrated into Cisco IOS Release 12.1(5)T.
12.2(2)DD	The **interface range** command was expanded to enable configuration of subinterfaces.

This feature module describes the VLAN Range feature.

This document includes the following sections:

Feature Overview

Using the VLAN Range feature, you can group VLAN subinterfaces together so that any command entered in a group applies to every subinterface within the group. This simplifies configurations and reduces command parsing.

Benefits

The VLAN Range feature provides the following benefits:

- Identical commands can be entered once for a range of subinterfaces, rather than being entered separately for each subinterface.
- Overlapping ranges of subinterfaces can be configured.
- Individual subinterfaces within a range can be customized or deleted.

Restrictions

- Each command you enter while you are in interface configuration mode with the **interface range** command is executed as it is entered. The commands are not batched together for execution after you exit interface configuration mode. If you exit interface configuration mode while the commands are being executed, some commands may 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.

Related Documents

- *Cisco IOS Wide-Area Networking Configuration Guide*, Release 12.2
- *Cisco IOS Wide-Area Networking Command Reference*, Release 12.2
- *Interface Range Specification*, new feature document for Cisco IOS Release 12.1(5)T.

Supported Platforms

- Cisco 7200 series
- Cisco 7401 ASR router

Platform Support Through Feature Navigator

Cisco IOS software is packaged in feature sets that support specific platforms. To get updated information regarding platform support for this feature, access Feature Navigator. Feature Navigator dynamically updates the list of supported platforms as new platform support is added for the feature.

Feature Navigator is a web-based tool that enables you to quickly determine which Cisco IOS software images support a specific set of features and which features are supported in a specific Cisco IOS image.

To access Feature Navigator, you must have an account on Cisco.com. If you have forgotten or lost your account information, send a blank e-mail to cco-locksmith@cisco.com. An automatic check will verify that your e-mail address is registered with Cisco.com. If the check is successful, account details with a new random password will be e-mailed to you. Qualified users can establish an account on Cisco.com by following the directions at http://www.cisco.com/register.

Feature Navigator is updated when major Cisco IOS software releases and technology releases occur. As of May 2001, Feature Navigator supports M, T, E, S, and ST releases. You can access Feature Navigator at the following URL:

http://www.cisco.com/go/fn

Supported Standards, MIBs, and RFCs

Standards

No new or modified standards are supported by this feature.

MIBs

No new or modified MIBs are supported by this feature.

To obtain lists of supported MIBs by platform and Cisco IOS release, and to download MIB modules, go to the Cisco MIB website on Cisco.com at the following URL:

http://www.cisco.com/public/sw-center/netmgmt/cmtk/mibs.shtml

RFCs

No new or modified RFCs are supported by this feature.

Configuration Tasks

See the following section for the configuration task for the VLAN Range feature.

- Configuring a Range of VLAN Subinterfaces, page 4 (required)

Configuring a Range of VLAN Subinterfaces

To configure a range of VLAN subinterfaces, follow the steps below, beginning in global configuration mode:

	Command	Purpose
Step 1	`Router(config)# interface range {{ethernet | fastethernet | gigabitethernet | atm} slot/interface.subinterface - {{ethernet | fastethernet | gigabitethernet | atm}slot/interface.subinterface}`	Selects the range of subinterfaces to be configured. **Note** The space before the dash is required. For example, the command **interface range fastethernet 1 - 5** is valid; the command **interface range fastethernet 1-5** is not valid.
Step 2	`Router(config-int-range)# encapsulation dot1Q vlan-id`	Applies a unique VLAN ID to each subinterface within the range. *vlan-id*—Virtual LAN identifier. The allowed range is from 1 to 4095. The VLAN ID specified by the *vlan-id* argument is applied to the first subinterface in the range. Each subsequent interface is assigned a VLAN ID which is the specified *vlan-id* plus the subinterface number minus the first subinterface number (VLAN ID + subinterface number - first subinterface number).

Verifying Configuration of a Range of Interfaces

- Enter the **show running-configuration** command to verify subinterface configuration.
- Enter the **show interface** {**ethernet** | **fastethernet** | **gigabitethernet** | **atm**} *slot/interface.subinterface* command to verify that the subinterfaces have been created.

Configuration Examples

This section provides the following configuration example:

- Single Range Configuration Example, page 4

Single Range Configuration Example

The following example configures the 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
```

Command Reference

This section documents modified commands. All other commands used with this feature are documented in the Cisco IOS Release 12.2 command reference publications.

- **interface range**
- **encapsulation dot1q**

interface range

Use the **interface range** command in global configuration mode to execute commands on multiple subinterfaces at the same time.

interface range {{**ethernet** | **fastethernet** | **gigabitethernet** | **atm**} *slot/interface.subinterface* - {{**ethernet** | **fastethernet** | **gigabitethernet** | **atm**}*slot/interface.subinterface*}

Syntax Description

ethernet | **fastethernet** | **gigabitethernet** | **atm**	Specifies the type of subinterface being configured.
slot	Specifies the number of the slot being configured.
interface.subinterface	Creates the specified subinterface if not already configured and includes the specified interface in the subinterface range.

Defaults

No default values or behaviors.

Command Modes

Global configuration

Command History

Release	Modification
12.0(7)XE	This command was introduced.
12.1(5)T	Support for this command was extended to the T train.
12.2(2)DD	This command was expanded to support subinterface ranges.

Usage Guidelines

Subinterfaces specified by the **interface range** command are grouped into a configurable subinterface group. Subinterfaces specified by the **interface range** command, which have not been previously created, are created by the **interface range** command.

The **no interface range** command is not supported. You must delete individual subinterfaces to delete a range.

The commands entered under the **interface range** command are applied to all existing VLANs.

All configuration changes made to a range of subinterfaces are saved to NVRAM, but the range itself does not get saved to NVRAM. Use the **define interface-range** command to create and save a range.

When you define a VLAN range, valid values are from 1 to 4095. The last VLAN number cannot exceed 4095.

Examples

This example shows how to use the interface range command to configure a subinterface range:

```
Router(config)# interface range ethernet1/0.11 - ethernet1/0.60
Router(config-int-range)#
```

encapsulation dot1q

To enable IEEE 802.1Q encapsulation of traffic on a specified subinterface in a VLAN, use the **encapsulation dot1q** command in interface range mode.

encapsulation dot1q *vlan-id* [**native**]

Syntax Description

vlan-id	Virtual LAN identifier. The allowed range is from 1 to 4095.
native	(Optional) Sets the port VLAN ID value of the port to the *vlan-id* value.

Defaults

No default values or behaviors.

Command Modes

Interface range

Command History

Release	Modification
12.0(1)T	This command was introduced.
12.1(3)T	The **native** keyword was added
12.2(2)DD	Configuration of this command in interface range mode was introduced.

Usage Guidelines

IEEE 802.1Q encapsulation is configurable on Fast Ethernet interfaces. IEEE 802.1Q is a standard protocol for interconnecting multiple switches and routers and for defining VLAN topologies.

Use the **encapsulation dot1q** command in interface range mode to apply a VLAN ID to each subinterface within the range specified by the **interface range** command. The VLAN ID specified by the *vlan-id* argument is applied to the first subinterface in the range. Each subsequent interface is assigned a VLAN ID which is the specified *vlan-id* plus the subinterface number minus the first subinterface number (VLAN ID + subinterface number - first subinterface number).

Do not configure encapsulation on the native VLAN of an IEEE 802.1Q trunk without the **native** keyword. (Always use the **native** keyword when *vlan-id* is the ID of the IEEE 802.1Q native VLAN.)

Examples

The following example creates the subinterfaces within the range 0.11 and 0.60 and applies VLAN ID 101 to the Fast Ethernet0/0.11 subinterface, VLAN ID 102 to Fast Ethernet0/0.12 (*vlan-id*=101 + 12 - 11=102) and so on up to VLAN ID 150 to Fast Ethernet0/0.60(*vlan-id*=101 + 60 - 11=150):

```
Router(config)# interface range fastethernet0/0.11 - fastethernet0/0.60
Router(config-int-range)# encapsulation dot1q 101
```

Related Commands

Command	Description
encapsulation isl	Enables the ISL, a Cisco proprietary protocol for interconnecting multiple switches and maintaining VLAN information as traffic goes between switches.
encapsulation sde	Enables IEEE 802.10 traffic encapsulation on a specified subinterface in VLANs.