Cisco Integrated Storage System CLI Administrator Guide

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Cisco Integrated Storage System CLI Administrator Guide

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Cisco Integrated Storage System Enhanced Network Module Overview

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The Cisco Integrated Storage System Module is an enhanced network module that provides additional local disk storage for archives within Cisco Integrated Services Routers (ISRs). The Cisco Integrated Storage System module is supported within the ISR only if there is a Cisco Video Management and Storage System module present in the same ISR. When seeking to increase its video storage capabilities, the Cisco Video Management and Storage System can be configured to connect to of one or more Cisco Integrated Storage System modules within the same ISR. It checks to see if the Cisco Integrated Storage System modules are configured as media devices and whether or not they are fully operational.

For internal and external video storage, the Cisco Video Management and Storage System supports following storage configuration options:

- Archiving only to the local disk of the Cisco Video Management and Storage System
- Archiving only to one Cisco Integrated Storage System modules, which must be located within the same ISR
- Archiving to the local disk and to one Cisco Integrated Storage System modules, which must be located within the same ISR

This guide supports features for version 2.2 and later versions of the Cisco Video Management and Storage network module. To view the product feature history, see the *Release Notes for the Cisco Video Management and Storage System*, which lists feature support for Cisco Integrated Storage System versions.

To provide one video management solution option, the Cisco Integrated Storage System network module can be used in conjunction with the Cisco Analog Video Gateway, which converts analog camera signals into IP-accessible endpoints, and the Cisco Video Management and Storage System, which uses the IP network infrastructure to manage live video, archived video, and video sample retrieval. For more information about configuring the Cisco Analog Video Gateway, see the *Cisco Analog Video Gateway CLI Administrator Guide*. For more information about configuring the Cisco Video Management and Storage System, see the *Cisco Video Management and Storage System CLI Administrator Guide*.

Use the command-line interface (CLI) to configure the Cisco Integrated Storage System software. This guide describes how to use the CLI to configure the software options of the Cisco Integrated Storage System module.

System Application

The Cisco Integrated Storage System software is a Linux-based application (see *Open Source License Notice*) that resides on an integrated services module that plugs into a host Cisco ISR that is running Cisco IOS software.

The Cisco Integrated Storage System module provides extended video storage with its own startup and run-time configurations and its own CLI, all of which are independent of the Cisco IOS configuration on the ISR. The Linux-based software of the module does not have its own console on its front panel but uses the internal virtual console from the host router.

Launch and configure the module through the router by means of a configuration session on the module (see "Opening and Closing a Network Module Session" section on page 10). After the session, the router CLI is displayed, and you can exit and clear the session.

This arrangement—host router plus integrated network storage module—provides a router-integrated application platform for accelerating data-intensive applications.

Applications typically involve:

- Video management and storage
- Analog video gateway
- Application-oriented networking
- Contact centers and interactive-voice-response applications
- Content caching and delivery
- Data and video storage
- Network analysis
- Voice-mail and auto-attendant applications

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#
```

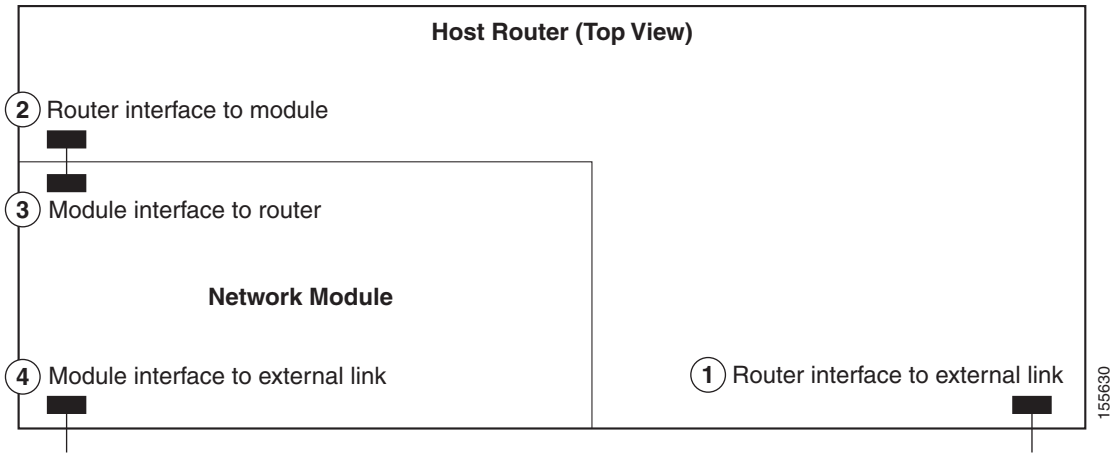
or

```
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**.

Administering the Cisco Integrated Storage System Module

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This chapter contains the following information for administering the Cisco Integrated Storage System module application:

Note

- The tables in these sections list only common router commands and network module commands.
  - To view a complete list of the available configuration commands, enter **?** at the prompt

    Example: `Router(config-if)# ?`
  - To view a complete list of command keyword options, enter **?** at the end of the command

    Example: `Router# service-module integrated-service-engine ?`
- The commands are grouped in the tables by the configuration mode in which they are available. If the same command is available in more than one mode, it can act differently in each mode.

Shutting Down and Starting Up the Cisco Integrated Storage System Application

To start up or shut down the network module or the Cisco Integrated Storage System application that runs on the module, use the **shutdown** and **startup** commands as needed from Table 1.

Note

- Some shutdown commands can potentially disrupt service. If command output for such a command displays a confirmation prompt, confirm by pressing **Enter** or cancel by typing **n** and pressing **Enter**. Alternatively, prevent the prompt from displaying by using the **no-confirm** keyword.
- Some commands shut down the module or application and then immediately restart it.

Table 1 Common Shutdown and Startup Commands

Configuration Mode	Command	Purpose
`Router#`	**service-module integrated-service-engine** *slot*/**0 reload**	Shuts down the module operating system gracefully, and then restarts it from the boot loader.
`Router#`	**service-module integrated-service-engine** *slot*/**0 reset**	Resets the hardware on a module. Use only to recover from shutdown or a failed state. **Caution** Use this command with caution. It does *not* provide an orderly software shutdown, and it can affect file operations that are in progress.
`Router#`	**service-module integrated-service-engine** *slot*/**0 session**	Accesses the specified network module and opens a module configuration session.
`Router#`	**service-module integrated-service-engine** *slot*/**0 shutdown**	Shuts down the module operating system gracefully. Use this command sequence when removing or replacing a hot-swappable module during online insertion and removal (OIR).
`Router#`	**service-module integrated-service-engine** *slot*/**0 status**	Displays configuration and status information for the module hardware and software.
`Router(config)#` `Router(config-if)#`	**interface** *slot*/**0** **shutdown**	Shuts down the network module gracefully.
`iss-module boothelper>`	**boot**	Starts the boot helper or application.
`iss-module(offline)>`	**reload**	Performs a graceful halt and reboot of the module operating system.

Table 1 Common Shutdown and Startup Commands (continued)

Configuration Mode	Command	Purpose
`iss-module>`	**reload**	Shuts down the module gracefully, and then reboots the module from the boot loader.
`iss-module>`	**shutdown**	Shuts down the module application gracefully, and then shuts down the module (see caution under "Network Module Prerequisites" section on page 4)

Verifying System Status

To verify the status of an installation, upgrade, or downgrade, or to troubleshoot problems, use verification and troubleshooting commands as needed from Table 2.

Note Among keyword options for many **show** commands is the provision to display diagnostic output on your screen or to "pipe" it to a file or a URL (that is, to read the output from one command and write it to the file or URL).

Table 2 Common Verification and Troubleshooting Commands

Configuration Mode	Command	Purpose
`Router#`	**ping**	Pings a specified IP address to check network connectivity (does not accept a hostname as destination).
`Router#`	**show arp**	Displays the current Address Resolution Protocol (ARP) table.
`Router#`	**show clock**	Displays the current date and time.
`Router#`	**show configuration**	Displays the current configuration as entered by means of the **configure** command.
`Router#`	**show controllers integrated-service-engine**	Displays interface debug information.
`Router#`	**show diag**	Displays standard Cisco IOS diagnostics information, including information about the Cisco Integrated Storage System module.
`Router#`	**show hardware**	Displays information about network module and host router hardware.
`Router#`	**show hosts**	Displays the default domain name, style of name lookup, list of name-server hosts, and cached list of hostnames and addresses.

Table 2 Common Verification and Troubleshooting Commands (continued)

Configuration Mode	Command	Purpose
Router#	**show interfaces**	Displays information about all hardware interfaces, including network and disk.
Router#	**show interfaces integrated-service-engine**	Displays information about the module side of the router-module interface.
Router#	**show ntp status**	Displays information about Network Time Protocol (NTP).
Router#	**show processes**	Displays a list of the application processes that are running.
Router#	**show running-config**	Displays the configuration commands that are in effect.
Router#	**show startup-config**	Displays the startup configuration.
Router#	**show tech-support**	Displays general information about the host router that is useful to Cisco technical support for problem diagnostics.
Router#	**show version**	Displays information about the router software or network module hardware.
Router#	**test scp ping**	Pings the network module to check network connectivity.
iss-module>	**ping**	Pings a specified IP address to check network connectivity (does not accept a hostname as destination).
iss-module>	**show arp**	Displays the current Address Resolution Protocol (ARP) table.
iss-module>	**show clock**	Displays the current date and time.
iss-module>	**show configuration**	Displays the current boot loader configuration as entered by the **configure** command.
iss-module>	**show interfaces**	Displays information about the network-module interfaces.
iss-module>	**show ntp status**	Displays information about Network Time Protocol (NTP).
iss-module>	**show processes**	Displays a list of the application processes that are running.
iss-module>	**show running-config**	Displays the configuration commands that are in effect.
iss-module>	**show software directory download**	Displays the contents of the downgrade or download directory on the download FTP file server.
iss-module>	**show software download server**	Displays the name and IP address of the configured download FTP file server.

Table 2 Common Verification and Troubleshooting Commands (continued)

Configuration Mode	Command	Purpose
`iss-module>`	**show software licenses**	Displays license information for installed packages.
`iss-module>`	**show software packages**	Displays version information for installed packages.
`iss-module>`	**show software versions**	Displays version information for installed software.
`iss-module>`	**show startup-config**	Displays the startup configuration.
`iss-module>`	**show tech-support**	Displays general information about the network module that is useful for problem diagnosis to Cisco technical support.
`iss-module>`	**show version**	Displays information about the hardware and devices.
`iss-module>`	**software remove**	Removes downloaded files (all files, downloaded package and payloads, or stored downgrade files created during an upgrade).

Diagnostics and Logging Options

Cisco Integrated Storage System diagnostics are of two types:

- System log (syslog)—Syslog is an industry-standard protocol for capturing the following events:
  - Fatal exceptions that cause an application or system crash, during which normal error-handling paths are typically nonfunctional
  - Application run-time errors that cause unusual conditions and configuration changes

  The syslog file size is fixed at 10 MB. Syslog configurations survive a power failure.
- Traces—Trace logs capture events related to the progress of a request through the system.

  Trace logs survive a CPU reset; trace configurations survive a power failure. Log and display these configurations with the **trace** commands.

Note Among the keyword options for many **log** and **trace** commands is the provision to display diagnostic output on your screen or to save it to a file or a URL.

Use the **show errors** command to display error statistics by module, entity, or activity.

SNMP Commands

Table 3 lists and describes the **snmp-server** SNMP command-line interface commands.

Table 3 SNMP Commands

Configuration Mode	Command	Purpose
`iss-module(config)#`	**snmp-server community** *community-string* [**RO** | **RW**] **no snmp-server community** *community-string* [**RO** | **RW**] Example: `iss-module(config)# snmp-server community cisco-snmp RO`	Enables the SNMP agent with the configured case sensitive community string. The password and the mode of access can be set to read-only or read-write. Up to five community strings that can be set for each read-only or read-write category. *community-string*—case sensitive character string with a maximum length of 15 characters. RO—Read-Only access mode. RW—Read-Write access mode. Use the **no** form of this command to remove the configuration associated with the community string. **Note** Even after all community string configurations are removed, you can still have read-only access of MIB variables using the *default* community strings. The default read-only community string is *cisco-snmp*.
`iss-module(config)#`	**snmp-server contact** *contact-name* **no snmp-server contact** *contact-name* Example: `iss-module(config)# snmp-server contact "John Doe"`	Sets or clears the contact name. *contact-name*—character string with a maximum length of 31 characters. Use the **no** form of this command to clear the contact name.

Table 3 SNMP Commands (continued)

Configuration Mode	Command	Purpose
`iss-module(config)#`	**snmp-server enable traps** **no snmp-server enable traps** Example: `iss-module(config)# snmp-server enable traps`	Enables SNMP traps to be sent to the SNMP trap destination. **Note** This command is effective only for certain types of notifications. Not all types of notifications are controlled by this command. Also, this CLI does not control the traps generated from exceeding the system resource thresholds. The only form of notifications enabled (or disabled) by this CLI are the traps generated from syslog messages with severity level greater than or equal to that of warning level. Use the **no** form of this command to disable trap notifications to be sent to the trap destination.
`iss-module(config)#`	**snmp-server host** *ip-address community-string* **no snmp-server host** *ip-address community-string* Example: `iss-module(config)# snmp-server host 1.100.10.219 cisco-snmp`	Configures the IP address of the host that is to receive the trap notifications. The community string must also be specified. Up to a maximum of 5 hosts that can be configured. **Note** The **snmp-server enable traps** command must be executed for the hosts to receive the trap notifications. *ip-address*—IP address (IPv4 only is supported) in dotted decimal notation of the host that is to receive the trap notifications. *community-string*—character string with a maximum length of 15 characters. Use the **no** form of this command to clear the host configuration.
`iss-module(config)#`	**snmp-server location** *location-name* **no snmp-server location** *location-name* Example: `iss-module(config)# snmp-server contact "San Jose"`	Sets or clears the location name. *location-name*—character string with a maximum length of 31 characters. Use the **no** form of this command to clear the location name.

Table 3 SNMP Commands (continued)

Configuration Mode	Command	Purpose
`iss-module(config)#`	**snmp-server monitor disk** *percentage* **no snmp-server monitor disk** *percentage* Example: `iss-module(config)# snmp-server monitor disk 20`	Sets the threshold for monitoring the disk usage for all the disks, including local, NFS, and iSCSI devices. *percentage*—Integer variable in the range of 1 to 30 that represents the percentage of free space within each disk partition. If the free disk space percentage falls below this threshold, the system will generate a trap. Use the **no** form of this command to disable disk monitoring.
`iss-module(config)#`	**snmp-server monitor cpu** *percentage* **no snmp-server monitor cpu** *percentage* Example: `iss-module(config)# snmp-server monitor cpu 10`	Sets the threshold for monitoring the CPU utilization. *percentage*—Number in the range of 0 to 20 that represents the percentage of idle CPU time. This number includes *wait* states. Use the **no** form of this command to disable CPU monitoring
`iss-module(config)#`	**snmp-server monitor swap** *percentage* **no snmp-server monitor swap** *percentage* Example: `iss-module(config)# snmp-server monitor swap 25`	Sets the threshold for monitoring the utilization of swap space. *percentage*—Number from 1 to 50 that represents the percentage of available free swap space. Use the **no** form for this command to disable swap space monitoring.
`iss-module>`	**show snmp configuration**	Displays the configuration of all SNMP commands. It also lists all the resource monitoring threshold configurations.

	Example:
	`iss-module> show snmp configuration`
	`Contact: 1234`
	`Location: SAN JOSE`
	`Community 1 RO: test1`
	`Community 2 RO: test2`
	`Community 3 RO: test3`
	`Community 4 RO: test4`
	`Community 5 RO: test5`
	`Traps: disabled`
	`Host Community 1: 1.100.10.219 cisco-snmp`
	`Host Community 2: 1.100.10.218 cisco-snmp`
	`Host Community 3: 1.100.10.217 cisco-snmp`
	`Host Community 4: 1.100.10.216 cisco-snmp`
	`Host Community 5: 1.100.10.215 cisco-snmp`
	`monitor disk limit: 8`
	`monitor memory limit: 10`
	`monitor cpu limit: 15`
	`iss-module>`	

Additional References

The following sections provide references related to the Cisco Integrated Storage System application.

Related Documents

Related Topic	Document Title
Cisco Integrated Storage System and the Cisco Video Surveillance Solution	• *Release Notes for the Cisco Video Management and Storage System* • *Connecting Cisco Integrated Storage System Enhanced Network Modules to the Network* • *Cisco Integrated Storage System Installation and Upgrade Guide* • *Connecting Cisco Video Management and Storage System Enhanced Network Modules to the Network* • *Cisco Video Management and Storage System Installation and Upgrade Guide* • *Cisco Video Management and Storage System CLI Administrator Guide* • *Connecting Cisco Analog Video Gateway Network Modules to the Network* • *Cisco Analog Video Gateway Installation and Upgrade Guide* • *Cisco Analog Video Gateway CLI Administrator Guide* • *Cisco Analog Video Gateway XML API Guide* • *Open Source License Notice*
Cisco IOS software	*Cisco IOS Software*
Network modules	*Installing Cisco Network Modules in Cisco Access Routers*
Technical documentation, including feedback and assistance	*What's New in Cisco Product Documentation* (including monthly listings of new and revised documents)

Technical Assistance

Description	Link
For information on obtaining documentation, submitting a service request, and gathering additional information, see the monthly *What's New in Cisco Product Documentation*, which also lists all new and revised Cisco technical documentation, at: Subscribe to the *What's New in Cisco Product Documentation* as a Really Simple Syndication (RSS) feed and set content to be delivered directly to your desktop using a reader application. The RSS feeds are a free service and Cisco currently supports RSS version 2.0.	http://www.cisco.com/en/US/docs/general/whatsnew/whatsnew.html
Cisco Feature Navigator website	http://www.cisco.com/go/cfn Use Cisco Feature Navigator to find information about platform support and Cisco IOS and Catalyst OS software image support. An account on Cisco.com is not required.
Cisco Software Center website	http://www.cisco.com/public/sw-center/

Cisco Integrated Storage System Module Command Reference

Last Updated: August 17, 2009

This section documents commands for the Cisco Integrated Storage System module application and new commands for Cisco IOS software:

Cisco Integrated Storage System Module Commands

export mount-point media0

To restrict the NFS client to access only the local disk drive media (media0) of the specified Cisco Video Management and Storage module, use the **export mount-point media0** command.

export mount-point media0 *ip-address*

Syntax Description

ip-address	IP address, in dotted decimal notation, of the Cisco Video Management and Storage module that is permitted to access the ISS module.

Command Default

Local disk drive media is not formatted.

Command Modes

Format storages local configuration mode

Command History

Version	Modification
1.0	This command was introduced.

Usage Guidelines

Because all NFS clients can access this device by default, use of this command is not required unless you want to restrict the Cisco Integrated Storage System module so that it is accessible only by a single Cisco Video Management and Storage module. Using the IP address of Cisco Video Management and Storage module, this command specifies the permissions of an NFS client to access to the media0 device on this Cisco Integrated Storage System module.

The keyword **media0** is the unique string that identifies the hard disk drive on the Cisco Integrated Storage System.

Examples

The following example shows the **export mount-point media0** command used to restrict access to a specific Cisco Video Management and Storage module.

```
iss> conf t
Enter configuration commands, one per line.  End with CNTL/Z.
iss(config)>  export mount-point media0 1.100.30.218
 modified the export information.
iss(config)>
```

format storages

To format the local disk drive media (media0), use the **format storages** command.

format storages *local media0*

Note For the changes to take effect, the media must first be disabled and then reenabled.

Syntax Description

local media0	Local disk drive media (uses unique string identifier: media0) on the Cisco Integrated Storage System network module.

Command Default Local disk drive media is not formatted.

Command Modes Format storages local configuration mode

Command History

Version	Modification
1.0	This command was introduced.

Usage Guidelines The local disk drive media is identified by the unique string identifier *media0*. The Cisco Integrated Storage System module is supported within the ISR only if there is a Cisco Video Management and Storage System module present in the same ISR.

Note Allow approximately five minutes for the 500 GB drive to format the media.

Examples The following example shows the command to format the local disk drive media0. Note the warning message and the two confirmations that you must respond to before an attempt is made to format the device. Only upon the confirmation from the user, will it proceed with the formatting process.

```
iss-module# format storages local media0
!!!WARNING!!!
!!!WARNING!!!  You are about to start a destructive sequence of
!!!WARNING!!!  operations. All data on the storage device media0
!!!WARNING!!!  will be lost and unrecoverable.
!!!WARNING!!!  The device formatting can take up to a few minutes.
!!!WARNING!!!  During formatting, your console is locked and
!!!WARNING!!!  unavailable for use. Before you proceed further, back
!!!WARNING!!!  up the contents of the storage device.
!!!WARNING!!!
!!!WARNING!!!  If you are not sure what to do, answer "no" to the
!!!WARNING!!!  following question and then exit.
!!!WARNING!!!
Do you wish to proceed [y/n]? : y
Are you sure you want to format the device and lose all the data [y/n]? : n
```

Cisco IOS Commands

This section documents new Cisco IOS commands used for accessing the Cisco Integrated Storage System module from the host router.

Use the following commands to access and configure the Cisco Integrated Storage System module from the host router.

- **service-module integrated-service-engine**
- **show controllers integrated-service-engine**
- **show interfaces integrated-service-engine**

service-module integrated-service-engine

To begin a service module session through a console connection, use the **service-module integrated-service-engine** command in privileged EXEC configuration mode.

service-module integrated-service-engine *slot/port* {**password-reset** | **reload** | **reset** | **session** | **shutdown** | **statistics** | **status**}

Syntax Description

slot	Number of the router chassis slot for the network module.
port	Number of the integrated port on the network module. For network modules, always use 0. The slash mark (/) is required between the slot argument and the port argument.
password-reset	Reset of service module password.
reload	Reload of service module.
reset	Hardware reset of the service module.
session	Service module session. Opens a Telnet session that provides the Cisco integrated encoder command-line interface (CLI) from the Cisco IOS interface side.
shutdown	Shutdown of the service module.
statistics	Shows the integrated service module reset statistics.
status	Operational information about the service module.

Command Default

None

Command Modes

Privileged EXEC

Command History

Version	Modification
12.4(11)T	This command was introduced.

Usage Guidelines

Use the **service-module integrated-service-engine** *slot/port* **shutdown** command before you remove the integrated service module from the router.

Removing the integrated encoder without using the proper shutdown sequence can result in corruption of the hard disk. After successful shutdown of the application, the Cisco IOS software displays a message indicating that the network module can be removed.

Only one session at a time is allowed into the network module from the internal network-module-side interface.

After starting a session, you can perform any integrated module configuration task. You first access the console in a user-level shell. To access the privileged EXEC command shell, in which most commands are available, use the **enable** command.

After you finish configuring the module and exit the module console session, clear the session by using the **service-module integrated-service-engine** *slot/port* **session clear** command. At the confirmation prompt, press **Enter** to confirm the action, or press **n** to cancel.

Examples

The following example shows a session being opened for a Cisco Integrated Storage System module in slot 1:

```
Router# service-module integrated-service-engine 1/0 session

Trying 31.0.0.99, 2066 ... Open
iss-module>
```

Related Commands

Command	Description
enable	Enters privileged EXEC mode.
interface	Configures an interface and enters interface configuration mode.
show diag	Displays controller information for a network module.
show interface integrated-service engine	Displays basic interface configuration information for the Cisco Integrated Storage System network module.

show controllers integrated-service-engine

To display controller information for the integrated service module, use the **show controllers integrated-service-engine** command in privileged EXEC mode.

show controllers integrated-service-engine *slot/unit*

Syntax Description

slot	Number of the router chassis slot for the video module.
unit	Number of the video module. For network modules, always use 0. The slash mark (*/*) is required between the slot argument and the unit argument.

Command Default

None

Command Modes

Privileged EXEC

Command History

Version	Modification
12.4(11)T	This command was introduced.

Examples

The following example shows the output from the **show controllers integrated-service-engine** *slot/unit* command:

```
Router# show controllers integrated-Service-Engine 4/0
Interface Integrated-Service-Engine4/0
Application is Cisco Foundation Software 5.0.0-26
Hardware is BCM5703 Gig Ethernet
IDB: 6619ABFC, FASTSEND: 60DD1034, MCI_INDEX: 0

INSTANCE=0x6619BD24
  Rx Ring entries = 512
  Rx Shadow = 0x6619C62C
  Rx Ring = 0x2DFC1C40
  Rx Ring Head = 425
  Rx Ring Last = 424
  Rx Jumbo Ring entries = 256
  Rx Jumbo Shadow = 0x6619CE64
  Rx Jumbo Ring = 0x2DFC5C80
  Rx Jumbo Ring Head = 0
  Rx Jumbo Ring Last = 255
  Rx Return Ring = 0x2DFC9CC0
  Rx Return Ring Head = 937
  Rx Return Ring Last = 936
  Rx STD Ring Shadow (malloc) = 0x6619C62C
  Rx STD Ring (malloc) = 0x2DFC1C40
  Rx JUMBO Ring Shadow (malloc) = 0x6619CE64
  Rx JUMBO Ring (malloc) = 0x2DFC5C80
  Rx Buffer Descr (malloc) = 0x2DFC9CC0
  Tx Ring entries = 512
  Tx Shadow = 0x6619DE9C
  Tx Shadow Head = 409
```

```
  Tx Shadow Tail = 409
  Tx Shadow Tail Last = 408
  Tx Shadow Free = 512
  Tx Ring = 0x2DFD1D00
  Tx Count = 0
  Tx Free = 512
  Tx Buffer Descr = 0x2DFD1D00
  Tx Shadow (malloc) = 0x6619DE9C
  Tx Ring (malloc) = 0x2DFD1D00

Status block and mail_box information
  Status = 0x0, StatusTag = 0xD4
  Status::RcvStdConIdx: 425 , RcvJumboConIdx: 0   , RcvMiniConIdx: 0
  MBOX::RcvStdProdIdx:27  , RcvJumboProdIdx:255 , RcvMiniProdIdx: 0
  Status::Send 0, SendConIdx: 409 , Rx Rtn 0, RcvProdIdx: 937
  mail_box::Send 0,SendHostProdIdx: 69  , Rx Rtn 0,RcvRetConIdx: 27

Rings Status:
 *** RX Entry: 14  , Tx Entry: 1    ***

  RX #  duration  RtnHead  RtnTail ProdHead ProdTail
  [0 ]     2         337      339      337      339
  [1 ]     1         930      931      418      419
  [2 ]     4         339      343      339      343
  [3 ]     1         343      344      343      344
  [4 ]     1         931      932      419      420
  [5 ]     1         932      933      420      421
  [6 ]     1         344      345      344      345
  [7 ]     1         933      934      421      422
  [8 ]     2         345      347      345      347
  [9 ]     1         347      348      347      348
  [10]     1         934      935      422      423
  [11]     1         935      936      423      424
  [12]     3         348      349      348      349
  [13]     1         936      937      424      425
  [14]     7         332      334      332      334
  [15]     1         334      335      334      335
  [16]     3         927      929      415      417
  [17]     1         335      336      335      336
  [18]     1         929      930      417      418
  [19]     3         336      337      336      337

  TX #  duration  Send_head Send_tail
  [0 ]     0         194      195
  [1 ]     0         388      389
  [2 ]     0         181      183
  [3 ]     0         389      392
  [4 ]     0         183      185
  [5 ]     0         392      395
  [6 ]     0         185      187
  [7 ]     0         395      396
  [8 ]     0         187      188
  [9 ]     0         396      398
  [10]     0         398      399
  [11]     0         188      189
  [12]     0         399      402
  [13]     0         402      404
  [14]     0         189      191
  [15]     0         404      405
  [16]     0         191      192
  [17]     0         405      408
  [18]     0         192      194
  [19]     0         408      409
```

```
PCI Register [0x4C800000]
  PCI Msi Control = 0x5
  PCI Msi addr = 0xFFFFFFFE, 0xDEF7FFF8
  PCI MiscHostCtrl = 0x10020098
  PCI DMA Control = 0x763F0000
  PCI PciState = 0x20FE
  PCI clk ctrl = 0xBF
  PCI ModeCtrl = 0x4030034
  PCI MiscCfg = 0x83082
  PCI MiscLocalCtrl = 0x1016F09

Mac Control Register [0x4C800400]
  MAC Mode = 0xE0480C
  Mac Status = 0x4000403
  Mac Event = 0x1000
  Mac Led = 0xC80
  Mac RX MTU = 0x2808
  Mac Tx AutoNeg = 0x0
  MAC Rx AutoNeg = 0x0
  Mac Tx Mode  = 0x52
  Mac Tx Status = 0x8
  Mac Tx Length = 0x2620
  Mac Rx Mode  = 0x406
  Mac Rx Status = 0x0
  Mac Serdes Ctrl = 0x616000
  Mac Serdes Status = 0x2

General Control Register [0x4C806800]
  GCR Mode = 0x4030034, GCR MiscCfg = 0x83082
  GCR LocalCtrl = 0x1016F09, GCR Timer    = 0x3810AB4C
  Buf Mgr Address Space Begin = 0x4C804400
  Buf Mgr Flow Control Low Water Mark Adr = 0x4C804414 Data = 0x130
  Buf Mgr Flow Control High Water Mark Adr = 0x4C804418 Data = 0x17C

Hardware MAC Address Filters
----------------------------
  Hardware Perfect Address Filters
MAC addr[00] = 00-12-80-13-47-B8
MAC addr[01] = 01-00-0C-CC-CC-CC
MAC addr[02] = 01-80-C2-00-00-07
MAC addr[03] = 01-80-C2-00-00-02
MAC addr[04] = 00-00-00-00-00-00
MAC addr[05] = 00-00-00-00-00-00
MAC addr[06] = 00-00-00-00-00-00
MAC addr[07] = 00-00-00-00-00-00
MAC addr[08] = 00-00-00-00-00-00
MAC addr[09] = 00-00-00-00-00-00
MAC addr[10] = 00-00-00-00-00-00
MAC addr[11] = 00-00-00-00-00-00
MAC addr[12] = 00-00-00-00-00-00
MAC addr[13] = 00-00-00-00-00-00
MAC addr[14] = 00-00-00-00-00-00
MAC addr[15] = 00-00-00-00-00-00
  Hardware Multicast Hash Filters
MAC Hash addr[00] = 00000000
MAC Hash addr[01] = 00000000
MAC Hash addr[02] = 00000000
MAC Hash addr[03] = 00000000
  Hardware Receive Rules Filters
Receive Rules Config = 00000008
 Rule:  [00]  = 0x42000000
 Value: [00]  = 0x7FFFFFFF
 Rule:  [01]  = 0x06000004
 Value: [01]  = 0x7FFFFFFF
```

```
 Rule:  [02]  = 0x00000000
 Value: [02]  = 0x00000000
 Rule:  [03]  = 0x00000000
 Value: [03]  = 0x00000000
 Rule:  [04]  = 0x00000000
 Value: [04]  = 0x00000000
 Rule:  [05]  = 0x00000000
 Value: [05]  = 0x00000000
 Rule:  [06]  = 0x00000000
 Value: [06]  = 0x00000000
 Rule:  [07]  = 0x00000000
 Value: [07]  = 0x00000000
 Rule:  [08]  = 0x00000000
 Value: [08]  = 0x00000000
 Rule:  [09]  = 0x00000000
 Value: [09]  = 0x00000000
 Rule:  [10]  = 0x00000000
 Value: [10]  = 0x00000000
 Rule:  [11]  = 0x00000000
 Value: [11]  = 0x00000000
 Rule:  [12]  = 0x00000000
 Value: [12]  = 0x00000000
 Rule:  [13]  = 0x00000000
 Value: [13]  = 0x00000000
 Rule:  [14]  = 0x00000000
 Value: [14]  = 0x00000000
 Rule:  [15]  = 0x00000000
 Value: [15]  = 0x00000000

Software MAC Address Filter (hash:length/addr/mask/hits)
---------------------------------------------------------
  0x000:  0  ffff.ffff.ffff  0000.0000.0000         0
  0x038:  0  0012.8013.47b8  0000.0000.0000         0
  0x0C0:  0  0100.0ccc.cccc  0000.0000.0000         0
  0x0C0:  1  0180.c200.0002  0000.0000.0000         0
  0x0C5:  0  0180.c200.0007  0000.0000.0000         0

  Software filtered frames: 0
  Unicast software filter needed: 0
  Multicast software filter needed: 0
  Promiscuous mode: 0

HARDWARE STATISTICS
  Rx good packets: 99220
  Rx CRC:          0
  Rx alignment:    0
  Rx short:        0

  Tx good frames:        146809
  Tx maxm collisions:    0
  Tx late collisions:    0
  Tx underruns:          0
  Tx lost carrier:       0
  Tx deferred:           0
  Tx single collision:   0
  Tx multiple collision: 0
  Tx total collisions:   0
  -------- HW FLOW CONTROL STATS ---------
  Rx XON PAUSE Frames Received:   0
  Rx XOFF PAUSE Frames Received:   0
  Rx XOFF State Entered:   0
  Tx XON Sent:   0
  Tx XOFF Sent:   0
```

```
INTERRUPT STATISTICS
  CX  = 76355123
  FR  = 78987643
  CNA = 0
  RNR = 0
  MDI = 0
  SWI = 0
  FCP = 0

Full Promiscuous Mode = disabled
Loopback Mode = disabled

I/O Congestion Counters:
     Standard Packet Count : 14860
     Jumbo Packet Count    : 0

I2C Registers:
  AFS - Control Register   : 0x4000D000
  SMBUS Input Register     : 0x0000041B
  SMBUS Output Register    : 0x00004C61
  SMBUS GRC Local Register : 0x01016F09

I2C Error Counter:
  Total I2C Output Errors  : 0
  Total I2C Input Errors   : 0
  I2C Transaction Errors   : 0

Module Reset Statistics:
  CLI reset count = 0
  CLI reload count = 2
  Registration request timeout reset count = 0
  Error recovery timeout reset count = 0
  Module registration count = 19
```

Related Commands

Command	Description
show interfaces integrated-service-engine	Displays basic interface configuration information for the video service module.

show interfaces integrated-service-engine

To display basic interface configuration information for an integrated interface, use the **show interfaces integrated-service-engine** command in user EXEC mode.

show interfaces integrated-service-engine *slot/port*

Syntax Description

slot	Number of the router chassis slot for the Cisco Integrated Storage System module.
port	Number of the integrated Cisco Integrated Storage System module. For network modules, always use 0. The slash mark (/) is required between the *slot* argument and the *port* argument.

Defaults

None

Command Modes

User EXEC

Command History

Version	Modification
12.4(11)T	This command was introduced.

Examples

The following example shows output from the **show interfaces integrated-Service-Engine 1/0** command:

```
Router# show interfaces integrated-service-Engine 4/0
Integrated-Service-Engine4/0 is up, line protocol is up
  Hardware is BCM5703, address is 0012.8013.47b8 (bia 0012.8013.47b8)
  Internet address is 11.0.0.20/24
  MTU 1500 bytes, BW 1000000 Kbit, DLY 10 usec,
     reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation ARPA, loopback not set
  Keepalive not set
  Full-duplex, 1000Mb/s, link type is force-up, media type is internal
  output flow-control is XON, input flow-control is XON
  ARP type: ARPA, ARP Timeout 04:00:00
  Last input 00:00:00, output 00:00:00, output hang never
  Last clearing of "show interface" counters never
  Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 6
  Queueing strategy: fifo
  Output queue: 0/512 (size/max)
  5 minute input rate 58000 bits/sec, 106 packets/sec
  5 minute output rate 1560000 bits/sec, 159 packets/sec
     100598858 packets input, 3481805992 bytes, 0 no buffer
     Received 222 broadcasts, 0 runts, 0 giants, 0 throttles
     0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
     0 watchdog, 0 multicast, 0 pause input
     0 input packets with dribble condition detected
     141669474 packets output, 550374239 bytes, 0 underruns
     0 output errors, 0 collisions, 5 interface resets
     0 babbles, 0 late collision, 0 deferred
```

```
0 lost carrier, 0 no carrier, 0 pause output
0 output buffer failures, 0 output buffers swapped out
```

Related Commands

Command	Description
interface integrated-service-engine	Configures the interface slot and port numbers where the service module resides.

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