Configuring Host Router and Cisco Integrated Storage System Module Interfaces

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To configure the Cisco Integrated Storage System network module after it is installed in your host Cisco Integrated Services Router (ISR), you need to configure the following:

- ISR external interface to an external network link, using the Cisco IOS CLI for setting standard router settings
- ISR internal interface to the Cisco Integrated Storage System module, using the Cisco IOS CLI for setting the network module IP address and default gateway router
- Cisco Integrated Storage System module internal interface to the host router

The following sections describe the tasks required to configure the host router and Cisco Integrated Storage System module interfaces:

Before Configuring the Cisco Integrated Storage System Interfaces

Complete the following prerequisites for the ISR, the Cisco Integrated Storage System module, and file server before you attempt to configure the module:

Cisco ISR Prerequisites

- Check the latest release notes (see the *Release Notes for the Cisco Video Management and Storage System*) to ensure that your Cisco router is running the appropriate Cisco IOS release and recognizes the Cisco Integrated Storage System module.

Note After minimum release requirements are met, you can change the image either on the host router or on the Cisco Integrated Storage System module, without affecting the other image.

Network Module Prerequisites

- If it was not already installed at the factory, install the Cisco Integrated Storage System network module into the host router with sufficient physical memory, depending on the model number, to accommodate the Cisco Integrated Storage System application software. For detailed information on physical memory and hardware installation, see *Cisco 2800 Series Hardware Installation*.
- If you need to swap out the Cisco Integrated Storage System module:
  - Before swapping out a module in an existing system, back up your configuration using the procedures described in the *Cisco Video Management and Storage System CLI Administrator Guide*.
  - Press the SHUTDOWN button on the network module faceplate *for less than 2 seconds* to perform a graceful shutdown of the network module before removing power from the router or before starting and online insertion and removal (OIR) sequence on the router. The application may take up to 2 minutes to fully shut down.

Caution If you press the SHUTDOWN button *for more than 4 seconds*, a nongraceful shutdown of the hard disk will occur and may corrupt files on the network module's disk drive. After a nongraceful shutdown, the HD and SYS LEDs remain lit. Press the SHUTDOWN button *for less than 2 seconds* to gracefully reboot the network module.

  - After the swap, restore the data.

Note For more information, see the "Verifying System Status" section on page 15.

- Note the Cisco Integrated Storage System module location in the host router:
  - *slot*: Number of the host router chassis slot for the module. After you install the module, you can obtain this information by using the router **show running-config** command.
  - *unit*: Number of the daughter card on the module. This value should be 0.

Note You need this information for the "Interface Configuration Tasks" section on page 7 and the "Opening and Closing a Network Module Session" section on page 10.

File Server Prerequisites

- If you need to download a new image, you will need to access a File Transfer Protocol (FTP) or Trivial File Transfer Protocol (TFTP) server. To verify that your download FTP or TFTP file server is accessible, see the *Cisco Integrated Storage System Installation and Upgrade Guide*.
- Verify that the Cisco Integrated Storage System module software is accessible by first accessing the Cisco IOS command-line interface (CLI).

Entering and Exiting the Command Environment

The Cisco Integrated Storage System user EXEC, privileged EXEC, and configuration command modes are similar to the user EXEC, privileged EXEC, and configuration modes for Cisco IOS CLI commands. The description for each command in this section indicates the command mode.

This section provides the procedures for entering and exiting the command environment, in which the Cisco Integrated Storage System module configuration commands are executed. See the following sections for the procedures:

- Entering the Command Environment, page 5
- Exiting the Command Environment, page 6

Entering the Command Environment

When the Cisco Integrated Storage System module has been installed and is active, use the following procedure to enter the command environment.

Prerequisites

The following information is required for entering the command environment:

- IP address of the Cisco ISR that contains the Cisco Integrated Storage System module
- Username and password for logging in to the router
- Slot number of the module

SUMMARY STEPS

1. Open a console or Telnet session.
2. **telnet** *ip-address*
3. Enter the user ID and password of the router.
4. **service-module integrated-service-engine** *slot/port* **session**
5. (Optional) **enable**

DETAILED STEPS

	Command or Action	Purpose
Step 1	Open a console or Telnet session.	Connect to the console port or use a Microsoft Windows command prompt window, a secure shell, or a software emulation tool such as Attachmate Reflection.
Step 2	**telnet** *ip-address*, or Connect to the router and start a session. **Example:** `C:\>telnet 172.16.231.195`	Specify the IP address of the router at the Telnet prompt, or Connect the router to a PC or other DTE (Data Terminal Equipment) device and start a session.
Step 3	`Enter the` `Username: userid and` `Password: password.`	Enter your user ID and password for the router.
Step 4	**service-module integrated-service-engine** *slot/port* **session** **Example:** `Router> service-module integrated-service-engine 1/0 session` `iss-10-0-0-0>`	From the router, enter the Cisco Integrated Storage System module command environment by using the module located in the *slot* number and *port* number. The prompt changes to the service module prompt. **Note** If the message `"Trying ip-address slot/port ..."` `Connection refused by remote host` appears, enter the command **service-module integrated-service-engine** *slot/port* **session clear** and repeat Step 4.
Step 5	**enable** **Example:** `iss-10-0-0-0> enable` `iss-10-0-0-0#`	(Optional) Enters Cisco Integrated Storage System user EXEC mode. You can begin configuring the network module.

Exiting the Command Environment

To leave the Cisco Integrated Storage System module command environment and return to the ISR command environment, return to the Cisco Integrated Storage System EXEC mode and enter the **exit** command twice, or enter **Alt-Ctrl-6**, and then enter **x**.

The following example shows the exit procedure:

```
iss-10-0-0-0# exit
iss-10-0-0-0> exit
Router#
```

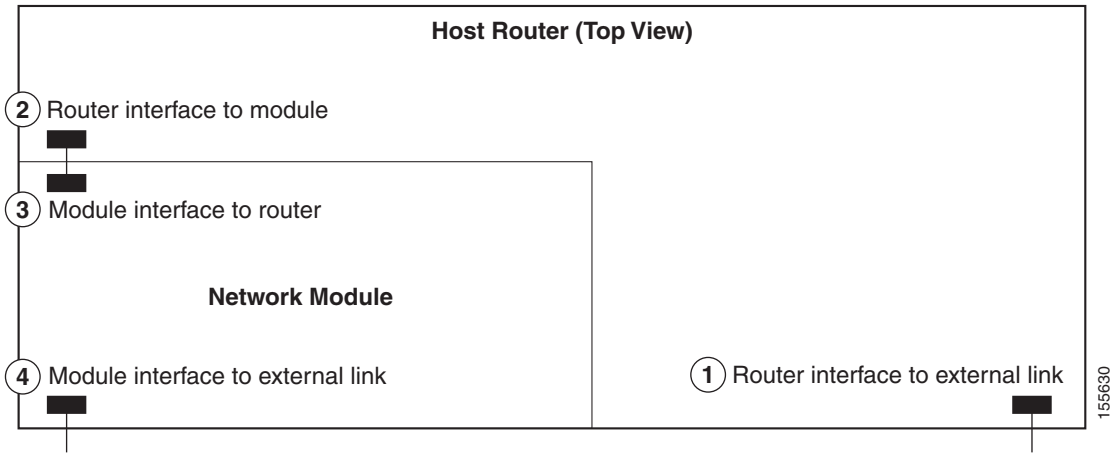
or

```
iss-10-0-0-0# Alt-Ctrl-6, x
```

Configuring Interfaces

The host router and the Cisco Integrated Storage System module use several interfaces for internal and external communication (see Figure 1). Each interface is configurable from the router by using the Cisco IOS CLI.

Figure 1 Router and Cisco Integrated Storage System Network Module Interfaces



	On This Hardware Interface...	Configure These Settings...	Using This Configuration Interface
Step 1	Host router interface to external link	Standard router settings	Host router Cisco IOS CLI
Step 2	Host router interface to the Cisco Integrated Storage System module	Cisco Integrated Storage System network module IP address and default gateway router	
Step 3	Cisco Integrated Storage System module interface to host router	All other Cisco Integrated Storage System module application settings	Cisco Integrated Storage System module CLI

The following sections provide the procedures for configuring the host router and network module interfaces:

- Interface Configuration Tasks, page 7
- Opening and Closing a Network Module Session, page 10

Interface Configuration Tasks

The first configuration task is to set up the Cisco Integrated Storage System module interface to the host router and to its external links. This enables access to the module so that you can install and configure the Cisco Integrated Storage System software application.

Steps 1, 2, and 3 open the host router CLI to access the router interface to the Cisco Integrated Storage System module. The remaining steps configure the interface.

Note If you lose power or connection during any of the following procedures, the system usually detects the interruption and tries to recover. If the system fails to recover, fully reinstall the system using the boot helper.

SUMMARY STEPS

From the Host-Router CLI

1. **enable**
2. **configure terminal**
3. **interface integrated-service-engine** *slot*/**0**
4. **ip address** *router-side-ip-address subnet-mask*

   or

   ip unnumbered *type number*
5. **service-module ip address** *module-side-ip-address subnet-mask*
6. **service-module external ip address** *external-ip-address subnet-mask*
7. **service-module ip default-gateway** *gateway-ip-address*
8. If the **ip unnumbered** *type number* command is used in Step 4, then set **ip route**.
9. **end**
10. **copy running-config startup-config**
11. **show running-config**

DETAILED STEPS

	Command or Action	Purpose
	From the Host-Router CLI	
Step 1	**enable** **Example:** `Router> enable`	Enters privileged EXEC mode on the host router. If prompted, enter your password.
Step 2	**configure terminal** **Example:** `Router# config t`	Enters global configuration mode on the host router.
Step 3	**interface integrated-service-engine** *slot*/**0** **Example:** `Router(config)# interface integrated-service-engine 1/0`	Enters interface configuration mode for the slot number and port number where the Cisco Integrated Storage System module resides. • slot: specifies the module slot • port: specifies the module port number

	Command or Action	Purpose
Step 4	**ip address** *router-side-ip-address subnet-mask* or **ip unnumbered** *if-type number* **Example:** `Router(config-if)# ip address 172.16.153.11 255.255.255.0` or `Router(config-if)# ip unnumbered ethernet 0`	Specifies the router interface to the module. • *router-side-ip-address subnet-mask*—IP address and subnet mask for the host router interface. • *if-type number*—Type and number of another interface on which the router has an assigned IP address. It cannot be another unnumbered interface. Serial interfaces using High Level Data Link Control (HDLC), Point-to-Point Protocol (PPP), Link Access Procedure Balanced (LAPB), Frame Relay encapsulations, Serial Line Internet Protocol (SLIP), and tunnel interfaces can be unnumbered.
Step 5	**service-module ip address** *module-side-ip-address subnet-mask* **Example:** `Router(config-if)# service-module ip address 172.16.153.11 255.255.255.0`	Specifies the IP address for the Cisco Integrated Storage System module interface to the router. • *module-side-ip-address*—IP address for the interface. • *subnet-mask*—Subnet mask to append to the IP address; must be in the same subnet as the host router.
Step 6	**service-module ip default-gateway** *ip-address* **Example:** `Router(config-if)# service-module ip default-gateway 172.16.153.21`	Specifies the IP address for the default gateway as an IP unnumbered interface.
Step 7	**service-module ip default-gateway** *gateway-ip-address* **Example:** `Router(config-if)# service-module ip default-gateway 10.0.0.40`	Specifies the IP address for the default gateway router for the module. • *gateway-ip-address*—IP address for the gateway router.
Step 8	If the **ip unnumbered** *type number* command is used in Step 4, then add a host-specific route to the service module IP address: **ip route** *service-module-ip-address subnet-mask* **integrated-service-engine slot/***0* **Example:** `Router(config-if)# ip route 172.16.153.11 255.255.255.0 integrated-service-engine 1/0`	(Optional) Sets the **ip route** command if the **ip unnumbered** *type number* command is used in Step 4.
Step 9	**end** **Example:** `Router(config-if)# end`	Returns to global configuration mode on the host router.

	Command or Action	Purpose
Step 10	**copy running-config startup-config** **Example:** `Router# copy running-config startup-config`	Saves the new running configuration of the host router as the startup configuration.
Step 11	**show running-config** **Example:** `Router# show running-config`	Displays the running configuration of the host router. Use this command to verify address configurations.

Examples

The following partial sample output from the **show running-config** command shows the interface configurations:

```
interface integrated-service-engine 1/0
 ip address 10.0.0.20 255.255.255.0
 service-module external ip address 172.0.0.30 255.255.0.0
 service-module ip address 10.0.0.21 255.255.255.0
 service-module ip default-gateway 10.0.0.40
```

Opening and Closing a Network Module Session

This section describes how to open and close a session on the Cisco Integrated Storage System module.

The boot helper is a small subset of the system software that runs on the module. It boots the module from the network and assists in software installation, software upgrades, disaster recovery, and other operations when the module cannot access its software.

The application image contains the network module user functionality software. The application image is based on the Cisco Integrated Storage System module software.

Note

- You can conduct only one module session at a time.
- Step 1 and 2 open the host-router CLI and access the module. The remaining steps open a session with the module, configure the module, clears the module session, returning you to the host-router CLI.

SUMMARY STEPS

From the Host-Router CLI

1. **enable**
2. **service-module integrated-service-engine** *slot*/**0 status**
3. **service-module integrated-service-engine** *slot*/**0 session**

From the Service-Module Interface

Network module configuration commands:

4. **Control-Shift-6 x**
   or
5. **exit**

From the Host-Router CLI

6. **service-module integrated-service-engine** *slot*/**0 session clear**

DETAILED STEPS

	Command or Action	Purpose
	From the Host-Router CLI	
Step 1	**enable** **Example:** `Router> enable`	Enters privileged EXEC mode on the host router. If prompted, enter your password.
Step 2	**service-module integrated-service-engine** *slot*/**0 status** **Example:** `Router# service-module integrated-service-engine 2/0 status`	Displays the status of the specified module, so that you can ensure that the module is running (that is, the module is in a steady state). **Note** If the module is not running, start it with one of the startup commands listed in the "Shutting Down and Starting Up the Cisco Integrated Storage System Application" section on page 14.
Step 3	**service-module integrated-service-engine** *slot*/**0 session** **Example:** `Router# service-module integrated-service-engine 1/0 session` `Trying 10.10.10.1, 2065 ... Open`	Begins a module session on the specified module. Do one of the following: • To interrupt the auto-boot sequence and access the boot loader, quickly type ***. • To start a configuration session, press **Enter**.
	From the Service-Module Interface (boot loader prompt or configuration prompt)	
Step 4	. . . **Example (boot loader):** `iss-module boot loader> config` or **Example (configuration):** `iss-module> configure terminal` `iss-module(config)>` . . . `iss-module(config)> exit` `iss-module> write`	Enters boot loader or configuration commands on the module as needed. • Boot loader command choices include **boot**, **config**, **exit**, **help**, **ping**, **reboot**, **show**, and **verify**. or • Configuration command choices are similar to the commands that are available on the router. To access global configuration mode, use the **configure terminal** command. Enter configuration commands. Then exit global configuration mode by using the **exit** command. Save your new configuration by using the **write** command. Notice that you do not use the **enable** command and the prompt does not change from **>**.

	Command or Action	Purpose
Step 5	**Example (boot loader):** Press **Control-Shift-6 x** or **exit** **Example (Configuration):** `iss-module(config)> exit` `iss-module> exit`	Closes the module session and returns to the router CLI. **Note** The module session stays up until you clear it in Step 6. While the session remains up, you can return to it from the router CLI by pressing **Enter**.
	From the Host-Router CLI	
Step 6	**service-module integrated-service-engine** *slot*/**0 session clear** **Example:** `Router# service-module integrated-service-engine 1/0 session clear`	Clears the module session for the specified module. When prompted to confirm this command, press **Enter**.