

Configuring the Layer 3 Fabric Integration Module

This chapter describes how to configure the Catalyst 5000 series Layer 3 fabric integration module.

Note For complete syntax and usage information for the commands used in this chapter, refer to the *Command Reference* for your switch.

Note The Layer 3 fabric integration module requires you perform configuration tasks from the Catalyst 8510 Campus Switch Router (CSR) command-line interface (CLI). This chapter outlines a basic configuration for the module. However, for complete information on configuring Catalyst 8510 CSR interfaces and features, refer to the *Catalyst 8510 CSR Configuration Guide* publication

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- Default Layer 3 Fabric-Integration Module Configuration on page 41-2
- Layer 3 Fabric Integration Hardware and Software Restrictions on page 41-2
- Configuring the Fabric-Integration Module on page 41-3

Understanding How Layer 3 Fabric Integration Works

The Layer 3 fabric integration module seamlessly integrates the Catalyst 5500 switching fabric and the Catalyst 8510 Campus Switch Router (CSR) switching fabric in a Catalyst 5500 chassis.

The module consists of eight external 100BaseFX Fast Ethernet ports and four 100-Mbps internal interfaces that integrate the Catalyst 5500 switching backplane to the Catalyst 8510 CSR switching backplane. The module can be installed in slots 9 through 12 in the Catalyst 5500 switch to bridge the two backplanes.

The eight external Fast Ethernet ports function exactly as any other Catalyst 5000 series 100BaseFX Fast Ethernet MMF ports. When the fabric integration module is installed in slot 9 through 12 of the Catalyst 5500 chassis, these eight ports function normally regardless of whether there is a Catalyst 8510 CSR Switch Route Processor (SRP) installed in slot 13. For complete information on Fast Ethernet port configuration, see Chapter 4, “Configuring Ethernet and Fast Ethernet Switching.”

By default, the four internal interfaces are configured as a Fast EtherChannel InterSwitch Link (ISL) VLAN trunk that provides an 800-Mbps (400-Mbps full-duplex) link between the Catalyst 5500 switch and the Catalyst 8510 CSR switch.

To achieve connectivity between the two switches, you must configure a port-channel interface on the Catalyst 8510 CSR switch and group the four internal interfaces to that port-channel interface. You must then configure subinterfaces on the port-channel interface. Configure a subinterface for each VLAN configured on the Catalyst 5500 switch. For each subinterface, you must specify ISL encapsulation and assign an IP address and subnet mask.

Frames originating on the Catalyst 5000 switch backplane are forwarded across the trunk link to the subinterfaces that you configure. Traffic is routed between VLANs (subinterfaces) as appropriate. Frames originating on the Catalyst 8510 CSR are forwarded across the trunk link to the Catalyst 5500 switch where they are switched as appropriate.

Default Layer 3 Fabric-Integration Module Configuration

The eight external 100BaseFX Fast Ethernet ports of the fabric-integration module (ports 1–8) have the same default configuration as all Catalyst 5000 series Fast Ethernet ports. For information on the Fast Ethernet port default configuration, refer to the “Default Ethernet and Fast Ethernet Configuration” section on page 4-3.

Table 41-1 shows the Catalyst 5500 default configuration for the Layer 3 fabric integration module internal interfaces.

Table 41-1 Catalyst 5500 Default Configuration for Layer 3 Fabric Integration Module Internal Interfaces

Feature	Default Value
Port enable state	All ports enabled
Port name	None
Port priority	Normal
Duplex mode	Full-duplex
Native VLAN	VLAN 1
Port VLAN cost	19
Fast EtherChannel	Enabled (four-port bundle)
Trunking	isl encapsulation, nonegotiate mode
Allowed VLAN range	1–1000

Table 41-2 shows the Catalyst 8510 CSR default configuration for the fabric integration module internal interfaces.

Table 41-2 Catalyst 8510 CSR Default Configuration for Layer 3 Fabric Integration Module Internal Interfaces

Feature	Default Value
Fast EtherChannel	<ul style="list-style-type: none">• No port-channel interfaces configured• No port-channel subinterfaces configured• No internal interfaces assigned to a channel-group

Layer 3 Fabric Integration Hardware and Software Restrictions

These hardware and software restrictions apply when using the Layer-3 fabric integration module:

- You must use Catalyst 5000 series supervisor engine software release 4.3(1) or later on the Catalyst 5000 series switch.
- A Catalyst 8510 CSR Switch-Route Processor (SRP) running Cisco 8510 CSR software release 12.0(0.16)WA5(6) or later must be installed in slot 13 of the Catalyst 5500 switch. If no SRP is installed, the fabric integration module will not function.
- The fabric integration module must be installed in slots 9–12 of the Catalyst 5500 switch chassis.

Configuring the Fabric-Integration Module

These sections describe how to configure the Layer 3 fabric integration module:

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- Configuring the Internal Interfaces from the Catalyst 5000 CLI on page 41-3
- Configuring InterVLAN Routing from the Catalyst 8510 CSR CLI on page 41-4

Configuring the External Fast Ethernet Ports

You can configure the eight external 100BaseFX Fast Ethernet ports on the Layer 3 fabric integration module exactly as you configure any Fast Ethernet port on the Catalyst 5000 series switches.

For information on configuring Fast Ethernet ports, refer to Chapter 4, “Configuring Ethernet and Fast Ethernet Switching.”

Configuring the Internal Interfaces from the Catalyst 5000 CLI



Caution Changing the default configuration of the internal interfaces from the Catalyst 5500 CLI without making the appropriate adjustments from the Catalyst 8510 CSR CLI can cause problems. Make sure that when you make configuration changes to the internal interfaces that you make the proper changes on both the Catalyst 5000 and the Catalyst 8510 CSR.

The default Catalyst 5000 configuration for the four internal interfaces should be adequate for most situations. The interfaces form a full-duplex Fast EtherChannel ISL trunk link between the Catalyst 5500 and the Catalyst 8510 CSR switches.

To change the default configuration for the internal interfaces, see the following sections:

- To change the Fast EtherChannel configuration for the internal interfaces, see Chapter 6, “Configuring Fast EtherChannel and Gigabit EtherChannel.”
- To change the trunking configuration for the internal interfaces, see the “Configuring a Trunk Link” section on page 11-5.

Note The four internal interfaces on the Layer 3 fabric integration module support only ISL encapsulation and the **nonegotiate** and **off** trunk modes. The allowed VLAN range for the internal trunk link is 1–1000 and cannot be modified.

Configuring InterVLAN Routing from the Catalyst 8510 CSR CLI

To configure interVLAN routing on the internal interfaces of the Layer 3 fabric integration module, you must perform these tasks in the order given:

- 1** Connect to the Catalyst 8510 CSR CLI through the console port or a Telnet connection.
- 2** Create a four-port port-channel interface and group the Layer 3 Fabric Integration Module internal interfaces to the port-channel interface. For information on creating and grouping interfaces to a port-channel interface, see “Creating and Grouping Ports to a Port-Channel Interface” section on page 39-10.
- 3** Configure subinterfaces on the port-channel interface, one for each VLAN for which you want to route traffic. The Layer 3 Fabric Integration Module supports only ISL encapsulation. For information on configuring subinterfaces on the port-channel interface, see “Configuring Subinterfaces for IP InterVLAN Routing” section on page 39-11.