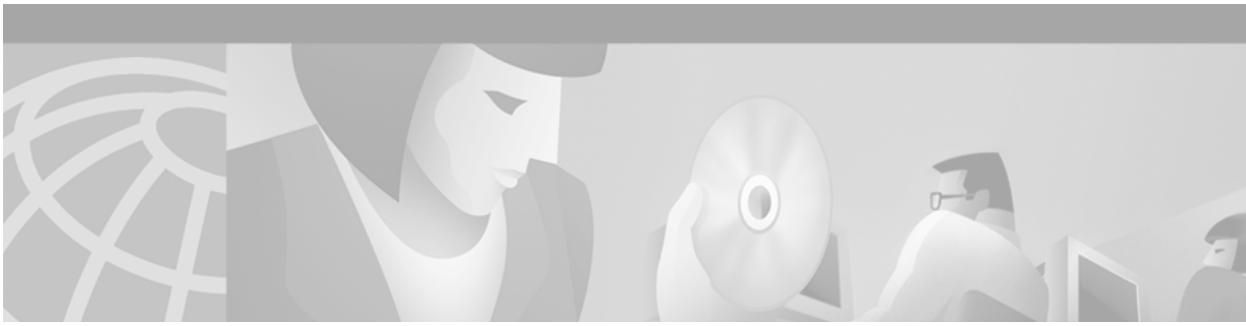

Managing Port Services on the Cisco AS5350, Cisco AS5400, and Cisco AS5800

Feature History

Release	Modification
12.1(1)XD	This feature was introduced on the Cisco AS5400.
12.1(3)T	This feature was integrated into Cisco IOS Release 12.1(3)T and support was added for the Cisco AS5400 and Cisco AS5800.
12.1(5)XM1	Support for the Cisco AS5350 universal gateway was added.
12.2(11)T	This feature was integrated into Cisco IOS Release 12.2(11)T and support was added for the Cisco AS5350 platform.

This feature module describes Managing Port Services on the Cisco AS5350, Cisco AS5400, and Cisco AS5800 platforms. It includes the overview, the maintenance and troubleshooting tasks, and the Cisco IOS software commands required for port service management.

This document includes the following sections:

Feature Overview

The Managing Port Services on the Cisco AS5350, Cisco AS5400, and Cisco AS5800 feature implements port service management for the Cisco AS5350 using the NextPort Dial Feature Card (DFC). The NextPort DFC is a hardware card that processes digital service port technology for the Cisco AS5350. A port is defined as an endpoint on a DFC card through which multiservice tones and

data flow. The ports on the NextPort DFC support both modem and digital services. Ports can be aggregated at the slot level of the NextPort module, the Service Processing Element (SPE) level within the NextPort module, and the individual port level.

SPE for the NextPort Dial Feature Card

Instead of the traditional line/modem one-to-one correspondence, lines are mapped to an SPE that resides on the Cisco AS5350 NextPort DFC. Each SPE provides modem services for six ports. Busyout and shutdown can be configured at the SPE or port level. The NextPort DFC introduces the slot and SPE software hierarchy. On the Cisco AS5350, the hierarchy designation is slot/spe. The NextPort DFC slot is defined as a value between 1 and 7. Slot 0 is reserved for the motherboard. Each NextPort DFC provides 18 SPEs. The SPE value ranges from 0 to 17. Because each SPE has six ports, the NextPort DFC has a total of 108 ports. The port value ranges from 0 to 107.

The NextPort DFC performs the following functions:

- Converts pulse code modulation (PCM) bitstreams to digital packet data.
- Forwards converted and packetized data to the main processor, which examines the data and forwards it to the backhaul egress interface.
- Supports all modem standards (such as V.34 and V.42bis) and features, including dial-in and dial-out.

SPE Firmware

SPE firmware is automatically downloaded to a NextPort DFC from the Cisco AS5350 when you boot the system for the first time, or when you insert a NextPort DFC while the system is operating. When you insert DFCs while the system is operating, the Cisco IOS image recognizes the cards and downloads the required firmware to the cards.

The SPE firmware image is bundled with the universal gateway Cisco IOS image. The SPE firmware image uses an auto detect mechanism, which enables the NextPort DFC to service multiple call types. An SPE detects the call type and automatically configures itself for that operation. For further information on upgrading SPE firmware from the Cisco IOS image, see the "Configuring SPEs to Use an Upgraded Firmware File" section on page 14.

The firmware is upgradable independent of Cisco IOS upgrades, and different firmware versions can be configured to run on SPEs in the same NextPort DFC. You can download firmware from the Cisco.com File Transfer Protocol (FTP) server. For further information on upgrading SPE firmware from the Cisco.com FTP server, see the "Upgrading SPE Firmware from the Cisco.com FTP Server" section on page 3.

Upgrading SPE Firmware from the Cisco.com FTP Server

Upgrading SPE firmware from the Cisco.com FTP server can be done in two steps:

- Downloading SPE Firmware from the Cisco.com FTP Server to a Local TFTP Server, page 3
- Copying the SPE Firmware File from the Local TFTP Server to the SPEs, page 5

Downloading SPE Firmware from the Cisco.com FTP Server to a Local TFTP Server

Note You must be a registered Cisco user to log in to the Cisco Software Center.

You can download software from the Cisco.com FTP server using an Internet browser or using an FTP application. Both procedures are described.

Using an Internet Browser

Step 1 Launch an Internet browser.

Step 2 Bring up the Cisco Software Center home page at the following URL (this is subject to change without notice): http://www.cisco.com/kobayashi/sw-center/

Step 3 Click **Access Products** (under Cisco Software Products) to open the Access Products window.

Step 4 Click **Cisco AS5350 Software**.

Step 5 Click the SPE firmware you want and download it to your workstation or PC. For example, to download SPE firmware for the universal gateway, click **Download Universal Images**.

Step 6 Click the SPE firmware file you want to download, and then follow the remaining download instructions. If you are downloading the SPE firmware file to a PC, make sure that you download the file to the c:/tftpboot directory; otherwise, the download process does not work.

Step 7 When the SPE firmware is downloaded to your workstation, transfer the file to a TFTP server in your LAN using a terminal emulation software application.

Step 8 When the SPE firmware is downloaded to your workstation, transfer the file to a TFTP server somewhere in your LAN, using a terminal emulation software application.

Using an FTP Application

Note The directory path leading to the SPE firmware files on Cisco.com is subject to change without notice. If you cannot access the files using an FTP application, try the Cisco Systems URL http://www.cisco.com/cgi-bin/ibld/all.pl?i=support&c=3.

Step 1 Log in to the Cisco.com FTP server:

```
terminal> ftp Cisco.com
Connected to cio-sys.cisco.com.
```

Step 2 Enter your Cisco.com registered username and password (for example, **harry** and **letmein**):

```
Name (Cisco.com:harry): harry
331 Password required for harry.
Password: <letmein>
230-###############################################################
230-#  Welcome to the Cisco Systems FTP server.
230-#  This server has a number of restrictions.  If you are not familiar
230-#  with these, please first get and read the /README or /README.TXT file.
230-#  http://www.cisco.com/acs/info/cioesd.html for more info.
230-###############################################################
230-
```

Step 3 Specify the directory path that holds the SPE firmware you want to download. For example, the directory path for the Cisco AS5350 SPE firmware is /cisco/access/5350:

```
ftp> cd /cisco/access/5350
250-Please read the file README
250-  it was last modified on Tue May 27 10:07:38 1997 - 48 days ago
250-Please read the file README.txt
250-  it was last modified on Tue May 27 10:07:38 1997 - 48 days ago
250 CWD command successful.
```

Step 4 Enter the **ls** command to view the contents of the directory:

```
ftp> ls
227 Entering Passive Mode (192,31,7,130,218,128)
150 Opening ASCII mode data connection for /bin/ls.
total 2688
drwxr-s--T   2 ftpadmin ftpcio    512 Jun 30 18:11 .
drwxr-sr-t  19 ftpadmin ftpcio    512 Jun 23 10:26 ..
lrwxrwxrwx  1  root     3          10 Aug   6 1996     README ->README.txt
-rw-rw-r--   1 root     ftpcio   2304 May 27 10:07 README.txt
-r--r--r-- 1 ftpadmin ftpint 377112 Jul 10 18:08 np-spe-upw-1.0.1.2.bin
-r--r--r-- 1 ftpadmin ftpint 635 Jul 10 18:08 SPE-firmware.3.1.30.readme
```

Step 5 Specify a binary image transfer:

```
ftp> binary
200 Type set to I.
```

Step 6 Copy the SPE firmware files from the universal gateway to your local environment with the **get** command.

Step 7 Quit your terminal session:

```
ftp> quit
Goodbye.
```

Step 8 Enter the **ls -al** command to verify that you successfully transferred the files to your local directory:

```
server% ls -al
total 596
-r--r--r-- 1 280208 Jul 10 18:08 np-spe-upw-1.0.1.2.bin
server% pwd
/auto/tftpboot
```

Step 9 Transfer these files to a local TFTP or remote copy protocol (RCP) server that your universal gateway or router can access.

Copying the SPE Firmware File from the Local TFTP Server to the SPEs

The procedure for copying the SPE firmware file from your local TFTP server to the NextPort DFC is a two-step process. First, transfer the SPE firmware to the universal gateway's Flash memory. Then, configure the SPEs to use the upgrade firmware. The upgrade occurs automatically, either as you leave configuration mode, or as specified in the configuration.

These two steps are performed only once. After you copy the SPE firmware file into Flash memory for the first time, you should not have to perform these steps again.

Note Because the SPE firmware is configurable for individual SPEs or ranges of SPEs, the Cisco IOS software automatically copies the SPE firmware to each SPE each time the universal gateway restarts.

To transfer SPE firmware to Flash memory, follow these steps to download the universal SPE firmware to Flash memory:

Step 1 Check the image in the universal gateway Flash memory:

```
Router# show flash
System flash directory:
File  Length   Name/status
  1   4530624  c5400-js-mx
 [498776 bytes used, 16278440 available, 16777216 total]
16384K bytes of processor board System flash (Read/Write)
```

Step 2 Enter the **copy tftp flash** command to download the code file from the TFTP server into the universal gateway Flash memory. You are prompted for the download destination and the remote host name.

```
Router# copy tftp flash
```

Step 3 Enter the **show flash** command to verify that the file has been copied into the universal gateway Flash memory:

```
Router# show flash
```

Benefits

- Modem or digital service at the port level, resulting in greater flexibility of network configuration.
- Addressability at the slot, SPE, or port level, resulting in ease and scale of configuration tasks.
- High port density in the platform, resulting in scalability.
- SPE layer buffers the platform architecture from future changes, resulting in advanced port level technology.
- Modular architecture, resulting in ease and economy of maintenance.
- Designed to extend to additional port services, resulting in implementation on other Cisco Universal Gateway platforms.

Related Features and Technologies

- Call Tracker
- Redundant Link Manager
- Resource Pooling
- Virtual Private Digital Network (VPDN)
- In-band signaling/tone generation and detection
  - dual tone multifrequency (DTMF) generation
  - DTMF detection
  - MF generation
  - MF detection
- Point-to-Point Protocols (PPP) and Serial Line Internet Protocol (SLIP) framing

Related Documents

For further information about managing port services with NextPort DFC, see the following documents that ship with your Cisco AS5350 universal gateway. These documents are also available online and on the documentation CD.

- *Cisco AS5350 Universal Gateway Read Me First*
- *Cisco AS5350 Universal Gateway Chassis Installation Guide*
- *Cisco AS5350 Universal Gateway Card Installation Guide*
- *Cisco AS5350 Universal Gateway Software Configuration Guide*
- *Cisco AS5350 Hardware/Cisco IOS Software Compatibility Matrix*
- *Cisco Universal Gateway Regulatory Compliance and Safety Information*

For further information about dial technology, see the following documents:

- *Cisco IOS Dial Services Configuration Guide: Network Services,* Cisco IOS Release 12.1
- *Cisco IOS Dial Services Configuration Guide: Terminal Service*s, Cisco IOS Release 12.1
- *Cisco IOS Dial Services Command Reference,* Cisco IOS Release 12.1

Supported Platforms

- Cisco AS5350
- Cisco AS5400
- Cisco AS5800

Table 1 Cisco IOS Release and Platform Support for this Feature

Platform	12.1(1)XD	12.1(3)T	12.1(5)XM1	12.2(11)T
Cisco AS5350	Not supported	Not supported	X	X

Table 1 Cisco IOS Release and Platform Support for this Feature

Platform	12.1(1)XD	12.1(3)T	12.1(5)XM1	12.2(11)T
Cisco AS5400	X	X	X	X
Cisco AS5800	Not supported	X	X	X

Determining Platform Support Through Cisco 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 Cisco Feature Navigator. Cisco Feature Navigator dynamically updates the list of supported platforms as new platform support is added for the feature.

Cisco Feature Navigator is a web-based tool that enables you to determine which Cisco IOS software images support a specific set of features and which features are supported in a specific Cisco IOS image. You can search by feature or release. Under the release section, you can compare releases side by side to display both the features unique to each software release and the features in common.

To access Cisco 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.

Cisco Feature Navigator is updated regularly when major Cisco IOS software releases and technology releases occur. For the most current information, go to the Cisco Feature Navigator home page at the following URL:

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

Availability of Cisco IOS Software Images

Platform support for particular Cisco IOS software releases is dependent on the availability of the software images for those platforms. Software images for some platforms may be deferred, delayed, or changed without prior notice. For updated information about platform support and availability of software images for each Cisco IOS software release, refer to the online release notes or, if supported, Cisco Feature Navigator.

Supported Standards, MIBs, and RFCs

Standards

Carrier protocols

- ITU V.23 at 75/1200 bps
- Telcordia Technologies (formerly Bellcore) 103 at 300 bps
- ITU V.21 at 300 bps
- ITU V.22 at 1200 bps
- Telcordia Technologies (formerly Bellcore) 212A at 1200 bps
- ITU V.22bis at 2400 bps
- ITU V.32 up to 9600 bps
- ITU V.32bis up to 14,400 bps
- V.32 turbo up to 19,200 bps
- V.FC up to 28,800 bps
- V.34 up to 28,800 bps
- V.34+ up to 33.6 bps
- TIA/ITU V.90
- K56flex

Error-correcting link-access protocols

- V.42 LAPM, MNP 2-4

Compression protocols

- V.42bis (includes MNP 5)

MIBs

The following MIBs are supported on the Cisco AS5350:

- CHASSIS-MIB
- RFC1406-MIB(DS1 MIB)
- RFC1407-MIB(DS3 MIB)
- CISCO-MODEM-MGMT-MIB
- DIAL-CONTROL-MIB
- CISCO-DIAL-CONTROL-MIB
- IF MIB
- MIB II
- ENVMON MIB
- ACCESS-ENVMON MIB
- CISCO-CALL-HISTORY

To obtain lists of MIBs supported by platform and Cisco IOS release and to download MIB modules, go to the Cisco MIB web site on Cisco.com at http://www.cisco.com/public/sw-center/netmgmt/cmtk/mibs.shtml.

RFCs

No new or modified RFCs are supported by this feature.

Prerequisites

- Cisco IOS Release 12.1(5)XM1 or later releases for the Cisco AS5350
- 256–MB memory
- Basic configuration of the Cisco AS5350
- Upgraded firmware
- NextPort DFC installed

Comparison of NextPort SPE Command Line Interface (CLI) Commands to MICA Modem CLI Commands

To see how the MICA commands compare to the NextPort SPE commands, use these tables.

Table 2 EXEC Commands: NextPort to MICA Command Comparison

NextPort SPE CLI Commands	Purpose	MICA Modem CLI Commands
show spe	Shows the SPE status.	**none**
show spe log	Shows the SPE system log.	**none**
show spe modem summary	Shows the modem service history statistics for specific SPEs.	**show modem**
show spe modem active	Shows the statistics of all active calls on specified SPEs.	**show modem**
show spe modem csr	Displays the call success rate (CSR) for the specified CSR.	**show modem**
show spe modem disconnect-reason	Displays all modem disconnect reasons for the specified SPEs.	**show modem call-stats**
show spe modem high speed	Displays the total number of connections negotiated within each modulation or coder-decoder (codec) for a specific range of SPEs.	**show modem speed**
show spe modem high standard	Displays the total number of connections negotiated within each high modulation or codec for a specific range of SPEs or for all the SPEs.	**none**
show spe modem low speed	Displays the connect-speeds negotiated within each low speed modulation or codec for a specific range of SPEs or for all the SPEs.	**show modem speed**
show spe modem low standard	Displays the total number of connections negotiated within each low modulation or codec for a specific range of SPEs or for all the SPEs.	**none**

Table 2 EXEC Commands: NextPort to MICA Command Comparison

NextPort SPE CLI Commands	Purpose	MICA Modem CLI Commands
show spe version	Displays all MICA and NextPort firmware versions stored in Flash memory and the firmware assigned to each SPE.	**show modem mapping**
show port modem log	Displays the events generated by the modem sessions.	**show modem log**
show port operational-status	Displays the current active session's statistics.	**show modem operational-status**
show port config	Displays the current active session's configuration parameters.	**show modem config**
clear spe	Reboots all specified SPEs. All calls will be torndown.	**NONE**
clear spe counters	Clears all statistics.	**clear modem counters**
clear spe log	Clears all log entries for specified SPEs.	**clear modem log**
clear port	Shutdown and no shutdown on specified ports.	**clear modem**
clear port log	Clears all log entries for specified ports.	**clear modem log**
show port modem calltracker	Displays port level information for an active modem. See the Call Tracker plus ISDN and AAA Enhancements for the Cisco AS5300 and Cisco AS5800 documentation for more information.	**show modem calltracker**
show port modem test	Displays port modem test results.	**show modem test**

Table 3 SPE Configuration Commands: NextPort to MICA Command Comparison

NextPort SPE CLI Commands	Purpose	MICA Modem CLI Commands
spe country	Sets the system country code.	**modem country**
spe log-size	Sets the maximum log entries for each port.	**modem buffer-size**
spe poll	Sets the statistic polling interval.	**modem poll**
spe call-record	Generates a modem call record at the end of each call.	**modem call-record**
spe poll	Sets the statistic polling interval.	**modem poll**
spe call-record	Generates a modem call record at the end of each call.	**modem call-record**
spe	Configures the SPE.	**Already implemented on the Cisco AS5300 and Cisco AS5800 platforms.**
busyout	Busyouts active calls.	**modem busyout**
shutdown	Teardown all active calls on the specified SPEs.	**modem shutdown**
port modem autotest	Enables modem autotest.	**modem autotest**

Table 3 SPE Configuration Commands: NextPort to MICA Command Comparison

NextPort SPE CLI Commands	Purpose	MICA Modem CLI Commands
firmware upgrade	Specifies the upgrade method.	**Already implemented on the Cisco AS5300 platform**
firmware location filename	Specifies the firmware file to be upgraded.	**Already implemented on the Cisco AS5300 and Cisco AS5800 platforms.**

Table 4 Port Configuration Commands: NextPort to MICA Command Comparison

NextPort SPE CLI Commands	Purpose	MICA Modem CLI Commands
port	Configures the port range.	**modem range**
default	Displays the value of the command to its default value.	**default modem**
busyout	Busyouts a port.	**modem busyout**
shutdown	Shutdown a port.	**modem shutdown**

Table 5 Global Configuration Commands: NextPort to MICA Command Comparison

NextPort SPE CLI Commands	Purpose	MICA Modem CLI Commands
ds0 busyout-threshold	Defines a threshold to maintain a balance between the number of DS0s and modems.	**modem busyout-threshold**

Table 6 EXEC Commands: MICA to NextPort Command Comparison

NextPort SPE CLI Commands	Purpose	MICA Modem CLI Commands
show modem	Shows the modem service history statistics for specified SPEs.	**show spe modem summary**
show modem	Shows the statistics of all active calls on specified SPEs.	**show spe modem active**
show modem call-stats	Displays all modem disconnect reasons for the specified SPEs.	**show spe modem disconnect-reason**
show modem speed	Displays the total number of connections negotiated within each modulation or coder-decoder (codec) for a specific range of SPEs.	**show spe modem high speed**
show modem speed	Displays the connect-speeds negotiated within each low speed modulation or codec for a specific range of SPEs or for all the SPEs.	**show spe modem low speed**
show modem mapping	Displays all MICA and NextPort firmware versions that are stored in Flash memory and the firmware assigned to each SPE.	**show spe version**

Table 6 EXEC Commands: MICA to NextPort Command Comparison

NextPort SPE CLI Commands	Purpose	MICA Modem CLI Commands
show modem log	Displays the events generated by the modem sessions.	**show port modem log**
show modem operational-status	Displays the statistics of the current active session.	**show port operational-status**
show modem config	Displays the configuration parameters of the current active session.	**show port config**
clear modem counters	Clears all statistics.	**clear spe counters**
clear modem log	Clears all log entries for specified SPEs.	**clear spe log**
clear modem	Activates shutdown and no shutdown on specified ports.	**clear port**
clear modem log	Clears all log entries for the specified ports.	**clear port log**
show modem calltracker	Displays port level information for an active modem. See the Call Tracker plus ISDN and AAA Enhancements for the Cisco AS5300, Cisco 5350, and Cisco AS5800 documentation for more information.	**show port modem calltracker**
show modem test	Displays port modem test results.	**show port modem test**

Table 7 SPE Configuration Commands: MICA to NextPort Command Comparison

NextPort SPE CLI Commands	Purpose	MICA Modem CLI Commands
modem country	Sets the system country code.	**spe country**
modem buffer-size	Sets the maximum log entries for each port.	**spe log-size**
modem poll	Sets the statistic polling interval.	**spe poll**
modem call-record	Generates a modem call record at the end of each call.	**spe call-record**
spe	Configures the SPE.	**spe**
modem busyout	Busyouts active calls.	**busyouts active calls**
modem shutdown	Tears down all active calls on the specified SPEs.	**shutdown**
modem autotest	Enables modem autotest.	**port modem autotest**
modem startup-test	Runs a startup test on all modems when the system boots up.	**port modem startup-test**
firmware upgrade	Specifies the upgrade method.	**firmware upgrade**
firmware location filename	Specifies the firmware file to be upgraded.	**firmware location filename**

Table 8 Port Configuration Commands: MICA to NextPort Command Comparison

NextPort SPE CLI Commands	Purpose	MICA Modem CLI Commands
modem range	Configures the port range.	**port**
default modem	Displays the value of the command to its default value.	**default**
modem busyout	Busyouts a port.	**busyout**
modem shutdown	Shut down a port.	**shutdown**

Table 9 Global Configuration Commands: MICA to NextPort Command Comparison

NextPort SPE CLI Commands	Purpose	MICA Modem CLI Commands
modem busyout-threshold	Defines a threshold to maintain a balance between the number of DS0s and modems.	**ds0 busyout-threshold**

Configuration Tasks

See the following sections for configuration tasks for Managing Port Services on the Cisco AS5350 Universal Gateway feature. Each task in the list is identified as either optional or required:

- Configuring Country Code, page 14 (Required)
- Configuring SPEs to Use an Upgraded Firmware File, page 14 (Optional)
- Disabling SPEs, page 15 (Optional)
- Rebooting SPEs, page 16 (Optional)
- Configuring Lines and Ports, page 16 (Optional)
- Verifying SPE Lines and Port Configuration, page 17 (Optional)
- Configuring NextPort DFC Ports, page 17 (Optional)
- Clearing Ports, page 18 (Optional)
- Configuring SPE Performance Statistics, page 18 (Optional)
- Clearing Log Events, page 19 (Optional)

Configuring Country Code

To set the NextPort DFC to be operational for call set up, you must specify the country name. To specify the country name, perform the following task in global configuration mode:

Command	Purpose
`Router(config)# spe country country name`	Specifies the country to set the DFC parameters (including country code and encoding). If you do not specify a country, the interface uses the default. If the universal gateway is configured with T1 interfaces, the default is **usa**. If the universal gateway is configured with E1 interfaces, the default is **e1-default**. Use the **no** form of this command to set the country code to the default of the domestic country. **Note** All sessions in all DFCs in all slots must be in the idle state for this command to run.

Configuring SPEs to Use an Upgraded Firmware File

To configure the SPEs to use the upgraded firmware file, perform the following steps, beginning in EXEC mode:

	Command	Purpose
Step 1	`Router# show spe version`	Displays SPE firmware versions to obtain the On-Flash firmware filename.
Step 2	`Router# config terminal`	Enters global configuration mode.

Step 3	`Router(config)# spe slot/spe`
	or
	`Router(config)# spe slot/spe slot/spe`
		Enters the SPE configuration mode. You can choose to configure a single SPE or a range of SPEs by specifying the first and last SPE in the range.

Step 4	`Router(config-spe)# firmware upgrade {busyout | download-maintenance | reboot}`	Specifies the upgrade method. Three methods of upgrade are available. The **busyout** keyword waits until all calls are terminated on an SPE before upgrading the SPE to the designated firmware. The **download-maintenance** keyword upgrades the firmware during the download maintenance time. The **reboot** keyword requests the universal gateway to upgrade firmware at the next reboot.

	Command	Purpose
Step 5	`Router(config-spe)# firmware location filename`	Specifies the SPE firmware file in Flash memory to use for the selected SPEs. Allows you to upgrade firmware for SPEs after the new SPE firmware image is copied to your Flash memory. Enter the **no firmware location** command to revert back to the default Cisco IOS bundled SPE firmware.
Step 6	`Router(config-spe)# exit`	Exits SPE configuration mode.
Step 7	`Router# exit`	Exits global configuration mode.
Step 8	`Router# copy running-config startup-config`	Saves your changes.

Note The **copy ios-bundled** command is not necessary with NextPort DFCs. By default, the version of SPE firmware bundled with the Cisco IOS software release transfers to all SPEs not specifically configured for a different SPE firmware file.

Disabling SPEs

To disable specific SPEs in the NextPort DFC, perform the following steps starting in global configuration mode:

	Command	Purpose

Step 1	`Router(config)# spe slot/spe`
	or
	`Router(config)# spe slot/spe slot/spe`
		Enters SPE configuration mode. You can also configure SPEs by specifying the first and last SPE in the range.

Step 2	`Router(config-spe)# busyout`	Disables an SPE by waiting for all the active services on the specified SPE to terminate. You can do autodiagnostic tests and firmware upgrades when you put the SPEs in the busiedout state. Active ports on the specified SPE will change the state of the specified range of SPEs to the busyoutpending state. The state changes from busyoutpending to busiedout when all calls end. Use the **show spe** command to see the state of the range of SPEs. Use the **no** form of this command to reenable the SPEs.
Step 3	`Router(config-spe)# shutdown`	Clears active calls on all ports on the SPE. Calls can no longer be placed on the SPE because the SPE state is changed to busiedout. Use the **no** form of this command to reenable the ports on the SPE.

Rebooting SPEs

To reboot specified SPEs, do the following task in privileged EXEC mode:

Command	Purpose
`Router# clear spe slot/spe`	Allows manual recovery of a port that is frozen in a suspended state. Reboots SPEs that are in suspended or Bad state. Downloads configured firmware to the specified SPE or range of SPEs and power-on self-test (POST) is run. **Note** Depending on the problem, sometimes downloading the SPE firmware may not help recover a bad port or an SPE. This command can be run regardless of the state of SPEs. All active ports running on the SPE are prematurely terminated, and messages are logged into the appropriate log.

Configuring Lines and Ports

To configure the lines and ports to dial in to your network, complete the following steps, beginning in global configuration mode:

	Command	Purpose
Step 1	`Router(config)# line slot/port slot/port`	Enters the line configuration mode. Specifies a range of slot and port numbers to configure. **Note** The NextPort DFC slot is defined as a value between 1 and 7. Slot 0 is reserved for the motherboard. Each NextPort DFC provides 18 SPEs. The SPE value ranges from 0 to 17. Because each SPE has six ports, the NextPort DFC has a total of 108 ports. The port value ranges from 0 to 107. For example, to configure 108 ports on slot 3, enter **line 3/00 3/107**. To configure 324 ports on slots 3-5, enter **line 3/00 5/107**.
Step 2	`Router(config-line)# transport input all`	Allows all protocols when connecting to the line.
Step 3	`Router(config-line)# autoselect ppp`	Enables remote IP users running a PPP application to dial in, bypass the EXEC facility, and connect directly to the network.
Step 4	`Router(config-line)# modem inout`	Enables incoming and outgoing calls.
Step 5	`Router(config-line)# modem autoconfigure type name`	Configures the attached modem using the entry for name.

Verifying SPE Lines and Port Configuration

To verify your SPE line configuration, do the following steps:

Step 1 Enter the **show spe** command to display a summary for all the lines and ports:

```
Router# show spe
```

Step 2 Enter the **show line** command to display a summary for a single line:

```
Router# show line 1
```

Note If you are having trouble, make sure that you have turned on the protocols for connecting to the lines (**transport input all**) and that your universal gateway is configured for incoming and outgoing calls (**modem inout**).

Configuring NextPort DFC Ports

This section describes how to configure NextPort DFC ports. You must to be in port configuration mode to configure the NextPort ports. The port configuration mode allows you to shut down or put individual ports or ranges of ports in busyout mode. To configure NextPort ports, do the following steps, beginning in global configuration mode:

	Command	Purpose
Step 1	`Router(config)# port slot/port`	Enters port configuration mode. Configures a single port.
Step 2	`Router(config-port)# port slot/port slot/port`	Configures a range of ports.
Step 3	`Router(config-port)# busyout`	(Optional) Disables a port by waiting for the active services on the specified port to terminate. Use the **no** form of this command to reenable the ports. Maintenance activities, such as testing, can still be performed while the port is in busyout mode. **Note** When a port is in busyout mode, the state of the SPE is changed to the consolidated states of all the underlying ports on that SPE.

	Command	Purpose
Step 4	`Router(config-port)# shutdown`	(Optional) Clears active calls on the port. No more calls can be placed on the port in the shutdown mode. Use the **no** form of this command to reenable the ports. **Note** When a port is in shutdown mode, the state of the SPE is changed to the consolidated states of all the underlying ports on that SPE.
Step 5	`Router(config-port)# exit`	Exits the port configuration mode.

Clearing Ports

The following privileged EXEC mode commands allow you to clear ports on an SPE:

Command	Purpose
`Router# clear port 4/1` `Router# This will clear port 4/01 [confirm] yes`	Clears port 1 on slot 4 of the NextPort port on the Cisco AS5350.
`Router# clear port 4` `Router# This will clear port 4/00 - 4/107 [confirm] yes`	Clears all active ports on slot 4 of the NextPort port on the Cisco AS5350.

Configuring SPE Performance Statistics

Depending on the configuration, a call record is displayed on the console, or on the syslog, or on both. The log contains raw data in binary form, which must be viewed using the **show** commands listed in the "Monitoring SPE Performance Statistics" section on page 21. You can configure some aspects of history events by using the following commands in global configuration mode:

Command	Purpose
`Router(config)# spe call-record modem` *max-userid*	Requests the universal gateway to generate a modem call record after a call is terminated. To disable this function, use the **no** form of this command.
`Router(config)# spe log-event-size` *number*	Sets the maximum size of the history event queue log entry for each port. The default is 50 events per port.

Clearing Log Events

The following privileged EXEC mode commands allow you to clear some or all of the log events relating to the SPEs:

Command	Purpose
`Router# clear spe log`	Clears all event entries in the slot history event log.
`Router# clear spe counters`	Clears statistical counters for all types of services for the specified SPE, a specified range of SPEs, or all SPEs. If you do not specify the range of SPEs or an SPE, the statistics for all SPEs are cleared.
`Router# clear port log`	Clears all event entries in the port–level history event log. You cannot remove individual service events from the port log.

Troubleshooting SPEs

This section provides troubleshooting information for your SPEs regardless of service type mode.

Note SPE ports that pass the diagnostic test are marked as Pass, Fail, and Unkn. Ports that fail the diagnostic test are marked as Bad. These ports cannot be used for call connections. Depending on how many ports are installed, the diagnostic tests may take from 5 to 10 minutes to complete.

- Enter the **port modem startup-test** command to do diagnostic testing for all modems during the system's initial startup or rebooting process. To disable the test, enter the **no port modem startup-test** command.
- Enter the **port modem autotest** command to perform diagnostic testing for all ports during the system's initial startup or rebooting process. To disable the test, enter the **no port modem autotest** command.

  You may additionally configure the following options:

  - Enter the **port modem autotest minimum** *ports* command to define the minimum number of free ports available for autotest to begin.
  - Enter the **port modem autotest time** *hh:mm interval* command to enable autotesting time and interval.
  - Enter the **port modem autotest error** *threshold* command to define the maximum number of errors detected for autotest to begin.
- Enter the **show port modem test** command to displays results of the SPE port startup test and SPE port autotest.

When an SPE port is tested as Bad, you may do additional testing by conducting a of internal back-to-back connections and data transfers between two SPE ports. All port test connections occur inside the universal gateway. For example, if mobile users cannot dial into port 2/5 (which is the sixth port on the NextPort DFC in the second chassis slot), attempt a back-to-back test with port 2/5 and a known-functioning port such as port 2/6.

- Enter the **test port modem back-to-back** *slot/port slot/port* command to do internal back-to-back port tests between two ports sending test packets of the specified size.

Note You might need to enable this command on several different combinations of ports to determine which one is not functioning properly. A pair of operable ports successfully connects and completes transmitting data in both directions. An operable port and an inoperable port do not successfully connect with each other.

A back-to-back test might look like the following example:

```
Router# test port modem back-to-back 2/10 3/20
Repetitions (of 10-byte packets) [1]:
*Mar  02 12:13:51.743:%PM_MODEM_MAINT-5-B2BCONNECT:Modems (2/10) and (3/20) connected
in back-to-back test:CONNECT33600/V34/LAP
*Mar  02 12:13:52.783:%PM_MODEM_MAINT-5-B2BMODEMS:Modems (3/20) and (2/10) completed
back-to-back test:success/packets = 2/2
```

Tip You may reboot the port that has problems using the **clear spe** command.

- Enter the **spe recovery** {**port-action** {**disable** | **recover** | **none**} | **port-threshold** *num-failures*} command to perform automatic recovery (removal from service and reloading of SPE firmware) of ports on an SPE at any available time.

  An SPE port failing to connect for a certain number of consecutive times indicates that a problem exists in a specific part or the whole of SPE firmware. Such SPEs have to be recovered by downloading firmware. Any port failing to connect *num-failures* times is moved to a state based on the **port-action** value, where you can choose to disable (mark the port as Bad) or recover the port when the SPE is in the idle state and has no active calls. The default for *num-failures* is 30 consecutive call failures.

Tip You may also schedule recovery using the **spe download maintenance** command.

- Enter the **spe download maintenance time** *hh:mm* | **stop-time** *hh:mm* | **max-spes** *number* | **window** *time-period* | **expired-window** {**drop-call** | **reschedule**} command to perform a scheduled recovery of SPEs.

  The download maintenance activity starts at the set start **time** and steps through all SPEs that need recovery and the SPEs that need a firmware upgrade. The download maintenance activity starts maintenance on the maximum number of set SPEs for maintenance. The system waits for the **window** delay time for all the ports on the SPE to become inactive before moving the SPE to the Idle state. Immediately after the SPE moves to the idle state, the system starts to download firmware. If the ports are still in use by the end of **window** delay time, depending upon the **expired-window** setting, connections on the SPE ports are shut down and the firmware is downloaded by choosing the **drop-call** option, or the firmware download is rescheduled to the next download maintenance time by choosing the **reschedule** option. This process continues until the number of SPEs under maintenance is below **max-spes,** or until **stop-time** (if set), or until all SPEs marked for recovery or upgrade have had their firmware reloaded.

Monitoring SPE Performance Statistics

This section documents various SPE performance statistics for the NextPort DFC:

SPE Events and Firmware Statistics

To view SPE events and firmware statistics for the NextPort DFCs, enter one or more of the following commands in privileged EXEC mode:

Command	Purpose
`Router# show spe slot/spe`	Displays the SPE status for the specified range of SPEs.
`Router# show spe log [reverse | slot]`	Displays the SPE system log.
`Router# show spe version`	Lists all SPEs and the SPE firmware files used. **Note** This list helps you decide if you need to update your SPE firmware files.

Port Statistics

To view port statistics for the NextPort DFCs, enter one or more of the following commands in privileged EXEC mode:

Command	Purpose
`Router# show port config {slot | slot/port}`	Displays the configuration information for specified ports or the specified port range. The port should have an active session associated at the time the command is run.
`Router# show port digital log [reverse slot/port] [slot | slot/port]`	Displays the digital data event log.
`Router# show port modem log [reverse slot/port] [slot | slot/port]`	Displays the port history event log.
`Router# show port modem test [slot | slot/port]`	Displays the test log for the specified SPE port range or all the SPE ports.
`Router# show port operational-status [slot | slot/port]`	Displays the operational status of the specified ports or the specified port range. The port should have an active session associated when the command is run.

Digital SPE Statistics

To view digital SPE statistics for the NextPort DFCs, enter one or more of the following commands in privileged EXEC mode:

Command	Purpose
Router# **show spe digital** [*slot* | *slot/spe*]	Displays history statistics of all digital SPEs.
Router# **show spe digital active** [*slot* | *slot/spe*]	Displays active digital statistics of a specified SPE, the specified range of SPEs, or all SPEs.
Router# **show spe digital csr** [**summary** | *slot* | *slot/spe*]	Displays the digital call success rate statistics for a specific SPE, a range of SPEs, or all SPEs.
Router# **show spe digital disconnect-reason** [**summary** | *slot* | *slot/spe*]	Displays the digital disconnect reasons for the specified SPE or range of SPEs. The disconnect reasons are displayed with Class boundaries.
Router# **show spe digital summary** [*slot* | *slot/spe*]	Displays digital history statistics of all SPEs, a specified SPE, or the specified range of SPEs for all service types.

SPE Modem Statistics

To view SPE modem statistics for the NextPort DFCs, enter one or more of the following commands in privileged EXEC mode:

Command	Purpose
Router# **show spe modem active** {slot | slot/spe}	Displays the active statistics of a specified SPE, a specified range of SPEs, or all SPEs serving modem traffic.
Router# **show spe modem csr** {**summary** | *slot* | *slot/spe*}	Displays the call success rate statistics for a specific SPE, a specified range of SPEs, or all SPEs.
Router# **show spe modem disconnect-reason** {**summary** | *slot* | *slot/spe*}	Displays the disconnect reasons for the specified SPE or a specified range of SPEs. The disconnect reasons are displayed with Class boundaries.
Router# **show spe modem high speed** {**summary** | *slot* | *slot/spe*}	Shows the connect-speeds negotiated within each high–speed modulation or codecs for a specific range of SPEs or all SPEs.
Router# **show spe modem low speed** {**summary** | *slot* | *slot/spe*}	Shows the connect-speeds negotiated within each low–speed modulation or codecs for a specific range of SPEs or all SPEs.
Router# **show spe modem high standard** {**summary** | *slot* | *slot/spe*}	Displays the total number of connections within each low modulation or codec for a specific range of SPEs.

Command	Purpose
`Router# show spe modem low standard {summary | slot | slot/spe}`	Displays the total number of connections within each high modulation or codec for a specific range of SPEs.
`Router# show spe modem summary {slot | slot/spe}`	Displays the history statistics of all SPEs, a specified SPE, or the specified range of SPEs.

Configuration Example

The NextPort dial feature card (DFC) provides port service management for the Cisco AS5350.

For further information on configuration examples for the Cisco AS5350, see the *Cisco AS5350 Universal Gateway Software Configuration Guide*.

Command Reference

This section describes NextPort port management commands for the Cisco AS5350. All other commands used with this platform are documented in the Cisco IOS Release 12.1(1)XD new features documents.

Commands are organized in the following logical groups:

- Service Processing Element (SPE) Management Commands
- Port Management Commands
- Statistics Commands
- Diagnostic and Recovery Commands
- Logging Commands

These groups with their commands in alphabetical order are listed the following subsections.

A master list of all the commands in alphabetical order is given in the "Alphabetical List of Commands" section.

Each command is described in structured reference pages arranged alphabetically in this section.

Service Processing Element (SPE) Management Commands

The following commands manage the SPE level:

- **busyout (spe)**
- **clear spe**
- **firmware location**
- **firmware upgrade**
- **show spe modem low standard**
- **spe country**
- **shutdown (SPE level)**

Port Management Commands

The following commands manage the port level:

- **busyout (port)**
- **clear port**
- **firmware location**
- **firmware upgrade**
- **shutdown (port level)**

Statistics Commands

The following commands display SPE statistics:

- **clear spe counters**
- **show port config**

- **show port modem test**
  (see **show port digital log)**
- **show port operational-status**
- **show spe**
- **show spe digital**
- **show spe digital active**
- **show spe digital csr**
- **show spe digital disconnect-reason**
- **show spe digital summary**
- **show spe log**
- **show spe modem active**
- **show spe modem csr**
- **show spe modem disconnect-reason**
- **show spe modem high speed**
- **show spe modem high standard**
- **show spe modem low speed**
- **show spe modem low standard**
- **show spe modem low standard**
- **spe call-record modem**

Diagnostic and Recovery Commands

The following commands execute diagnostic tests and initiate the recovery mechanism for the SPEs:

- **show port digital log**
- **show port modem calltracker**
- **show port modem test**
  (see **show port digital log**)
- **show port operational-status**
- **spe download maintenance**
- **spe recovery**
- **test port modem back-to-back**

Logging Commands

The following new commands set, display and clear the logging mechanism for the SPEs:

- **clear spe log**
- **show port digital log**
- **show port log reverse**
  (see **show port digital log**)
- **show spe log**
- **spe log-size**

Alphabetical List of Commands

- spe log-size
- spe recovery
- test port modem back-to-back

Command Syntax Conventions

Table 10 describes the syntax used with the commands in this section.

Table 10 Command Syntax Guide

Convention	Description
boldface font	Commands and keywords.
italic font	Command input that you supply.
[*x* | *x*]	Optional keywords or arguments.
{ *x* | *x* }	Alternate but required arguments and keywords. Keywords (represented by *x*) appear in braces separated by vertical bars. You must select one.
^ or Ctrl	Represent the key labeled *Control*. For example, when you read ^D or Ctrl-D, you should hold down the Control key while you press the D key.
`screen` font	Examples of information displayed on the screen.
`boldface screen` font	Examples of information that you must enter.
< >	Nonprinting characters, such as passwords.
[ ]	Default responses to system prompts.
Note 	Means *reader take note*. Notes contain helpful suggestions or references to additional information and material.
Timesaver 	Means *the described action saves time*. You can save time by performing the action described in the paragraph.
Caution 	Means *reader be careful*. In this situation, you might do something that could result in equipment damage or loss of data.

busyout (port)

To disable a port by waiting for the active services on the specified port to terminate, use the **busyout** port configuration command. To reenable the ports, use the **no** form of this command.

busyout

no busyout

Syntax Description

This command has no arguments or keywords.

Defaults

no busyout

Command Modes

Port configuration

Command History

Release	Modification
12.1(1)XD	This command was introduced on the Cisco AS5400.
12.1(3)T	This command was integrated into Cisco IOS Release 12.1(3)T on the Cisco AS5400 and Cisco AS5800.
12.1(5)XM1	This command was introduced on the Cisco AS5350.
12.2(11)T	This command was integrated into Cisco IOS Release 12.2(11)T and support was added for the Cisco AS5350.

Usage Guidelines

Use the **no** form of this command to re enable the ports.

Examples

The example below will busyout SPE ports 1 to 10 on slot 1

```
router(config)# port 1/1 1/10
router(config-port)# busyout
router(config-port)#
```

Related Commands

Command	Description
clear port	Clears event entries in the port–level history log.
clear spe	Cold starts SPEs that are in the Bad state.
shutdown	Takes a designated port or range of ports out of service.
show spe	Displays history statistics of all SPEs, or the specified range of SPEs.

busyout (spe)

To disable active calls by waiting for the active services on the specified Service Processing Elements (SPEs) to terminate, use the **busyout** SPE configuration command. To re-enable the SPEs, use the **no** form of this command.

busyout

no busyout

Syntax Description

This command has no arguments or keywords.

Defaults

no busyout

Command Modes

SPE configuration

Command History

Release	Modification
12.1(1)XD	This command was introduced on the Cisco AS5400.
12.1(3)T	This command was integrated into Cisco IOS Release 12.1(3)T on the Cisco AS5400 and Cisco AS5800.
12.1(5)XM1	This command was introduced on the Cisco AS5350 universal gateway.
12.2(11)T	This command was integrated into Cisco IOS Release 12.2(11)T and support was added for the Cisco AS5350.

Usage Guidelines

You can perform autodiagnostic tests and firmware upgrades when you put the SPEs in the OutofService state. Active ports on the specified SPE will change the state of the specified range of SPEs to the busyout pending state. The state changes from busyout pending to OutofService when all calls end. Use the **show spe** command to see the state of the range of SPEs. Use the **shutdown** command to override the **busyout** command. Use the **no busyout** command to reenable the SPEs.

Examples

The example below will show all active ports on SPE 1 to 10 on slot 1being busied out:

```
router(config)# SPE 1/1 1/10
router(config-SPE)# busyout
router(Config-port)#
```

Related Commands

Command	Description
clear port	Clears event entries in the port–level history log.
clear spe	Cold starts SPEs that are in the Bad state.
shutdown	Takes a designated port or range of ports out of service.
s**how spe**	Displays history statistics of all SPEs or the specified rangeof SPEs.

clear port

To reset the NextPort port and clear any active call to the port, use the **clear port** EXEC command.

Cisco AS5350 and Cisco AS5400 with NextPort DFC

clear port [*slot* | *slot*/*port*]

Cisco AS5800 with Universal Port DFC

clear port [*shelf*/*slot* | *shelf*/*slot*/*port*]

Syntax Description

slot/port	(Optional) The specified SPE slot/port range.
slot	(Optional) The specified SPE slot.
shelf/slot/port	(Optional) The specified port range on a shelf and slot.

Defaults

No default behavior or values.

Command Modes

EXEC

CommandHistory

Release	Modification
12.1(1)XD	This command was introduced on the Cisco AS5400.
12.1(3)T	This command was integrated into Cisco IOS Release 12.1(3)T on the Cisco AS5400 and the Cisco AS5800.
12.1(5)XM1	This command was introduced on the Cisco AS5350 universal gateway.
12.2(11)T	This command was integrated into Cisco IOS Release 12.2(11)T and support was added for the Cisco AS5350.

Usage Guidelines

If you specify the shelf, slot, and port, you clear that port on that Service Processing Element (SPE). If you specify only the shelf and slot, you clear all active ports on that particular shelf and slot. If you do not specify a shelf, slot, or port, you clear all the ports on the universal gateway.

The **clear port log** clears the entire port log. You cannot remove individual service events from the port log. On the Cisco AS5400 only, you can use **show port modem log** or **show port digital log** or both to display specific service events, but you must use **clear port log** to clear the entire port event log.

Additionally, this command clears the Bad state on a port and resets it. However, the port is not cleared if the SPE was previously in a Bad state due to an SPE firmware download.

Examples

The following example shows output from the **clear port** command on the Cisco AS5350 with NextPort DFC. This example clears slot 1, port 1:

```
Router# clear port 1/1
```

```
Router#
```

The following example shows output from the **clear port** command on the Cisco AS5800 with NextPort DFC. This example clears shelf 1, slot 3,port 0:

```
Router# clear port 01/03/00
This will clear port 1/03/00[confirm]y
```

Related Commands

Command	Description
busyout	Disables a port by waiting fir the active services on the specific port to terminate.
clear spe	Cold starts SPEs that are in Bad state.
clear line	Returns a line to its idle state.
shutdown	Takes a designated port of range of ports out of service.
show port digital log	Displays the digital data event log with the oldest event first
show port modem log	Displays the modem port history event log of modem test log.
show spe	Displays history statistics of all SPEs or the specified SPE range.

clear spe

To reboot all specified Service Processing Elements (SPE), use the **clear spe** EXEC command.

Cisco AS5350 and Cisco AS5400 with NextPort DFC

clear port log [*slot* | *slot*/*port*]

no clear spe [*slot* | *slot*/*spe*]

Cisco AS5800 with Universal Port DFC

clear port log [*shelf*/*slot* | *shelf*/*slot*/*spe*]

Syntax Description

slot	(Optional) All ports on the specified slot. For the Cisco AS5350, slot values range from 0 to 7.
slot/spe	(Optional) The specified port range on a slot. For the Cisco AS5350, slot values range from 0 to 7 and port values range from 0 to107.
shelf/port	(Optional) All ports on the specified shelf and slot. For the Cisco AS5800, shelf values range from 0 to 1 and UPC slot values range from 2 to 11.
shelf/slot/port	(Optional) The specified port range on a shelf and slot. For the Cisco AS5800, shelf values range from 0 to 1, slot values range from 2 to 11, and SPE values range from 0 to 53.

Defaults

Disabled

Command Modes

EXEC

CommandHistory

Release	Modification
12.1(1)XD	This command was introduced on the Cisco AS5400.
12.1(3)T	This command was integrated into Cisco IOS Release 12.1(3)T on the Cisco AS5400 and the Cisco AS5800.
12.1(5)XM1	This command was introduced on the Cisco AS5350 universal gateway.
12.2(11)T	This command was integrated into Cisco IOS Release 12.2(11)T and support was added for the Cisco AS5350.

Usage Guidelines

Execution of this command causes the configured firmware to be downloaded to the specified SPE or the range of SPEs and power-on self-test (POST) to be executed. This command can be issued regardless of the state of the SPEs.

Caution All active ports running on the SPE are prematurely terminated, and messages are logged into the appropriate log.

This command downloads configured SPEs with firmware as configured. Unconfigured SPEs are downloaded with the default firmware, which is the bundled version. To configure and manage the downloading of firmware without abruptly terminating SPEs, use the **firmware location** or **firmware upgrade** commands as appropriate.

Examples

The following example shows output from the **clear spe** command on the Cisco AS5350 with NextPort DFC. This example performs a cold start on slot 1, SPE 1:

```
Router# clear spe 1/1
Router# Are you sure you want to clear spe 1/1(Y/N)? y
```

The following example displays the prompt when the **clear spe** command is entered on the Cisco AS5800 with Universal Port DFC. The command prompts the system to perform a cold start on shelf 1, slot 8, SPE 0:

```
Router# clear spe 1/8/0
Router# Are you sure you want to clear spe 1/8(Y/N)? y
```

Related Commands

Command	Description
busyout	Disables a port by waiting for the active services on the specified port to terminate.
clear line	Returns a line to its idle state.
clear port	Resets the port and clears any active calls to the port.
shutdown	Takes a designated port or range of ports out of service.
show spe	Displays history statistics of all SPEs, a specified SPE, or the specified range of SPEs.

clear spe counters

To clear all statistics, use the **clear spe counters** EXEC command.

Cisco AS5350 and Cisco AS5400 with NextPort DFC

clear spe counters [*slot* | *slot*/*spe*]

Cisco AS5800 with Universal Port DFC

clear spe counters [*shelf*/*slot* | *shelf*/*slot*/*spe*]

Syntax Description

slot/*spe*	(Optional) The specified slot/spe range.
slot	(Optional) The specified SPE slot.

Defaults

Disabled

Command Modes

EXEC

CommandHistory

Release	Modification
12.1(1)XD	This command was introduced on the Cisco AS5400.
12.1(3)T	This command was integrated into Cisco IOS Release 12.1(3)T on the Cisco AS5400 and the Cisco AS5800.
12.1(5)XM1	This command was introduced on the Cisco AS5350 universal gateway.
12.2(11)T	This command was integrated into Cisco IOS Release 12.2(11)T and support was added for the Cisco AS5350.

Usage Guidelines

This command clears statistical counters of all service types for the specified SPE, the specified range of SPEs, or all SPEs. If no parameter is specified, all SPE statistical counters are cleared.

Examples

The following example shows how to clear all statistics by entering the **clear spe counters** command on the Cisco AS5350 with NextPort DFC.

```
Router# clear spe counters 01/3 01/7
This will clear statistic counters for SPEs 1/03 - 1/07 [confirm]y
```

The following example shows how to clear all statistics by entering the **clear spe counters** command on the Cisco AS5800 with Universal Port DFC. This example clears shelf 1, slot 3, ports 0 to 11.

```
Router# clear spe counters 01/03/00 01/03/11
This will clear statistic counters for SPEs 1/03/00 - 1/03/11[confirm]y
```

clear spe log

To clear event entries in the slot history event log, use the **clear spe log** EXEC command.

Cisco AS5350 and Cisco AS5400 with NextPort DFC

clear spe log [*slot*]

Cisco AS5800 with Universal Port DFC

clear spe log [*shelf/slot*]

Syntax Description

slot	(Optional) All ports on the specified slot. For the Cisco AS5350, slot values range from 0 to 7.
shelf/slot	(Optional) All ports on the specified shelf and slot. For the Cisco AS5800, shelf values range from 0 to 1 and UPC slot values range from 2 to 11.

Defaults

No default behavior or values.

Command Modes

EXEC

Command History

Release	Modification
12.1(1)XD	This command was introduced on the Cisco AS5400.
12.1(3)T	This command was integrated into Cisco IOS Release 12.1(3)T on the Cisco AS5400 and the Cisco AS5800.
12.1(5)XM1	This command was introduced on the Cisco AS5350 universal gateway.
12.2(11)T	This command was integrated into Cisco IOS Release 12.2(11)T and support was added for the Cisco AS5350.

Usage Guidelines

The **clear spe log** command clears event entries in the slot history event log. If you do not specify the shelf/slot range, all Service Processing Element (SPE) event entries clear. If you specify the shelf/slot, only the event entries for that slot clear.

Examples

The following example shows output from the **clear spe log** command on the Cisco AS5350 with NextPort DFC. This example clears the SPE log on slot 3:

```
Router# clear spe log 1/03
This will clear slot event history for slot(s) 3 - 3[confirm]y
```

The following example shows output from the **clear spe log** command on the Cisco AS5800 with Universal Port DFC. This example clears shelf 1, slot 8, SPE 0:

```
Router# clear spe log 1/8/0
This will clear slot event history for slot(s) 8 - 8[confirm]y
```

Related Commands

Command	Description
show spe log	Displays the slot history event log with the oldest event first.

firmware location

To specify a firmware file to upgrade, use the **firmware location** SPE configuration command.

firmware location *filename*

Syntax Description

filename	The name of the firmware file you want to download.

Defaults

No default behavior or values.

Command Modes

SPE configuration

Command History

Release	Modification
12.0(4)XI1	This command was introduced.
12.0(6)T	This command was integrated into Release 12.0(6)T on the Cisco AS5300 and the Cisco AS5800 for MICA modems. For information on the use of this command in Cisco IOS releases for those platforms, see *Cisco IOS Dial Services Command Reference, Cisco IOS Release 12.1*.
12.1(1)XD	This command was introduced on the Cisco AS5400.
12.1(3)T	This command was integrated into Cisco IOS Release 12.1(3)T on the Cisco AS5400 and the Cisco AS5800.
12.1(5)XM1	This command was introduced on the Cisco AS5350 universal gateway.
12.2(11)T	This command was integrated into Cisco IOS Release 12.2(11)T and support was added for the Cisco AS5350.

Usage Guidelines

The new SPE firmware image can usually be retrieved from Cisco.com. The user must first copy the SPE image from a **tftp** server to Flash memory using the **copy tftp flash** command.

This command specifies the location of the firmware file *and* downloads the firmware in the range of SPEs specified, depending on the states configured by the **firmware upgrade** command. Use the **firmware location** command in conjunction with the **firmware upgrade** command. The entire SPE is necessarily affected by the **firmware location** command.

The **copy modem flash** command is replaced by these commands.

This command cannot be performed on the SPEs that are in the Bad state.

Note This command should be used when traffic is low, because the **firmware location** download does not begin until the modems have no active calls. Otherwise, use the **firmware upgrade** command to customize the scheduling of modem downloads for your needs.

Examples

The following example sets the SPEs, specifies the firmware file location, opens the file (if on Flash memory), and downloads to the SPE on the Cisco AS5350:

```
router(config)# spe 1/0 1/54
router(config-spe)# firmware location np-spe-upw-1.0.1.2.bin
router(config-spe)# end
```

The following example shows how to enter the configuration mode, set the range of SPEs, specifies the firmware file location in Flash memory, downloads the file to the SPEs, and report on the status, using the **show spe** command:

```
router# config t
router(config)# spe 7/0 7/17
router(config-spe)# firmware location flash:np_6_75
Started downloading firmware flash:np_6_75.spe
router(config-spe)#
router# show spe 7
...

                    SPE          SPE     SPE  SPE   Port         Call
SPE#    Port #      State        Busyout Shut Crash State        Type
7/00    0000-0005   ACTIVE             1    0     0 BBBBBB       _______
7/01    0006-0011   DOWNLOAD           1    0     0 bbbbbb       _______
7/02    0012-0017   DOWNLOAD           1    0     0 bbbbbb       _______
7/03    0018-0023   DOWNLOAD           1    0     0 bbbbbb       _______
...
```

Related Commands

Command	Description
clear port	Resets the port and clears any active calls to the port.
clear spe	Reboots SPEs that are in any state
copy tftp flash	Copies the SPE image from a TFTP server to the flash.
firmware upgrade	Specifies the method in which the SPE will be downloaded.
show spe version	Displays the firmware version on an SPE.
spe download maintenance	Performs download maintenance on SPEs that are marked for recovery.
spe recovery	Sets an SPE port for recovery.

firmware upgrade

To specify an SPE firmware upgrade method, use the **firmware upgrade** SPE configuration command.

firmware upgrade [**busyout** | **download-maintenance** | **reboot**]

Syntax Description

busyout	Upgrade when all calls are terminated on the SPE.
download-maintenance	Upgrade during download maintenance time.
reboot	Upgrades at the next reboot.

Defaults

No default behavior or values.

Command Modes

SPE configuration

Command History

Release	Modification
12.0(7)T	This command was integrated into Cisco IOS Release 12.0(7)T.
12.1(1)XD	This command was introduced on the Cisco AS5400.
12.1(3)T	This command was integrated into Cisco IOS Release 12.1(3)T on the Cisco AS5400 and the Cisco AS5800.
12.1(5)XM1	This command was introduced on the Cisco AS5350 universal gateway.
12.2(11)T	This command was integrated into Cisco IOS Release 12.2(11)T and support was added for the Cisco AS5350.

Usage Guidelines

Three methods of upgrade are available: busyout, reboot, and download-maintenance.

Reboot requests the Cisco AS5350 to upgrade SPE firmware at the next reboot. Busyout waits until all calls are terminated on an SPE before SPE firmware is upgraded. Download-maintenance requests SPE firmware download during maintenance time. See the **spe download maintenance** command.

Use this command in conjunction with the **firmware location** command and the **spe download maintenance** command.

The SPE **firmware location** command is designed to integrate all continuous ranges of SPEs containing the same firmware location. However, the **firmware upgrade** command does not affect the ranges of SPEs. As such, all SPEs within the ranges of SPEs must have the same firmware upgrade mode or the router uses busyout, one of the upgrade modes. If you want to upgrade a single SPE within an existing range of SPEs with a different upgrade mode than is currently configured, you must first change the upgrade mode for the entire range of SPEs and then change the firmware location for the specific SPE being upgraded.

Furthermore, each time you merge ranges of SPEs due to configuration changes, verify the configuration of the SPE firmware upgrade.

Examples

The following example shows how to set the range of SPEs, and specify the firmware upgrade to take place when all calls are terminated on the SPE:

```
router(config)# spe 5/4 5/6
router(config-spe)# firmware ?
  location  Firmware file location
  upgrade   Firmware upgrade configuration

router(config-spe)# firmware upgrade busyout
router(config-spe)#
```

If the **busyout upgrade** command is specified, or if no upgrade mode is specified, the SPE modems are set into a pending download state when you use the **firmware location** command on the specified SPE. The pending download state prevents any modem in that state to be allocated for new calls until the state is cleared. Modems with active calls remain active for their call durations, but enter the pending download state when they finish. This pending download state can be cleared only when the SPE is finally downloaded. When all modems within the SPE are in the pending download state and no active calls remain on the SPE, the SPE is reloaded. The **busyout** command is the fastest way to upgrade modems on an active router but can severely impact the capacity of the router during the upgrade. This is the default option for the **firmware upgrade** command:

```
router(config-spe)# firmware upgrade busyout
```

If reboot upgrade is specified, the SPE modems are not reloaded to the new firmware location until the router is rebooted. The reboot upgrade option is useful for routers that need to have their SPE upgraded and are going to be rebooted for maintenance. The new firmware can be configured, but does not take affect until the reboot takes place:

```
router(config-spe)# firmware upgrade reboot
```

If recovery upgrade is specified, the SPE modems are reloaded based on the modem recovery algorithm. The SPE modems are all set into a pending upgrade state when you use the **firmware location** command on this SPE. The pending upgrade state continues to allow calls to be allocated to modems for as long as there are active calls on the SPE. Only when no active calls exist on the SPE does the firmware download take place. Furthermore, at the configured modem recovery maintenance time (3:00 a.m.), the modem recovery maintenance process, in a controller fashion, attempts to reload the modems by busying out the modems for a period of time to allow the download to take place. Consult the modem **recovery** documentation for further details. The recovery upgrade option is the least impacting way to upgrade modems on an active router. Capacity is kept at a maximum. However, this option may take a few days to load all modems to the new firmware location:

```
router(config-spe)# firmware upgrade recovery
```

Related Commands

Command	Description
firmware location	Downloads firmware into the modems from this file location.
show spe version	Displays the firmware version on an SPE.
spe download maintenance	Performs download maintenance on SPEs that are marked for recovery.
spe recovery	Sets an SPE port for recovery.

port modem autotest

To automatically and periodically perform a modem diagnostics test for modems inside the universal gateway or router, use the **port modem autotest** command in global configuration mode. To disable or turn off the modem autotest service use the **no** form of this command.

port modem autotest {**error** *threshold* | **minimum** *modem* | **time** *hh*:*mm* [*interval*]}

no port modem autotest

Syntax Description

error *threshold*	Maximum modem error threshold. When the system detects this many errors with the modems, the modem diagnostics test is automatically triggered. Specify a threshold count between 3 and 50.
minimum *modem*	Minimum number of modems that remain untested and available to accept calls during each test cycle. You can specify between 5 and 48 modems. The default is 6 modems.
time *hh*:*mm*	Time you want the modem autotest to begin. You must use the military time convention and a required colon (:) between the hours and minutes variables for this feature. For example, 1:30 a.m. is issued as 01:30.
interval	(Optional) Long-range time variable used to set the modem autotest more than one day in advance. The range of hours is between 1 hour and 168 hours. For example, if you want to run the test once per week, issue 168. (There are 168 hours in one week.)

Defaults

Modem diagnostics test are disabled.

Command Modes

Global configuration

Command History

Release	Modification
11.3	This command was introduced.
12.1(1)XD	This command was introduced for the Cisco AS5400. This modifies the **modem autotest** command for the Cisco AS5400.
12.1(3)T	This command was integrated into Cisco IOS Release 12.1(3)T on the Cisco AS5400 and the Cisco AS5800.
12.1(5)XM1	This command was introduced on the Cisco AS5350 universal gateway.
12.2(11)T	This command was integrated into Cisco IOS Release 12.2(11)T and support was added for the Cisco AS5350.

Examples

The following example shows how to set the modem autotest to run once per week at 3:00 a.m. In addition, the autotest will activates if the system detects a modem error count higher than 40 errors.

Determine the current time set on the access server with the **show clock** EXEC command. In this example, the time and date set is 3:00 p.m, Monday, August 25, 1997:

```
Router# show clock

*15:00:01.031 EST Aug 25 1997
```

Enter global configuration mode and set the time you want the modem autotest to activate. In this example, the access server is configured to run the modem autotest each ongoing Tuesday at 3:00 a.m:

```
Router# configure terminal

Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)# port modem autotest time 03:00 168
```

Configure the autotest to activate if the system detects a high modem error count. In this example, the autotest activates if the system detects a modem error count higher than 40 errors. For the list of modem errors that are monitored by the **modem autotest** command, see the **show modem call-stats** command.

```
Router(config)# port modem autotest error 40

Router(config)# exit
```

Related Commands

Command	Description
show clock	Displays the system clock.
show modem	Displays a high-level performance report for all the modems or a single modem inside Cisco AS5200 and the Cisco AS5300 universal gateways.
show modem test	Displays the modem test log.

show port config

To display the active session's configuration parameters, use the **show port config** EXEC command.

Cisco AS5350 and Cisco AS5400 with NextPort DFC

show port config {*slot*/*port* [*slot*/*port*]}

Cisco AS5800 with Universal Port Card

show port config {*shelf*/*slot* | shelf/slot/port}

Syntax Description

slot	All ports on the specified slot. for the AS5350, slot values range from 0 to 7.
slot/port	All ports on the specified slot and SPE. For the AS5400, slot values range from 0 to 7, and port values range from 0 to 107
shelf/slot	All ports on the specified shelf and slot. For the AS5800, shelf values range from 0 to 1, and UPC slot values range from 2 to 11.
shelf/slot/port	All ports on the specified SPE. For the AS5800, shelf values range from 0 to 1, slot values range from 2 to 11, and port values range from 0 to 323.

Defaults

No default behavior or values.

Command Modes

EXEC

Command History

Release	Modification
12.1(1)XD	This command was introduced on the Cisco AS5400.
12.1(3)T	This command was integrated into Cisco IOS Release 12.1(3)T on the Cisco AS5400 and the Cisco AS5800.
12.1(5)XM1	This command was introduced on the Cisco AS5350 universal gateway.
12.2(11)T	This command was integrated into Cisco IOS Release 12.2(11)T and support was added for the Cisco AS5350.

Usage Guidelines

The port should have an associated active session when the **show port config** command is executed. The **show port config** command is equivalent to the **show modem config** MICA modem command.

Examples

The example below shows output from the **show port config** command on the Cisco AS5350 with NextPort DFC. This example shows port configuration for the modem service port slot 2, shelf 1:

```
router# show port config 2/1
Slot/SPE/Port -- 2/0/1
Service Type                          :Modem service
Originate/Answer Mode                   :Answer
Data Bits Selection                     :8
```

```
Parity Selection                          :No Parity
Stop bits Selection                       :1
V.42 ODP generation                       :Enabled
EC Autodetect Time-out                    :5000 ms
Protocol Negotiation Time-out             :10000 ms
Protocol Negotiation Fallback character   :13
Protocol Negotiation Retransmission Limit :12
EC Min, Max Octets Frame length           :256
Data Compression                          :V.42bis or MNP5
ARA Error Correction                      :ARA1.0 & ARA2.0 Disabled
V.42 Error Correction                     :V.42(LAP-M) Originate&Answer enabled
MNP Error Correction                      :MNP Originate&Answer enabled
Link Protocol Fallback                    :Async Framing (Start/Stop/Parity)
Calling Tone                              :Disabled
Guard Tone                                :Disabled
Modem Standard                            :V.90 Automode
Max Non-PCM Connect Rate                  :33600 bps
Min Non-PCM Connect Rate                  :300 bps
Max PCM Connect Rate                      :60000 bps
Min PCM Connect Rate                      :28000 bps
Signal Quality Threshold                  :Bit Errors >= 1:1000 cause recovery
Fallback/Fallforward Squelch Timer        :500 ms
Fall Forward Timer                        :10000 ms
Fall Back Timer                           :500 ms
Terminate Time-out                        :20 secs
Wait for Data Mode Time-out               :60 secs
Lost Carrier To Hang-up Delay             :1400 ms
PCM Transmit Level Setting                :-13 dBm
Retrain Limit                             :4
V.34 Max Symbol Rate                      :3429 Baud
V.34 Min Symbol Rate                      :2400 Baud
V.34 Carrier Frequency                    :Auto Carrier Selection
V.34 Preemphasis Filter Selection         :11
+++ Escape Detection                      :Enabled-in-Originate-Mode-Only
AT Command Processor                      :Enabled
Call Setup Delay                          :0 ms
Automatic Answer Delay                    :2 secs
Escape Detection Character                :ASCII 43 (+)
Carriage Return Character                 :ASCII 13 (CR)
Line Feed Character                       :ASCII 10 (LF)
Backspace Character                       :ASCII 8 (BS)
Pause Before Blind Dialing                :2 secs
Comma Dial Modifier Time                  :2 secs
```

The example below shows port configuration information for a digital service port slot 2, port 23 on the Cisco AS5350 with NextPort DFC.

```
router# sh port conf 2/23
Slot/SPE/Port -- 2/3/23
Service Type                              : Digital service
Originate/Answer Mode                     : Answer
Data Bits Selection                       : 8
Parity Selection                          : No Parity
Stop bits Selection                       : 1
Modem Standard                            : reserved
User Rate for ISDN                        : 19200 bps
```

The following example shows port configuration information for a digital service port slot 2, port 23 on the Cisco AS5800 with Universal Port Card.

```
Router# show port config 1/8
Shelf/Slot/SPE/Port -- 1/8/27/165
Service Type                              : Modem service
Originate/Answer Mode                     : Answer
Data Bits Selection                       : 8
Parity Selection                          : No Parity
Stop bits Selection                       : 1
V.42 ODP generation                       : Enabled
EC Autodetect Time-out                    : 5000 ms
Protocol Negotiation Time-out             : 10000 ms
Protocol Negotiation Fallback character   : 13
Protocol Negotiation Retransmission Limit : 12
EC Min, Max Octets Frame length           : 256
Data Compression                          : V.42bis or MNP5
ARA Error Correction                      : ARA1.0 & ARA2.0 Disabled
V.42 Error Correction                     : V.42(LAP-M) Originate&Answer enabled
MNP Error Correction                      : MNP Originate&Answer enabled
Link Protocol Fallback                    : Async Framing (Start/Stop/Parity)
Calling Tone                              : Disabled
Guard Tone                                : Disabled
Modem Standard                            : V.90 Automode
Max Non-PCM Connect Rate                  : 33600 bps
Min Non-PCM Connect Rate                  : 300 bps
Max PCM Connect Rate                      : 60000 bps
...
```

Related Commands

Command	Description
show port operational-status	Displays the operational status of a specified port or rangeof ports.
spe poll	Sets the polling interval to retrieve performance statistics for the entire universal gateway.

show port digital log

To display the digital data event log, use the **show port log** EXEC command.

Cisco AS5350 and Cisco AS5400 with NextPort DFC

show port digital log [**reverse**] [*slot*/*port* [*slot*/*port*]]

Note This command is not supported on the Cisco AS5800 with the Universal Port DFC.

Syntax Description

reverse	(Optional) Report displayed with most recent entry first.
slot	(Optional) All ports on the specified slot. For the AS5400, slot values range from 0 to 7
slot/port	(Optional) All ports on the specified slot and SPE. For the AS5400, slot values range from 0 to 7, and port values range from 0 to 107.

Command Modes

EXEC

Command History

Release	Modification
12.1(1)XD	This command was introduced on the Cisco AS5400.
12.1(3)T	This command was integrated into Cisco IOS Release 12.1(3)T on the Cisco AS5400.
12.1(5)XM1	This command was introduced on the Cisco AS5350 universal gateway.
12.2(11)T	This command was integrated into Cisco IOS Release 12.2(11)T and support was added for the Cisco AS5350.

Examples

The example below shows output from the **show port digital log** on the Cisco AS5400 with NextPort DFC:

```
Router# show port digital log
Port 5/00 Events Log
  00:02:41: incoming called number: 35140
     Service type: DIGITAL_DATA
     Session State: IDLE
     Service type: DIGITAL_DATA
     Session State: ACTIVE
  00:02:41: Digital State event:
           State: Steady
  00:02:40: Digital Static event:
    Connect Protocol                        :   V.110
    Data Bits                               :   8
    Parity                                  :   0
    Stop Bits                               :   1
    TX,RX Bit Rate                          :   19200, 19200
Port 5/01 Events Log
  00:02:42: incoming called number: 35140
```

```
     Service type: DIGITAL_DATA
     Session State: IDLE
     Service type: DIGITAL_DATA
     Session State: ACTIVE
  00:02:41: Digital State event:
           State: Steady
  00:02:41: Digital Static event:
    Connect Protocol                        :   V.110
    Data Bits                               :   8
    Parity                                  :   0
    Stop Bits                               :   1
    TX,RX Bit Rate                          :   19200, 19200
Port 5/02 Events Log
  00:02:42: incoming called number: 35140
     Service type: DIGITAL_DATA
     Session State: IDLE
     Service type: DIGITAL_DATA
     Session State: ACTIVE
  00:02:42: Digital State event:
           State: Steady
  00:02:42: Digital Static event:
    Connect Protocol                        :   V.110
    Data Bits                               :   8
    Parity                                  :   0
    Stop Bits                               :   1
    TX,RX Bit Rate                          :   19200, 19200
Port 5/03 Events Log
  00:02:43: incoming called number: 35140
     Service type: DIGITAL_DATA
     Session State: IDLE
     Service type: DIGITAL_DATA
     Session State: ACTIVE
  00:02:43: Digital State event:
           State: Steady
  00:02:43: Digital Static event:
    Connect Protocol                        :   V.110
    Data Bits                               :   8
    Parity                                  :   0
...
```

Related Commands

Command	Description
clear port digital log	Displays specific service events.
clear port log	Clears all port log events.
show port digital log reverse	Views port events with the most recent event first.

show port modem calltracker

To display the port level information for an active modem, use the **show port modem calltracker** EXEC command.

Cisco AS5350 and Cisco AS5400 with NextPort DFC

show port modem calltracker [*slot* | *slot*/*port*]

Cisco AS5800 with Universal Port DFC

show port modem calltracker [*shelf*/*slot* | *shelf*/*slot*/*port*]

Syntax Description

slot	(Optional) All ports on the specified slot. For the AS5400, slot values range from 0 to 7.
slot/*port*	(Optional) The specified port range on a slot. For the AS5400, slot values range from 0 to 7 and port values range from 0 to 107.
shelf/*slot*	(Optional) All ports on the specified shelf and slot. For the AS5800, shelf values range from 0 to 1 and UPC slot values range from 2 to 11.
shelf/*slot*/*port*	(Optional) The specified port range on a shelf and slot. For the AS5800, shelf values range from 0 to 1, slot values range from 2 to 11, and SPE values range from 0 to 53.

Defaults

No default behavior or values.

Command Modes

EXEC

Command History

Release	Modification
12.1(1)XD	This command was introduced on the Cisco AS5400.
12.1(3)T	This command was integrated into Cisco IOS Release 12.1(3)T on the Cisco AS5400 and the Cisco AS5800.
12.1(5)XM1	This command was introduced on the Cisco AS5350 universal gateway.
12.2(11)T	This command was integrated into Cisco IOS Release 12.2(11)T and support was added for the Cisco AS5350.

Usage Guidelines

When there is no call on the specified port, the most recent call information is displayed. This command uses the calltracker database. To enablecalltracker, enter the **calltracker enable** global configuration command.

Examples

The following example shows output from the **show port modem calltracker** command on the Cisco AS5400 with NextPort DFC. This example shows output for slot 3, port 3.

```
Router# show port modem calltracker 3/3
------------------------- call handle=        62 -------------------------
status=Active, service=PPP, origin=Answer, category=Modem
DS0 slot/port/ds1/chan=4/7/7/0, called=124, calling=(n/a)
userid=as5300-ref2, ip=192.169.124.1, mask=255.255.255.0
setup=06/22/2000 21:50:47, conn=6.77, phys=25.00, service=29.83, authen=29.83
init rx/tx b-rate=33600/33600, rx/tx chars=0/0
resource slot/port=3/3, mp bundle=0, charged units=0, account id=0
idb handle=0x645B97CC, tty handle=0x622207BC, tcb handle=0x0
-------------------------------------------------------------------------
protocol: last=LAP-M, attempted=LAP-M
compression: last=V.42bis-Both, supported= V.42bis-RX V.42bis-TX
standard: last=V.34+, attempted=V.21, initial=V.21

snr=40 dB, sq=5, rx/tx level=-15/0 dBm
phase jitter: freq=1 Hz, level=2 degrees
far end echo level=-90 dBm, freq offset=0 Hz
phase roll=0 degrees, round-trip delay=0 msecs
digital pad=None dB, digital pad comp=0
rbs pattern=0, constellation=0 point
rx/tx: symbol rate=3429/3429, carrier freq=1959/1959
rx/tx: trellis code=0/0, preemphasis index=0/0
rx/tx: constellation shape=Off/Off, nonlinear encode=Off/Off
rx/tx: precode=Off/Off, xmit level reduct=0/0 dBm

rx/tx: chars=0/0, general info=0x0
rx/tx: link layer chars=0/0, NAKs=0/0
error corrected: rx/tx=0/0, rx bad=0
ec retransmissions=0, retransmitted frames=0
rx/tx ppp slip=0/0, bad ppp slip=0

rx/tx b-rate: last=33600/33600, lowest=0/0, highest=0/0
phase 2 projected max rx b-rate: client=0, host=33600
phase 4 desired rx/tx b-rate: client=16384/25987, host=25987/42765
retrains: local=0, remote=0, failed=0
speedshift: local up/down=0/0, remote up/down=0/0, failed=0

v110: rx good=0, rx bad=0, tx=0, sync lost=0
SS7/COT status=0x00
v90: status=(Invalid #141), client=(n/a), failure=None

rx/tx: max neg I frame=128/128, neg window=0/128
v42bis size: dictionary=0, string=16
T401 timeouts=0, tx window closures=0, rx overruns=0
test err=0, reset=0, v0 synch loss=0
mail lost: host=0, sp=0

duration(sec)=0, disc reason=0x0
disc text=(n/a)

               --------5---------10--------15--------20--------25--------30
line shape  : 0x00000000000000000000000000000000000000000000000000000000
v8bis capab : 0x12C9808081C609B502009481834347CB000000000000
v8bis mod sl: 0x00000000000000000000000000000000000000000000000000
v8 jnt menu : 0xC16513942A8D0000000000000000000000000000
v8 call menu: 0x00C16513942A000000000000000000000000000000
v90 training: 0x00000000
v90 sgn ptrn: 0x00000000
state trnsn : 0x0F0F010203041013151920FF00000000000000000000000000000000000000
              0000
portwre diag: 0x00000000000000000000000000000000
phase 2 info: 0x0200EFF41F120000003CEFF41F0200E001EFB4014082050B083470200001
              1EEFB41440E1050008FCA707A707650D00000000000000000000
phase 4 info: 0x0DA70D65836583400040
```

---

show port modem log

To display the events generated by the modem sessions, use the **show port modem log** EXEC command.

Cisco AS5350 and Cisco AS5400 with NextPort DFC

show port modem log [**reverse** *slot/port*] [***slot*** | *slot/port*]

Cisco AS5800 with Universal Port Card DFC

show port modem log [**reverse** *shelf/slot/port*] [*shelf/slot* | *shelf/slot/port*]

Syntax Description

reverse	(Optional) Displays the modem port history event log with the most recent event first.
slot	(Optional) All ports on the specified slot. For the Cisco AS5400, slot values range from 0 to 7.
slot/port	(Optional) The specified port range on a slot. For the Cisco AS5400, slot values range from 0 to 7 and port values range from 0 to 107.
shelf/slot	(Optional) All ports on the specified shelf and slot. For the Cisco AS5800, shelf values range from 0 to 1 and UPC slot values range from 2 to 11.
shelf/slot/port	(Optional) The specified port range on a shelf and slot. For the Cisco AS5800, shelf values range from 0 to 1, slot values range from 2 to 11, and SPE values range from 0 to 53.

Defaults

No default behavior or values.

Command Modes

EXEC

Command History

Release	Modification
12.1(1)XD	This command was introduced on the Cisco AS5400.
12.1(3)T	This command was integrated into Cisco IOS Release 12.1(3)T on the Cisco AS5400 and the Cisco AS5800.
12.1(5)XM1	This command was introduced on the Cisco AS5350 universal gateway.
12.2(11)T	This command was integrated into Cisco IOS Release 12.2(11)T and support was added for the Cisco AS5350.

Usage Guidelines

The port modem test log displays the results of the SPE diagnostics tests.

Examples

The following example shows output for the Cisco AS5400 with NextPort DFC. This example shows the port history event log for slot 5, port 47:

```
Router# show port modem log 5/47
Port 5/47 Events Log
     Service type: DATA_FAX_MODEM
     Service mode: DATA_FAX_MODEM
     Session State: IDLE
  00:02:23: incoming called number: 35160
     Service type: DATA_FAX_MODEM
     Service mode: DATA_FAX_MODEM
     Session State: IDLE
     Service type: DATA_FAX_MODEM
     Service mode: DATA_FAX_MODEM
     Session State: ACTIVE
  00:02:23: Modem State event:
            State: Connect
  00:02:16: Modem State event:
            State: Link
  00:02:13: Modem State event:
            State: Train Up
  00:02:05: Modem State event:
            State: EC Negotiating
  00:02:05: Modem State event:
            State: Steady
  00:02:05: Modem Static event:
    Connect Protocol                          :   LAP-M
    Compression                               :   V.42bis
    Connected Standard                        :   V.34+
    TX,RX Symbol Rate                         :   3429, 3429
    TX,RX Carrier Frequency                   :   1959, 1959
    TX,RX Trellis Coding                      :   16/16
    Frequency Offset                          :   0  Hz
    Round Trip Delay                          :   0  msecs
    TX,RX Bit Rate                            :   33600, 33600
    Robbed Bit Signalling (RBS) pattern       :   0
    Digital Pad                               :   None
    Digital Pad Compensation                  :   None
    4 bytes of link info not formatted        :   0x00 0x00 0x00 0x00 0x00
  00:02:06:Modem Dynamic event:
    Sq Value                                  :   5
    Signal Noise Ratio                        :   40  dB
    Receive Level                             :   -12  dBm
    Phase Jitter Frequency                    :   0  Hz
    Phase Jitter Level                        :   2  degrees
    Far End Echo Level                        :   -90  dBm
    Phase Roll                                :   0  degrees
    Total Retrains                            :   0
    EC Retransmission Count                   :   0
    Characters transmitted, received          :   0, 0
    Characters received BAD                   :   0
    PPP/SLIP packets transmitted, received    :   0, 0
    PPP/SLIP packets received (BAD/ABORTED)   :   0
    EC packets transmitted, received OK       :   0, 0
    EC packets (Received BAD/ABORTED)         :   0
```

This following example shows the port history event log with the most recent event first on slot 5, port 40:

```
Router# show port modem log reverse 5/40
Modem port 5/40 Events Log
  00:02:18:Modem Dynamic event:
    Sq Value                                  :   5
    Signal Noise Ratio                        :   38  dB
    Receive Level                             :   -12  dBm
    Phase Jitter Frequency                    :   0  Hz
    Phase Jitter Level                        :   0  degrees
    Far End Echo Level                        :   0  dBm
```

```
    Phase Roll                              :   0  degrees
    Total Retrains                          :   0
    EC Retransmission Count                 :   0
    Characters transmitted, received        :   0, 0
    Characters received BAD                 :   0
    PPP/SLIP packets transmitted, received  :   0, 0
    PPP/SLIP packets received (BAD/ABORTED) :   0
    EC packets transmitted, received OK     :   0, 0
    EC packets (Received BAD/ABORTED)       :   0
  00:02:18: Modem Static event:
    Connect Protocol                        :   LAP-M
    Compression                             :   V.42bis
    Connected Standard                      :   V.90
    TX,RX Symbol Rate                       :   8000, 3200
    TX,RX Carrier Frequency                 :   1829, 1829
    TX,RX Trellis Coding                    :   16/16
    Frequency Offset                        :   0  Hz
    Round Trip Delay                        :   4  msecs
    TX,RX Bit Rate                          :   52000, 28800
    Robbed Bit Signalling (RBS) pattern     :   255
    Digital Pad                             :   None
    Digital Pad Compensation                :   Enabled
    4 bytes of link info not formatted      :   0x00 0x00 0x00 0x00 0x00
  00:02:23: Modem State event:
            State: Steady
  00:02:23: Modem State event:
            State: EC Negotiating
  00:02:36: Modem State event:
            State: Train Up
  00:02:39: Modem State event:
            State: Link
  00:02:46: Modem State event:
            State: Connect
  00:02:46: Port State Reached:
     Service type: DATA_FAX_MODEM
     Service mode: DATA_FAX_MODEM
     Session State: ACTIVE
  00:02:46: Port State Reached:
     Service type: DATA_FAX_MODEM
     Service mode: DATA_FAX_MODEM
     Session State: IDLE
  00:02:47: incoming called number: 6000
  00:02:47: incoming caller number: 90002
```

The following example shows output for the Cisco AS5800 with Universal Port DFC. This example shows the port history event log for slot 8, ports 0 to 6:

```
Router# show port modem log 1/8/0 1/8/6
Port 1/08/00 Events Log
  09:09:53: Service Type: DATA_FAX_MODEM
  09:09:53: Service Mode: DATA_FAX_MODEM
  09:09:53: Session State: FLUSHING
  09:09:53: Service Type: DATA_FAX_MODEM
  09:09:53: Service Mode: DATA_FAX_MODEM
  09:09:53: Session State: IDLE
  09:09:53: Modem State event:
             State: Terminate
  09:09:53: Modem End Connect event:
    Call Timer                              :   26  secs
    Disconnect Reason Info                  :   0x1F00
        Type (=0  ):  <unknown>
       Class (=31 ):  Requested by host
      Reason (=0  ):  non-specific host disconnect
    Total Retrains                          :   0
    EC Retransmission Count                 :   0
```

```
  Characters transmitted, received        :   2633, 485
  Characters received BAD                 :   0
  PPP/SLIP packets transmitted, received  :   0, 0
  PPP/SLIP packets received (BAD/ABORTED) :   0
  EC packets transmitted, received OK     :   27, 21
  EC packets (Received BAD/ABORTED)       :   0
09:09:54:Modem Link Rate event:
09:09:55: Service Type: DATA_FAX_MODEM
09:09:55: Service Mode: DATA_FAX_MODEM
09:09:55: Session State: IDLE
09:09:55: Service Type: DATA_FAX_MODEM
09:09:55: Service Mode: DATA_FAX_MODEM
09:09:55: Session State: ACTIVE
09:09:55: Modem State event:
          State: Connect
09:09:55: Modem State event:
          State: Link
09:09:55: Modem State event:
          State: Train Up
09:09:55: Modem State event:
          State: EC Negotiating
09:09:55: Modem State event:
          State: Steady
09:09:55: Modem Static event:
  Connect Protocol                        :   LAP-M
  Compression                             :   V.42bis
  Connected Standard                      :   V.34+
  TX,RX Symbol Rate                       :   3429, 3429
  TX,RX Carrier Frequency                 :   1959, 1959
  TX,RX Trellis Coding                    :   16/16
  Frequency Offset                        :   0  Hz
  Round Trip Delay                        :   1  msecs
  TX,RX Bit Rate                          :   31200, 28800
  Robbed Bit Signalling (RBS) pattern     :   0
  Digital Pad                             :   None
  Digital Pad Compensation                :   None
  4 bytes of link info not formatted      :   0x00 0x00 0x00 0x00 0x00
09:09:56: Modem Dynamic event:
  Sq Value                                :   5
  Signal Noise Ratio                      :   38  dB
  Receive Level                           :   -15  dBm
  Phase Jitter Frequency                  :   13  Hz
  Phase Jitter Level                      :   0  degrees
  Far End Echo Level                      :   -90  dBm
  Phase Roll                              :   0  degrees
  Total Retrains                          :   0
  EC Retransmission Count                 :   0
  Characters transmitted, received        :   0, 0
  Characters received BAD                 :   0
  PPP/SLIP packets transmitted, received  :   0, 0
  PPP/SLIP packets received (BAD/ABORTED) :   0
  EC packets transmitted, received OK     :   0, 0
  EC packets (Received BAD/ABORTED)       :   0
09:09:58: Service Type: DATA_FAX_MODEM
09:09:58: Service Mode: DATA_FAX_MODEM
09:09:58: Session State: FLUSHING
09:09:58: Service Type: DATA_FAX_MODEM
09:09:58: Service Mode: DATA_FAX_MODEM
09:09:58: Session State: IDLE
09:09:58: Modem State event:
          State: Terminate
...
```

Related Commands

Command	Description
clear port log	Clears all event entries in the port level history event log.
port modem startup-test	Performs diagnostic testing for all modems.
port modem autotest	Automatically and periodically performs a modem diagnostics test for modems inside the universal gateway or router.
show port modem log reverse	Displays the latest event first from the port history event log.
test port modem back-to-back	Connects two specified ports back-to-back and transfer a specified amount of data between the ports.

show port modem test

To display the modem port test log, use the **show port modem test** EXEC command.

Cisco AS5350 and Cisco AS5400 with NextPort DFC

show port modem test [*slot* | *slot*/*port*]

Cisco AS5800 with Universal Port Card DFC

show port modem test [*shelf*/*slot* | *shelf*/*slot*/*port*]

Syntax Description

slot	(Optional) All ports on the specified slot. For the Cisco AS5400, slot values range from 0 to 7.
slot/*port*	(Optional) The specified port range on a slot. For the Cisco AS5400, slot values range from 0 to 7 and port values range from 0 to 107.
shelf/*slot*	(Optional) All ports on the specified shelf and slot. For the Cisco AS5800, shelf values range from 0 to 1 and UPC slot values range from 2 to 11.
shelf/*slot*/*port*	(Optional) The specified port range on a shelf and slot. For the Cisco AS5800, shelf values range from 0 to 1, slot values range from 2 to 11, and SPE values range from 0 to 53.

Defaults

No default behavior or values.

Command Modes

EXEC

Command History

Release	Modification
12.1(1)XD	This command was introduced on the Cisco AS5400.
12.1(3)T	This command was integrated into Cisco IOS Release 12.1(3)T on the Cisco AS5400 and the Cisco AS5800.
12.1(5)XM1	This command was introduced on the Cisco AS5350 universal gateway.
12.2(11)T	This command was integrated into Cisco IOS Release 12.2(11)T and support was added for the Cisco AS5350.

Usage Guidelines

The port modem test log displays the results of the SPE diagnostics tests.

Examples

The following example shows output for the Cisco AS5400 with NextPort DFC. This example displays the results of the SPE startup test, SPE auto-test, and SPE back-to-back test.

Note The *Reason* column indicates why the test was started. The *TIME INTERVAL* is one of the triggers under autotest the other being the error threshold.

```
router# show port modem test
 Date Time              Modem  Test               Reason            State Result
 3/02 12:00:57 PM        2/01  Back-To-Back     :STARTUP TEST      Idle  PASS
 3/02 12:00:57 PM        2/00  Back-To-Back     :STARTUP TEST      Idle  PASS
 3/02 12:00:58 PM        2/02  Back-To-Back     :STARTUP TEST      Idle  PASS
 3/02 12:00:58 PM        2/03  Back-To-Back     :STARTUP TEST      Idle  PASS
 3/02 12:00:58 PM        2/04  Back-To-Back     :STARTUP TEST      Idle  PASS
 3/02 12:00:58 PM        2/05  Back-To-Back     :STARTUP TEST      Idle  PASS
...
 3/02 12:01:14 PM        3/95  Back-To-Back     :STARTUP TEST      Idle  PASS
 3/02 12:01:14 PM        3/94  Back-To-Back     :STARTUP TEST      Idle  PASS
 3/02 12:01:15 PM        3/75  Back-To-Back     :STARTUP TEST      Idle  PASS
 3/02 12:01:15 PM        3/74  Back-To-Back     :STARTUP TEST      Idle  PASS
 3/02 12:13:52 PM        3/20  Back-To-Back     :USER INITIATED    Idle  PASS
 3/02 12:13:52 PM        2/10  Back-To-Back     :USER INITIATED    Idle  PASS
...
 3/02 12:44:00 PM       3/102  No Test (Time)   :MIN IDLE MODEMS   Idle  NOTST
 3/02 12:44:00 PM       3/103  No Test (Time)   :MIN IDLE MODEMS   Idle  NOTST
 3/02 12:44:00 PM       3/104  No Test (Time)   :MIN IDLE MODEMS   Idle  NOTST
 3/02 12:44:00 PM       3/105  No Test (Time)   :MIN IDLE MODEMS   Idle  NOTST
 3/02 12:44:00 PM       3/106  No Test (Time)   :MIN IDLE MODEMS   Idle  NOTST
 3/02 12:44:00 PM       3/107  No Test (Time)   :MIN IDLE MODEMS   Idle  NOTST
 3/02 12:44:21 PM        2/73  Back-To-Back     :TIME INTERVAL     Idle  PASS
 3/02 12:44:21 PM        2/72  Back-To-Back     :TIME INTERVAL     Idle  PASS
 3/02 12:44:21 PM        2/33  Back-To-Back     :TIME INTERVAL     Idle  PASS
 3/02 12:44:21 PM        2/32  Back-To-Back     :TIME INTERVAL     Idle  PASS
 3/02 12:44:21 PM        3/37  Back-To-Back     :TIME INTERVAL     Idle  PASS
```

Related Commands

Command	Description
clear port log	Clears all event entries in the port level history event log.
port modem autotest	Automatically and periodically performs a modem diagnostics test for modems inside the universal gateway or router.
port modem startup-test	Performs diagnostic testing for all modems.
show port digital log	Displays the modem port history event log or modem test log.
show port log reverse	Displays the latest event first from the port history event log.
test port modem back-to-back	Connects two specified ports back-to-back and transfer a specified amount of data between the ports.

show port operational-status

To display the active session's statistics, use the **show port operational-status** EXEC command.

Cisco AS5350 and Cisco AS5400 with NextPort DFC

show port operational-status {*slot* | *slot*/*port*}

Cisco AS5800 with Universal Port Card DFC

show port operational-status {*shelf*/*slot* | *shelf*/*slot*/*port*}

Syntax Description

slot	(Optional) All ports on the specified slot. For the Cisco AS5400, slot values range from 0 to 7.
slot/*port*	(Optional) The specified port range on a slot. For the Cisco AS5400, slot values range from 0 to 7 and port values range from 0 to 107.
shelf/*slot*	(Optional) All ports on the specified shelf and slot. For the Cisco AS5800, shelf values range from 0 to 1 and UPC slot values range from 2 to 11.
shelf/*slot*/*port*	(Optional) The specified port range on a shelf and slot. For the Cisco AS5800, shelf values range from 0 to 1, slot values range from 2 to 11, and SPE values range from 0 to 53.

Defaults

No default behavior or values.

Command Modes

EXEC

CommandHistory

Release	Modification
12.1(1)XD	This command was introduced on the Cisco AS5400. This command replaces **show port operational-status**.
12.1(3)T	This command was integrated into Cisco IOS Release 12.1(3)T on the Cisco AS5400 and the Cisco AS5800.
12.1(5)XM1	This command was introduced on the Cisco AS5350 universal gateway.
12.2(11)T	This command was integrated into Cisco IOS Release 12.2(11)T and support was added for the Cisco AS5350.

Usage Guidelines

This command displays the operational status of a specific port or range of ports. The port should have an associated active modem session when command is executed. The **show port operational-status** command is equivalent to the **show modem operational-status** MICA modem command.

Examples

The following example shows output from the **show port operational-status** command on the Cisco AS5400 with NextPort DFC. This example displays operational status for slot 2, SPE 0, port 1:

```
router# show port operational-status 2/1
Slot/SPE/Port -- 2/0/1
Service Type                          :Modem service
Disconnect Reason Info                :0x0
Type (=0  ): <unknown>
Class (=0  ): Other
Reason (=0  ): no disconnect has yet occurred
Modulation Standard                   :V.34+
TX/RX Bit Rate                        :31200/14400
Connect Protocol                      :LAP-M
Compression                           :V.42bis
Call Timer                            :47 secs
Link Signal Quality                   :7
SNR                                   :37 dB
TX/RX Symbol Rate                     :3429/3429
TX/RX Carrier Frequency               :1959/1959
TX/RX Trellis Coding                  :16/16
TX/RX Preemphasis Index               :0/1
TX/RX Constellation Shaping           :On-Active/On-Active
TX/RX Nonlinear Encoding              :On-Active/On-Active
TX/RX Precoding                       :On-Active/On-Active
TX/RX Xmit Level Reduction            :3/1 dBm
Receive Level                         :-15 dBm
Frequency Offset                      :0 Hz
Phase Jitter Frequency                :2 Hz
Phase Jitter Level                    :2 degrees
Far End Echo Level                    :-90 dBm
Phase Roll                            :0 degrees
Round Trip Delay                      :0 msecs
>Total Retrains                        :0
Self Test Error count                 :0
EC Retransmission count               :0
EC packets transmitted/received OK    :11/12
EC packets (Received BAD/ABORTED)     :0
Characters transmitted/received       :76/13
Characters received BAD               :0
PPP/SLIP packets transmitted/received   :0/0
PPP/SLIP packets received (BAD/ABORTED) :0
RBS Pattern                           :0
Digital Pad                           :0
Digital Pad Compensation              :0
```

The following example displays operational status for a V.110 digital service slot/port.

```
router# show port operational-status 2/23
Slot/SPE/Port -- 2/3/23
Service Type                          : Digital service
Connect Protocol                      : V110
Data Bits                             : 8
Parity                                : 0
Stop Bits                             : 1
TX/RX Bit Rate                        : 19200/19200
Call Timer                            : 116 secs
EC packets transmitted/received OK    : 0/0
EC packets (Received BAD/ABORTED)     : 0
PPP/SLIP packets transmitted, received  : 8/8
PPP/SLIP packets received (BAD/ABORTED) : 0
Sync Loss                             : 0
```

The example below displays **show port operational status** for a modem service port located in Slot/SPE/Port: 2/0/0.

```
show port op 2/00
Slot/SPE/Port -- 2/0/0
```

```
Service Type                              : Modem service
Disconnect Reason Info                    : 0x0
     Type (=0  ):  <unknown>
Class (=0  ):  Other
    Reason (=0  ):  no disconnect has yet occurred
    Modulation Standard                     : V.34+
    TX/RX Bit Rate                          : 31200/33600
    Connect Protocol                        : LAP-M
    Compression                             : V.42bis
    Call Timer                              : 34 secs
    Link Signal Quality                     : 6
    SNR                                     : 40 dB
    TX/RX Symbol Rate                       : 3429/3429
    TX/RX Carrier Frequency                 : 1959/1959
    TX/RX Trellis Coding                    : 16/16
    TX/RX Preemphasis Index                 : 0/0
    TX/RX Constellation Shaping             : Off-None/On-Active
    TX/RX Nonlinear Encoding                : Off-None/On-Active
    TX/RX Precoding                         : Off-None/On-Active
    TX/RX Xmit Level Reduction              : 6/4 dBm
    Receive Level                           : -13 dBm
    Frequency Offset                        : 0 Hz
    Phase Jitter Frequency                  : 2 Hz
    Phase Jitter Level                      : 0 degrees
    Far End Echo Level                      : -90 dBm
    Phase Roll                              : 0 degrees
    Round Trip Delay                        : 0 msecs
    Total Retrains                          : 0
    Self Test Error count                   : 0
    EC Retransmission count                 : 0
    EC packets transmitted/received OK      : 1/1
    EC packets (Received BAD/ABORTED)       : 0
    Characters transmitted/received         : 7/1
    Characters received BAD                 : 0
    PPP/SLIP packets transmitted/received   : 0/0
    PPP/SLIP packets received (BAD/ABORTED) : 0
    RBS Pattern                             : 0
    Digital Pad                             : 0
    Digital Pad Compensation                : 0
```

See Table 11 for field definitions for output display of the **modem operational-status** command.

Table 11 Field Definitions for Output Display of the Modem Operational-Status Command

Field	Definition
Call Timer	Length of the call in seconds. The timer starts once the CONNECT modem state is reached.
Characters received BAD	Total number of parity errored characters, which is a subset of Characters transmitted/received. This is for ASYNC connections.
Compression	Compression protocol used for the current connection, which can be None, V.42bis TX, V.42bis RX, V.42bis both, or MNP5 data compression.
Connect Protocol	Connect protocol for the current session, which can be SYNC mode, ASYNC mode, ARA1.0, ARA2.0, LAP-M, MNP, FAX mode, SS7/COT, or V.110.
Count. Characters transmitted/received	Count of total characters received and transmitted for SYNC/ASYNC connections.
Digital Pad	A digital pad can be implemented by the CO in order to attenuate a “hot” signal. Compensation boosts the signal the amount of the pad. Values can range from 0 to 7dB, with typical values being 0, 3, and 6dB. It is mandatory for K56Flex, but configurable for V.90 via S52. K56Flex only supports 0, 3, and 6 dB. V.90 supports steps of 1/8192 dB, but it is reported to the host insteps of 1/8 dB granularity.
Digital Pad Compensation	Compensation of padding detected in the network.
EC packets (Received BAD/ABORTED)	This is identical to EC Retransmission
EC packets transmitted/received OK	EC packets transmitted is the number of TX frames that the client modem accepted. EC packets received is the number of data RX frames accepted.
EC Retransmission count	The number of times NextPort has gone into error recovery in the TX direction for a particular connection. The bigger the number, the worse the connection. However, this parameter should be weighed against the count produced by EC packets transmitted, received in order to determine if there should really be a concern.
Far End Echo Level	Over long connections, an echo is produced by impedance mismatches at 2 wire to 4 wire as well as 4 wire to 2 wire hybrid circuitry. The far end echo level (that portion of the transmitted analog signal which has bounced off of the remote modem's analog front end) may range from 0 to -90 in dBm.
Frequency Offset	It is the difference between the modulation carriers (frequency shift in the receive spectrum) between the expected RX carrier frequency and the actual RX carrier frequency.
Link Signal Quality	Measure of line quality for a given bit rate where 0 is the worst and 3 is steady state. If a 1 or 2 is present, the modem must shift down to a lower rate. Likewise, if the Sq value is 4 to 7, the modem will speed shift up to a higher rate. If the Sq value is high (e.g. 7) and the bit rate is low, then there may be a problem at the remote end receiver.
Modulation Standard	Modulation standard which can be V.21, Bell03, V.22, V.22bis, Bell212, V.23, V.32, V.32bis, V.32terbo, V.34, V.34+, K56Flex, or V.90
Phase Jitter Frequency	Peak to peak differential between two signal points. Uncanceled phase jitter looks like “rocking” of the baseband QAM constellation. The points look like arcs with the outer points having longer arcs.
Phase Jitter Level	Amount of phase jitter measured and indicates how large the “rocking” is in degrees. On an oscilloscope the constellation points would look like crescent moons. Values can range up to 15 degrees. The typical value is zero (i.e. phase jitter is not normally present).

Table 11 Field Definitions for Output Display of the Modem Operational-Status Command

Field	Definition
Phase Roll	Phase roll effects the echo signal coming back. A certain constellation pattern is transmitted from a modem and makes it to the central office. Some echoed form of this signal/constellation pattern is sent back. However, the constellation shape may be rotated from 0-359 degrees. This rotation is called the phase roll.
PPP/SLIP packets received (BAD/ABORTED)	Total count of the bad or aborted PPP/SLIP packets, which is a subset of PPP/SLIP packets received. A counted PPP packet has a bad FCS, or the SLIP packet has a transparency error.
PPP/SLIP packets transmitted/received	Total count of PPP/SLIP packets transmitted and received. This total could include all PPP/SLIP packets, including BAD/ABORTED packets.
RBS Pattern	Reports the number of robbed bits detected in the connection. The robbed bits are used for inband signalling. This information is only reported for K56Flex (by the analog modem) and is only found on a channelized line such as T1 or E1. The 6 LSBs of the returned value indicate the periodic RBS pattern where a 1 denotes a PCM sample with a robbed bit.
Receive Level	This is the power of the received signal and ranges from 0 to -128 in dBm steps. Typically the range in the United States is around -22 dBm, and in Europe is -12 dBm. A good range is from -12dBm to -24dBm.
Round Trip Delay	Total round trip propagation delay of the link (in ms). This is important for proper echo cancellation. The amount that the delay varies on the network.
Self Test Error count	Total errors generated during a self test run.
SNR	The ratio measurement of the desired signal to noise. This value can range from 0 to 70 dB and changes in 1 dB steps. Note that a 28.8kbps connection demands a SNR of around 37dB. Lower than this and the quality of the connection diminishes. A 33.6kbps connection demands a SNR of 38 to 39dB. Also note that a “clean” line has a SNR of about 41dB.
Total Retrains	Count of total retrains and speed shifts.
TX/RX Bit Rate	TX is the bit rate from the local DCE to the remote DCE. RX is the bit rate from the remote DCE to the local DCE. These rates may be asynchronous
TX/RX Carrier Frequency	For TX, carrier frequency used by the local DCE. For RX, carrier frequency used by the remote DCE.
TX/RX Constellation Shaping	A method for improving noise immunity by using a probability distribution for transmitted signal points. The signal states used to predict the sensitivity to certain transmission impairments. Values may be either none or active. This technique is used with V.34 and V.34+ standards.
TX/RX Nonlinear Encoding	Occurs during the training phase and moves the constellation's outer points away in order to deal with non-linear distortion. Non-linear distortion (0-200Hz) tends to effect the higher power signals. Moving the outer constellation points out reduces the chance of error. Values may be either none or active. MICA modems support nonlinear coding in both directions. This technique is used with V.34 and V.34+ standards.
TX/RX Pre emphasis Index	Involves shaping the raw transmit spectrum in order to deal with spectrum roll-offs. The pre-emphasis index can take on the values 0 to 10. A zero denotes no reshaping. Typical values usually fall in the ranges 0 to 2 or 6 to 7. This technique is used with V.34 and V.34+ standards.
TX/RX Precoding	Serves the same purpose as the pre-emphasis index but instead manages the bits and not the raw transmit signals. This is only done when asked and therefore will only occur in the RX mode. The values may be either none or active. This technique is used with V.34 and V.34+ standards.

Table 11 Field Definitions for Output Display of the Modem Operational-Status Command

Field	Definition
TX/RX Symbol Rate	TX is symbol rate used to send samples to the line. RX is the symbol rate used to receive samples off of the line. The rates are synchronous with each other.
TX/RX Trellis Coding	Adds dependency between symbols in order to make the detection in noise more robust (Forward Error Correction). Modems may use 8 (V.32, V.32bis, V.17), 16, 32, 64 (V.34, V.34+, V.90, K56flex), or no trellis coding (V.22, V.22bis, V.21, Bell212, Bell103, V.29, V.27).
TX/RX Xmit Level Reduction	Effects the transmit signal with 0 to 15 in dBm of reduction. If nonlinear distortion is detected, the modem will ask the client for a lower powered TX signal. If the remote end detects nonlinear distortion, it may ask us to lower our TX signal. This technique is used with V.34 and V.34+ standards.

Related Commandss

Command	Description
port modem autotest	Automatically and periodically performs a modem diagnostics test for modems inside the universal gateway or router.
port modem startup-test	Performs diagnostic testing for all modems.
show spe modem active	Displays active modem statistics of all SPEs, a specified SPE, or the specified range of SPEs.
test port modem back-to-back	Connects two specified ports back-to-back and transfer a specified amount of data between the ports.

show spe

To show Service Processing Element (SPE) status, use the **show spe** EXEC command.

Cisco AS5350 and Cisco AS5400 with NextPort DFC

show spe [*slot* | *slot*/*spe*]

Cisco AS5800 with Universal Port Card DFC

show spe [*shelf*/*slot* | *shelf*/*slot*/*spe*]

Syntax Descriptions

slot	(Optional) All ports on the specified slot. For the Cisco AS5400, slot values range from 0 to 7.
slot/*port*	(Optional) The specified port range on a slot. For the Cisco AS5400, slot values range from 0 to 7 and port values range from 0 to 107.
shelf/*slot*	(Optional) All ports on the specified shelf and slot. For the Cisco AS5800, shelf values range from 0 to 1 and UPC slot values range from 2 to 11.
shelf/*slot*/*port*	(Optional) The specified port range on a shelf and slot. For the Cisco AS5800, shelf values range from 0 to 1, slot values range from 2 to 11, and SPE values range from 0 to 53.

Defaults

No default behavior or values.

Command Modes

EXEC

Command History

Release	Modification
12.1(1)XD	This command was introduced on the Cisco AS5400.
12.1(3)T	This command was integrated into Cisco IOS Release 12.1(3)T on the Cisco AS5400 and the Cisco AS5800.
12.1(5)XM1	This command was introduced on the Cisco AS5350 universal gateway.
12.2(11)T	This command was integrated into Cisco IOS Release 12.2(11)T and support was added for the Cisco AS5350.

Usage Guidelines

Use the **show spe** command to display status and history statistics of all SPEs, a specified SPE, or the specified range of SPEs.

Examples

The following example displays history statistics for all SPEs after a busyout was executed on SPE 2/0 and a shutdown was executed on SPE 2/1:

```
router# show spe
SPE settings:
```

```
==============
Country code configuration: default T1 (u Law)
Polling interval: 12 secs.
History log events: 50(per port)
Port legends:
============
Port state: (s)shutdown (t)test (r)recovery (d)download
            (b)busiedout (p)busyout pending, (B)bad (a)active call
Call Type: (m)modem (d)digital (_)not in use

                     SPE          SPE     SPE  SPE   Port         Call
SPE#    Port #       State        Busyout Shut Crash State        Type
2/00    0000-0005    ACTIVE             0    0     0 aaaaaa       dddddd
2/01    0006-0011    ACTIVE             0    0     0 aaaaaa       dddddd
2/02    0012-0017    ACTIVE             0    0     0 aaaaaa       dddddd
2/03    0018-0023    ACTIVE             0    0     0 aaaaaa       dddmdm
2/04    0024-0029    ACTIVE             0    0     0 aaaaaa       dmmmmm
2/05    0030-0035    ACTIVE             0    0     0 aaa_aa       mmm_mm
2/06    0036-0041    ACTIVE             0    0     0 __aaaa       __mmmm
2/07    0042-0047    ACTIVE             0    0     0 aaa_aa       mmm_mm
2/08    0048-0053    ACTIVE             0    0     0 _aaa_a       _mmm_m
2/09    0054-0059    ACTIVE             0    0     0 _aa_aa       _md_mm
2/10    0060-0065    ACTIVE             0    0     0 _a_a_a       _m_m_m
2/11    0066-0071    ACTIVE             0    0     0 _a_aaa       _d_mmd
2/12    0072-0077    ACTIVE             0    0     0 aaaaaa       mdmmmd
2/13    0078-0083    ACTIVE             0    0     0 _aaaaa       _dmmdm
2/14    0084-0089    ACTIVE             0    0     0 _a_aaa       _m_ddd
2/15    0090-0095    ACTIVE             0    0     0 a_aaaa       m_dddd
2/16    0096-0101    ACTIVE             0    0     0 aaaaaa       ddddmd
2/17    0102-0107    ACTIVE             0    0     0 aaaaaa       dddddd
```

The following example shows output for the **show spe** command on the Cisco AS5800 with one Universal Port DFC:

```
Router# show spe

SPE settings
==============
Country code configuration default T1 (u Law)
Polling interval 12 secs.
History log events 50(per port)
Port legends
============
Port state (s)shutdown (t)test (r)recovery (d)download
            (b)busiedout (p)busyout pending, (B)bad (a)active call
Call type (m)modem (d)digital (_)not in use

                      SPE          SPE     SPE  SPE   Port         Call
SPE#    Port #        State        Busyout Shut Crash State        Type
1/02/00 0000-0005     ACTIVE             0    0     0 a_a_a_       m_m_m_
1/02/01 0006-0011     ACTIVE             0    0     0 aaa___       mmm___
1/02/02 0012-0017     ACTIVE             0    0     0 _a_aa_       _m_mm_
1/02/03 0018-0023     ACTIVE             0    0     0 _aaaaa       _mmmmm
1/02/04 0024-0029     ACTIVE             0    0     0 a_a_a_       m_m_m_
1/02/05 0030-0035     ACTIVE             0    0     0 ____a_       ____m_
1/02/06 0036-0041     ACTIVE             0    0     0 _aaa_a       _mmm_m
1/02/07 0042-0047     ACTIVE             0    0     0 a_____       m_____
1/02/08 0048-0053     ACTIVE             0    0     0 _aa_aa       _mm_mm
1/02/09 0054-0059     ACTIVE             0    0     0 _aa_aa       _mm_mm
1/02/10 0060-0065     ACTIVE             0    0     0 _a_a_a       _m_m_m
1/02/11 0066-0071     ACTIVE             0    0     0 a__aa_       m__mm_
1/02/12 0072-0077     ACTIVE             0    0     0 aaa___       mmm___
1/02/13 0078-0083     ACTIVE             0    0     0 aaaa_a       mmmm_m
1/02/14 0084-0089     ACTIVE             0    0     0 _aaa__       _mmm__
```

```
1/02/15 0090-0095    ACTIVE              0     0      0 a__aaa        m__mmm
1/02/16 0096-0101    ACTIVE              0     0      0 _aaaa_        _mmmm_
1/02/17 0102-0107    ACTIVE              0     0      0 _aaa_a        _mmm_m
1/02/18 0108-0113    ACTIVE              1     0      0 _aaaaa        _mmmmm
1/02/19 0114-0119    ACTIVE              1     0      0 aa_aa_        mm_mm_
1/02/20 0120-0125    ACTIVE              1     0      0 aa__aa        mm__mm
1/02/21 0126-0131    ACTIVE              1     0      0 aaa_aa        mmm_mm
1/02/22 0132-0137    ACTIVE              1     0      0 _a____        _m____
1/02/23 0138-0143    ACTIVE              1     0      0 a__aaa        m__mmm
1/02/24 0144-0149    ACTIVE              1     0      0 a_a_aa        m_m_mm
1/02/25 0150-0155    ACTIVE              1     0      0 ___aaa        ___mmm
1/02/26 0156-0161    ACTIVE              1     0      0 a_a__a        m_m__m
1/02/27 0162-0167    ACTIVE              1     0      0 a_a_aa        m_m_mm
1/02/28 0168-0173    ACTIVE              1     0      0 a___aa        m___mm
1/02/29 0174-0179    ACTIVE              1     0      0 _a____        _m____
1/02/30 0180-0185    ACTIVE              1     0      0 _aaaaa        _mmmmm
1/02/31 0186-0191    ACTIVE              1     0      0 _a_aa_        _m_mm_
1/02/32 0192-0197    ACTIVE              1     0      0 aaa__a        mmm__m
1/02/33 0198-0203    ACTIVE              1     0      0 a_a__a        m_m__m
1/02/34 0204-0209    ACTIVE              1     0      0 aaaaaa        mmmmmm
1/02/35 0210-0215    ACTIVE              1     0      0 _aa__a        _mm__m
1/02/36 0216-0221    ACTIVE              0     0      0 a_a_aa        m_m_mm
1/02/37 0222-0227    ACTIVE              0     0      0 a_aaaa        m_mmmm
1/02/38 0228-0233    ACTIVE              0     0      0 aaaaaa        mmmmmm
1/02/39 0234-0239    ACTIVE              0     0      0 aa_aa_        mm_mm_
1/02/40 0240-0245    ACTIVE              0     0      0 aa_aaa        mm_mmm
1/02/41 0246-0251    ACTIVE              0     0      0 a__a__        m__m__
1/02/42 0252-0257    ACTIVE              0     0      0 aa__aa        mm__mm
1/02/43 0258-0263    ACTIVE              0     0      0 aaa_aa        mmm_mm
1/02/44 0264-0269    ACTIVE              0     0      0 aaaa_a        mmmm_m
1/02/45 0270-0275    ACTIVE              0     0      0 aaa_a_        mmm_m_
1/02/46 0276-0281    ACTIVE              0     0      0 aaaaa_        mmmmm_
1/02/47 0282-0287    ACTIVE              0     0      0 _aaaa_        _mmmm_
1/02/48 0288-0293    ACTIVE              0     0      0 a_aa_a        m_mm_m
1/02/49 0294-0299    ACTIVE              0     0      0 aa_a_a        mm_m_m
1/02/50 0300-0305    ACTIVE              0     0      0 aa_aaa        mm_mmm
1/02/51 0306-0311    ACTIVE              0     0      0 aaaaa_        mmmmm_
1/02/52 0312-0317    ACTIVE              0     0      0 aaaaaa        mmmmmm
1/02/53 0318-0323    ACTIVE              0     0      0 aaaa_a        mmmm_m
```

Related Commands

Command	Description
show spe modem active	Displays active modem statistics of all SPEs, a specified SPE, or the specified range of SPEs.
show spe digital active	Displays active digital calls and digital statistics of all SPEs, a specified SPE, or the specified range of SPEs.

show spe digital

To display digital history statistics of all Service Processing Elements (SPEs) for digital service, in summary form or for SPEs starting with a specified slot or a specified shelf/slot/range of SPEs, use the show spe digital EXEC command.

Cisco AS5350 and Cisco AS5400 with NextPort DFC

show spe digital [*slot* | *slot*/*spe*]

Note This command is not supported on the Cisco AS5800 with the Universal Port DFC.

Syntax Description

slot	(Optional) All ports on the specified slot. For the Cisco AS5400, slot values range from 0 to 7.
slot/*spe*	(Optional) The specified slot and SPE. For the Cisco AS5400, slot values range from 0 to 7 and SPE values range from 0 to 17.

Defaults

No default behavior or values.

Command Modes

EXEC

Command History

Release	Modification
12.1(1)XD	This command was introduced on the Cisco AS5400.
12.1(3)T	This command was integrated into Cisco IOS Release 12.1(3)T on the Cisco AS5400 and the Cisco AS5800.
12.1(5)XM1	This command was introduced on the Cisco AS5350 universal gateway.
12.2(11)T	This command was integrated into Cisco IOS Release 12.2(11)T and support was added for the Cisco AS5350.

Usage Guidelines

The **show spe digital** command displays history statistics of all digital SPEs, in summary form or for SPEs starting with a specified slot, or a specified shelf/slot/range of SPEs.

Examples

The following example uses the starting slot/SPE version of the **show spe digital** command.

```
router# show spe digital 5/4
#SPE 5/04
Cisco NextPort SPE; Fw: 0.06.07.03; Async5/24 - 5/29, TTY672 - 677
Last clearing of statistics counters          :  never
      11 incoming completes         24 incoming failures
       0 outgoing completes          0 outgoing failures
       0 failed dial attempts        0 ring no answers
       0 no dial tones               0 link failures
```

```
       0 watchdog timeouts           0 protocol errors
       0 dial timeouts

Transmit Speed Counters       :
 Speed    Calls  Speed    Calls  Speed    Calls  Speed    Calls
Speed    Calls
 64000        0  28800        0  14400        0   7200        0
1200        0
 56000        0  24000        0  12000        0   4800        1
600        0
 38400        0  19200       10   9600        0   2400        0


Receive Speed Counters       :
 Speed    Calls  Speed    Calls  Speed    Calls  Speed    Calls
Speed    Calls
 64000        0  28800        0  14400        0   7200        0
1200        0
 56000        0  24000        0  12000        0   4800        1
600        0
 38400        0  19200       10   9600        0   2400        0
```

Related Commands

Command	Description
show spe digital active	Displays active digital calls and digital statistics of all SPEs, a specified SPE, or the specified range of SPEs.
show spe digital csr	Displays digital calls success rate (CSR) statistics of all SPEs, a specified SPE, or the specified range of SPEs
show spe digital disconnect-reason	Displays the local disconnect reasons for all digital calls on the SPEs, a specified SPE, or the specified range of SPEs.
show spe digital summary	Displays history statistics of all SPEs, a specified SPE, or the specified range of SPEs.

show spe digital active

To display active digital calls and digital statistics of all Service Processing Elements (SPEs), a specified SPE, or the specified range of SPEs, use the show spe digital active EXEC command.

Cisco AS5350 and Cisco AS5400 with NextPort DFC

show spe digital active [*slot* | *slot*/*spe*]

Note This command is not supported on the Cisco AS5800 with the Universal Port DFC.

Syntax Description

slot	(Optional) All ports on the specified slot. For the Cisco AS5400, slot values range from 0 to 7.
slot/*spe*	(Optional) The specified slot and SPE. For the Cisco AS5400, slot values range from 0 to 7 and SPE values range from 0 to 17.

Defaults

No default behavior or values.

Command Modes

EXEC

Command History

Release	Modification
12.1(1)XD	This command was introduced on the Cisco AS5400.
12.1(3)T	This command was integrated into Cisco IOS Release 12.1(3)T on the Cisco AS5400.
12.1(5)XM1	This command was introduced on the Cisco AS5350 universal gateway.
12.2(11)T	This command was integrated into Cisco IOS Release 12.2(11)T and support was added for the Cisco AS5350.

Usage Guidelines

The show spe digital active command displays active digital calls and digital statistics of all SPEs, a specified SPE, or the specified range of SPEs.

Examples

The following example shows output for the show spe digital active command on the Cisco AS5400 with NextPort DFC. This example displays active digital statistics for slot 5, SPE 6:

```
router# show spe digital active 5
SPE 5/06
                        Char             Sync
Port  Prot    Duration  Tx/Rx       Cfg  Loss
41    V.110   188       19200/19200 In   0

SPE 5/09
                        Char             Sync
```

```
Port   Prot     Duration  Tx/Rx        Cfg  Loss
54     V.110    187       19200/19200  In   0
56     V.110    187       19200/19200  In   0
57     V.110    188       19200/19200  In   0
...
```

Related Commands

Command	Description
show spe digital	Displays history statistics of all digital SPEs, in summary form or for SPEs starting with a specified slot or a specified shelf/slot/range of SPEs.
show spe digital csr	Displays digital calls success rate (CSR) statistics of all SPEs, a specified SPE, or the specified range of SPEs.
show spe digital disconnect-reason	Displays the local disconnect reasons for all digital calls on the SPEs, a specified SPE, or the specified range of SPEs.
show spe digital summary	Display history statistics of all SPEs, a specified SPE, or the specified range of SPEs.

show spe digital csr

To display digital calls success rate (CSR) statistics of all Service Processing Elements (SPEs), a specified SPE, or the specified range of SPEs, use the **show spe digital csr** EXEC command.

Cisco AS5350 and Cisco AS5400 with NextPort DFC

show spe digital csr [***summary*** | *slot* | *slot*/*spe*]

Note This command is not supported on the Cisco AS5800 with the Universal Port DFC.

Syntax Description

summary	Summary digital csr statistics.
slot	(Optional) All ports on the specified slot. For the Cisco AS5400, slot values range from 0 to 7.
slot/*spe*	(Optional) The specified slot and SPE. For the Cisco AS5400, slot values range from 0 to 7 and SPE values range from 0 to 17.

Defaults

No default behavior or values

Command Modes

EXEC

Command History

Release	Modification
12.1(1)XD	This command was introduced on the Cisco AS5400.
12.1(3)T	This command was integrated into Cisco IOS Release 12.1(3)T on the Cisco AS5400.
12.1(5)XM1	This command was introduced on the Cisco AS5350 universal gateway.
12.2(11)T	This command was integrated into Cisco IOS Release 12.2(11)T and support was added for the Cisco AS5350.

Usage Guidelines

The show spe digital csr command displays digital calls success rate (CSR) statistics of all SPEs, a specified SPE, or the specified range of SPEs

Examples

The following example shows output for the show spe digital csr command on the Cisco AS5350 with NextPort DFC. This example displays the number of call success rate counters for slot 5

```
router# show spe digital csr 5
         Avg Hold     Inc calls     Out calls    Failed    No      Succ
SPE        Time      Succ   Fail   Succ   Fail   Dial    Answer    Pct
5/00     00:04:22       6      0      0      0       0       0    100%
5/01     00:04:22       6      0      0      0       0       0    100%
5/02     00:04:22       6      0      0      0       0       0    100%
5/03     00:04:22       6      0      0      0       0       0    100%
```

```
5/04      00:04:22      6       0       0       0       0       0     100%
5/05      00:04:21      6       0       0       0       0       0     100%
5/06      00:04:22      4       0       0       0       0       0     100%
5/07      00:04:22      1       0       0       0       0       0     100%
5/08      00:04:21      6       0       0       0       0       0     100%
5/09      00:04:23      5       0       0       0       0       0     100%
5/10      00:00:00      0       0       0       0       0       0       0%
5/11      00:04:21      5       0       0       0       0       0     100%
5/12      00:04:20      2       0       0       0       0       0     100%
5/13      00:00:00      0       0       0       0       0       0       0%
5/14      00:00:00      0       0       0       0       0       0       0%
5/15      00:00:00      0       0       0       0       0       0       0%
5/16      00:00:00      0       0       0       0       0       0       0%
5/17      00:00:00      0       0       0       0       0       0       0%
```

Related Commands

Command	Description
show spe digital	Displays history statistics of all digital SPEs, in summary form or for SPEs starting with a specified slot or a specified shelf/slot/range of SPEs.
show spe digital active	Displays active digital calls and digital statistics of all SPEs, a specified SPE, or the specified range of SPEs.
show spe digital disconnect-reason	Displays the local disconnect reasons for all digital calls on the SPEs, a specified SPE, or the specified range of SPEs.
show spe digital summary	Displays history statistics of all SPEs, a specified SPE, or the specified range of SPEs.

show spe digital disconnect-reason

To display the local disconnect reasons for all digital calls on the Service Processing Elements (SPEs), a specified SPE, or the specified range of SPEs, use the show spe digital disconnect-reason EXEC command.

Cisco AS5350 and Cisco AS5400 with NextPort DFC

show spe digital disconnect-reason [**summary** | *slot* | *slot*/*spe*]

Note This command is not supported on the Cisco AS5800 with the Universal Port DFC.

Syntax Description

s**ummary**	Summary of local disconnect reasons for digital ports.
slot	(Optional) All ports on the specified slot. For the AS5400, slot values range from 0 to 7.
slot/*spe*	(Optional) The specified slot and SPE. For the AS5400, slot values range from 0 to 7 and SPE values range from 0 to 17.

Defaults

No default behavior or values

Command Modes

EXEC

Command History

Release	Modification
12.1(1)XD	This command was introduced on the Cisco AS5400.
12.1(3)T	This command was integrated into Cisco IOS Release 12.1(3)T on the Cisco AS5400.
12.1(5)XM1	This command was introduced on the Cisco AS5350 universal gateway.
12.2(11)T	This command was integrated into Cisco IOS Release 12.2(11)T and support was added for the Cisco AS5350.

Usage Guidelines

The **show spe digital disconnect-reason** command displays the local disconnect reasons for all digital calls on the SPEs, a specified SPE, or the specified range of SPEs.

Examples

The following example shows output for the **show spe digital disconnect-reason** command on the Cisco AS5400 with NextPort DFC. This example displays reasons for digital call disconnects on slot 5:

```
Router# show spe digital disconnect-reason 5
#SPE 5/00   :
=====CLASS HOST======      =====CLASS SERVICE=====
NonSpecific         0  ATH                  0
Busy                0  Aborted              0
```

```
No Answer           0  Connect Timeout      0
DTR                 0  Sync Loss            0
ATH                 0
NoDialTone          0
No Carrier          0
ACK                 0  TOTAL                0

#SPE 5/03   :
=====CLASS HOST======      =====CLASS SERVICE=====
NonSpecific         0  ATH                  0
Busy                1  Aborted              0
No Answer           0  Connect Timeout      0
DTR                 0  Sync Loss            0
...
```

Related Commands

Command	Descrioption
show spe digital	Displays history statistics of all digital SPEs, in summary form or for SPEs starting with a specified slot or a specified shelf/slot/spe range.
show spe digital active	Displays active digital calls and digital statistics of all SPEs, a specified SPE, or the specified range of SPEs.
show spe digital csr	Displays digital calls success rate (CSR) statistics of all SPEs, a specified SPE, or the specified range of SPEs.
show spe digital summary	Displays history statistics of all SPEs, a specified SPE, or the specified range of SPEs.

show spe digital summary

To display summary history statistics of all Service Processing Elements (SPEs), a specified SPE, or the specified range of SPEs, use the **show spe digital summary** EXEC command.

Cisco AS5350 and Cisco AS5400 with NextPort DFC

show spe digital summary [*slot* | *slot*/*spe*]

Note This command is not supported on the Cisco AS5800 with the Universal Port DFC.

Syntax Description

summary	(Optional) Brief list of SPE statistics for all digital service statistics.
slot/*spe*	(Optional) The first slot/spe or a range of slot/spe. Type in the slash (/).
slot	(Optional) The first slot or a range of slots

Defaults

No default behavior or values

Command Modes

EXEC

Command History

Release	Modification
12.1(1)XD	This command was introduced on the Cisco AS5400.
12.1(3)T	This command was integrated into Cisco IOS Release 12.1(3)T on the Cisco AS5400.
12.1(5)XM1	This command was introduced on the Cisco AS5350 Universal Gateway.
12.2(11)T	This command was integrated into Cisco IOS Release 12.2(11)T and support was added for the Cisco AS5350.

Usage Guidelines

The show spe digital summary command displays history statistics of all SPEs, a specified SPE, or the specified range of SPEs.

Examples

The following example shows output for the **show spe digital summary command** on the Cisco AS5400 with NextPort DFC. This example displays active digital statistics for slot 5:

```
Router# show spe digital summary 5

Async5/00 - 5/107, TTY648 - 755
     209 incoming completes        397 incoming failures
       0 outgoing completes          0 outgoing failures
       0 failed dial attempts        0 ring no answers
       0 no dial tones               0 link failures
       0 watchdog timeouts           0 protocol errors
```

```
       0 dial timeouts

Transmit Speed Counters       :
 Speed    Calls  Speed    Calls  Speed    Calls  Speed    Calls
Speed    Calls
 64000        0  28800        0  14400        0   7200        0
1200       20
 56000        0  24000        0  12000        0   4800       20
600        20
 38400        0  19200      149   9600        0   2400        0

Receive Speed Counters        :
 Speed    Calls  Speed    Calls  Speed    Calls  Speed    Calls
Speed    Calls
 64000        0  28800        0  14400        0   7200        0
1200       20
 56000        0  24000        0  12000        0   4800       20
600        20
 38400        0  19200      149   9600        0   2400        0
.
.
```

Related Commands.

Command	Description
show spe digital active	Displays active digital calls and digital statistics of all SPEs, a specified SPE, or the specified range of SPEs.
show spe digital csr	Displays digital calls success rate (CSR) statistics of all SPEs, a specified SPE, or the specified range of SPEs.
show spe digital disconnect-reason	Displays the local disconnect reasons for all digital calls on the SPEs, a specified SPE, or the specified range of SPEs.
show spe digital	Displays history statistics of all digital SPEs, in summary form or for SPEs starting with a specified slot or a specified shelf/slot/range of SPEs

show spe log

To display the Service Processing Element (SPE) system log, use the **show spe log** EXEC command.

Cisco AS5350 and Cisco AS5400 with NextPort DFC

show spe log [**reverse** | *slot*]

Cisco AS5800 with Universal Port DFC

show spe log [**reverse** | *shelf*/*slot*]

Syntax Description

reverse	(Optional) lSPE event log reverse.
slot	(Optional) All ports on the specified slot. For the Cisco AS5400, slot values range from 0 to 7.
slot/*spe*	(Optional) The specified slot and SPE. For the Cisco AS5400, slot values range from 0 to 7 and SPE values range from 0 to 17.

Defaults

No default behavior or values.

Command Modes

EXEC

CommandHistory

Release	Modification
12.1(1)XD	This command was introduced on the Cisco AS5400.
12.1(3)T	This command was integrated into Cisco IOS Release 12.1(3)T on the Cisco AS5400 and the Cisco AS5800.
12.1(5)XM1	This command was introduced on the Cisco AS5350 universal gateway.
12.2(11)T	This command was integrated into Cisco IOS Release 12.2(11)T and support was added for the Cisco AS5350.

Examples

The following example shows output for the **show spe log command** on the Cisco AS5400 with NextPort DFC:

```
router# show spe log
Slot 3 Events Log
  2d15h   : SPE State Event:
     Address: 0x3000000
     SPE    : 3/00
     Command: SPE_IMMEDIATE_DISABLE Complete
  2d14h   : SPE State Event:
     Address: 0x3000100
     SPE    : 3/06
     Command: SPE_IMMEDIATE_DISABLE Complete
  2d13h   : SPE State Event:
     Address: 0x3000200
```

```
     SPE    : 3/12
     Command: SPE_IMMEDIATE_DISABLE Complete
  00:00:26: SPE State Event:
     Address: 0x3000001
     SPE    : 3/01
     Command: SPE_IMMEDIATE_DISABLE Complete
Slot 4 Events Log
  2d13h   : SPE State Event:
     Address: 0x4000000
     SPE    : 4/00
     Command: SPE_IMMEDIATE_DISABLE Complete
Slot 7 Events Log
  2d15h   : Diag Post event:
     Address    : 0x7000204
     SPE        : 7/16
     Result     : SPE_POST_TEST_FAILED
     Test ID    : SPE_POWER_ON_SELF_TEST
     Diag Code  : 0xFE01C004
     Data Format: ASCII
     Data Len   : 0
```

Related Commands

Command	Description
show spe log reverse	Clears all event entries in the slot history event log.
clear spe log	Displays the slot history event log, with most recent event first.

show spe modem

To display the modem service history statistics for specified Service Processing Element (SPE), use the **show spe modem** EXEC command.

Cisco AS5350 and Cisco AS5400 with NextPort DFC

show spe modem {*slot* | *slot*/*spe*}

Cisco AS5800 with Universal Port DFC

show spe modem {*shelf*/*slot* | *shelf*/*slot*/*spe*}

Syntax Description

slot	(Optional) All ports on the specified slot. For the Cisco AS5400, slot values range from 0 to 7.
slot/*spe*	(Optional) All ports on the specified slot and SPE. For the Cisco AS5400, slot values range from 0 to 7 and SPE values range from 0 to 17.
shelf/*slot*	(Optional) All ports on the specified shelf and slot. For the Cisco AS5800, shelf values range from 0 to 1 and UPC slot values range from 2 to 11.
shelf/*slot*/*spe*	(Optional) All ports on the specified SPE. For the Cisco AS5800, shelf values range from 0 to 1, slot values range from 2 to 11, and SPE values range from 0 to 53.

Defaults

No default behavior or values

Command Modes

EXEC

Command History

Release	Modification
12.1(1)XD	This command was introduced on the Cisco AS5400.
12.1(3)T	This command was integrated into Cisco IOS Release 12.1(3)T on the Cisco AS5400 and the Cisco AS5800.
12.1(5)XM1	This command was introduced on the Cisco AS5350 universal gateway.
12.2(11)T	This command was integrated into Cisco IOS Release 12.2(11)T and support was added for the Cisco AS5350.

Usage Guidelines

The **show spe modem** command displays the modem service history statistics for a specified SPE.

Examples

The following example shows output for the **show spe modem** command on the Cisco AS5400 with NextPort DFC:

```
Router# show spe modem
Async1/2/00 - 1/3/323, TTY972 - 1619
     4819 incoming completes        287 incoming failures
        0 outgoing completes          0 outgoing failures
        0 failed dial attempts        0 ring no answers          0 autotests
        0 no carriers                11 dial timeouts           0
autotest fails
        0 no dial tones               0 link failures            0 fail count
        0 watchdog timeouts        2784 protocol errors          0 recovers
Transmit Speed Counters
  Speed    Calls  Speed    Calls  Speed    Calls  Speed    Calls  Speed Calls 60000
0  48000      431  38400        0  30666        0  12000 143 58000        0  46666
0  38000        4  29333        0   9600 5 56000       15  46000       56  37333      110
28800      700   7200 11 54666        0  45333      299  36000       84  28000        5
4800 2 54000        0  44000      226  34666        0  26400      266   2400 0 53333
122  42666        0  34000       39  24000       46   1200 3 52000      562  42000
68  33600      323  21600       27    300 0 50666        0  41333       38  33333        9
19200       38 50000       59  40000       65  32000       20  16800       12 49333
370  38666        0  31200      653  14400        5
Receive Speed Counters
  Speed    Calls  Speed    Calls  Speed    Calls  Speed    Calls  Speed Calls 38400
0  26400     2280  16800       11   7200        1    300 2 33600      113  24000      266
14400      139   4800        1 31200      215  21600       56  12000        4   2400
3 28800   1665 19200    47  9600    16  1200    0.
```

The following example shows output for the **show spe modem** command on the Cisco AS5800 with Universal Port DFC:

```
Router# show spe modem 1/8/0
#SPE 1/08/00
Cisco Universal SPE; Fw: 0.00.06.81; Async1/8/00 - 1/8/05, TTY2916 - 2921
Last clearing of statistics counters          :  never
      90 incoming completes          0 incoming failures
       0 outgoing completes          0 outgoing failures
       0 failed dial attempts        0 ring no answers          0 autotests
       0 no carriers                 0 dial timeouts            0 autotest fails
       0 no dial tones               0 link failures            0 fail count
       0 watchdog timeouts           0 protocol errors

Transmit Speed Counters       :
 Speed    Calls  Speed    Calls  Speed    Calls  Speed    Calls  Speed    Calls
 60000        0  48000        0  38400        0  30666        0  12000        0
 58000        0  46666        0  38000        0  29333        0   9600        0
 56000        0  46000        0  37333        0  28800        0   7200        0
 54666        0  45333        0  36000        0  28000        0   4800        0
 54000        0  44000        0  34666        0  26400        0   2400        0
 53333        0  42666        0  34000        0  24000        0   1200        0
 52000        0  42000        0  33600        0  21600        0    300        0
 50666        0  41333        0  33333        0  19200        0
 50000        0  40000        0  32000        0  16800        0
 49333        0  38666        0  31200       90  14400        0

Receive Speed Counters        :
 Speed    Calls  Speed    Calls  Speed    Calls  Speed    Calls  Speed    Calls
 38400        0  26400        0  16800        0   7200        0    300        0
 33600       11  24000        0  14400        0   4800        0
```

```
31200       25  21600        0  12000        0   2400        0
28800       54  19200        0   9600        0   1200        0
```

Related Commands

Command	Description
show spe	Displays history statistics of all SPEs, a specified SPE, or the specified range of SPEs.
show modem	Shows modem service history statistics for the MICA modem.

show spe modem active

To display statistics of all active calls on specified Service Processing Elements (SPEs), use the **show spe modem active** EXEC command.

Cisco AS5350 and Cisco AS5400 with NextPort DFC

show spe modem active {*slot* | *slot*/*spe*}

Cisco AS5800 with Universal Port DFC

show spe modem active {*shelf*/*slot* | *shelf*/*slot*/*spe*}

Syntax Description

slot	All ports on the specified slot. For the Cisco AS5400, slot values range from 0 to 7.
slot/*spe*	All ports on the specified slot and SPE. For the Cisco AS5400, slot values range from 0 to 7 and SPE values range from 0 to 17.
shelf/*slot*	All ports on the specified shelf and slot. For the Cisco AS5800, shelf values range from 0 to 1 and UPC slot values range from 2 to 11.
shelf/*slot*/*spe*	All ports on the specified SPE. For the Cisco AS5800, shelf values range from 0 to 1, slot values range from 2 to 11, and SPE values range from 0 to 53.

Defaults

No default behavior or values.

Command Modes

EXEC

Command History

Release	Modification
12.1(1)XD	This command was introduced on the Cisco AS5400.
12.1(3)T	This command was integrated into Cisco IOS Release 12.1(3)T on the Cisco AS5400 and Cisco AS5800.
12.1(5)XM1	This command was introduced on the Cisco AS5350 universal gateway.
12.2(11)T	This command was integrated into Cisco IOS Release 12.2(11)T and support was added for the Cisco AS5350.

Examples

The following example shows output for the **show spe modem active** command on the Cisco AS5400 with NextPort DFC.This example displays active modem statistics for slot 5, SPE 6:

```
Router# show spe modem active 5/6
SPE 5/06
Port  Type     Prot     Comp    Duration  Tx/Rx     Tx/Rx(Lvl) SNR Cfg  Retrain
37    V.90     LAP-M    V.42bis  95       3890/76     --/-11     38  In   0
```

The following example shows output for the **show spe modem active** command on the Cisco AS5800 with Universal Port DFC. This example displays active modem statistics for shelf 1, slot 8:

```
Router# show spe modem active 1/8
SPE 1/08/34
Port  Type     Prot     Comp    Duration  Tx/Rx(bps) Tx/Rx(Lvl) SNR Cfg  Retrain
209   V.34+    LAP-M    V.42bis  23       28800/31200  --/-13     37  In   0

SPE 1/08/35
Port  Type     Prot     Comp    Duration  Tx/Rx(bps) Tx/Rx(Lvl) SNR Cfg  Retrain
215   V.34+    LAP-M    V.42bis  12       28800/31200  --/-13     37  In   0

SPE 1/08/36
Port  Type     Prot     Comp    Duration  Tx/Rx(bps) Tx/Rx(Lvl) SNR Cfg  Retrain
216   V.34+    LAP-M    V.42bis  24       33600/31200  --/-36     38  In   0
217   ##       ##       ##       0        33600/300    --/19      37  In   0
218   ##       ##       ##       0        33600/300    --/19      37  In   0
219   ##       ##       ##       0        33600/300    --/19      35  In   0
ÿÿÿ
```

Related Commands

Command	Description
show port operational-status	Displays the operational status of a specific port or range of ports.
show spe	Displays history statistics of all SPEs, a specified SPE, or the specified range of SPEs.

show spe modem csr

To display the call success rate for the specified Service Processing Elements (SPEs), use the **show spe modem csr** EXEC command.

Cisco AS5350 and Cisco AS5400 with NextPort DFC

show spe modem csr {**summary** | *slot* | *slot*/*spe*}

Cisco AS5800 with Universal Port DFC

show spe modem csr {**summary** | *shelf*/*slot* | *shelf*/*slot*/*spe*}

Syntax Description

summary	Shows all call success rate statistics for all SPEs.
slot	(Optional) All ports on the specified slot. For the Cisco AS5400, slot values range from 0 to 7.
slot/*spe*	(Optional) All ports on the specified slot and SPE. For the Cisco AS5400, slot values range from 0 to 7 and SPE values range from 0 to 17.
shelf/*slot*	(Optional) All ports on the specified shelf and slot. For the Cisco AS5800, shelf values range from 0 to 1 and UPC slot values range from 2 to 11.

Defaults

No default behavior or values.

Command Modes

EXEC

CommandHistory

Release	Modification
12.1(1)XD	This command was introduced on the Cisco AS5400.
12.1(3)T	This command was integrated into Cisco IOS Release 12.1(3)T on the Cisco AS5400 and Cisco AS5800.
12.1(5)XM1	This command was introduced on the Cisco AS5350 universal gateway0.
12.2(11)T	This command was integrated into Cisco IOS Release 12.2(11)T and support was added for the Cisco AS5350.

Usage Guidelines

The **show spe modem csr** command displays the modem call success rate statistics for a specific SPE, range of SPEs, or all the SPEs. The **summary** keyword displays the call success rate statistics for all SPEs.

Examples

The following example shows output for the **show spe modem csr summary** command on the Cisco AS5400 with NextPort DFC:

```
Router# show spe modem csr 5/6
         Avg Hold     Inc calls     Out calls    Failed    No      Succ
SPE        Time      Succ   Fail   Succ   Fail   Dial    Answer    Pct
5/06     00:22:41       2      0      0      0       0       0    100%

Router# show spe modem csr 5/1 5/6
         Avg Hold     Inc calls     Out calls    Failed    No      Succ
SPE        Time      Succ   Fail   Succ   Fail   Dial    Answer    Pct
5/01     00:00:00       0      0      0      0       0       0      0%
5/02     00:00:00       0      0      0      0       0       0      0%
5/03     00:00:00       0      0      0      0       0       0      0%
5/04     00:00:00       0      0      0      0       0       0      0%
5/05     00:00:00       0      0      0      0       0       0      0%
5/06     00:22:48       2      0      0      0       0       0    100%
```

The following example shows output for the **show spe modem csr summary** command on the Cisco AS5800 with Universal Port DFC:

```
Router# show spe modem csr summary
   Avg Hold         Inc  calls                Out  calls      Failed    No Succ
   Time         Succ    Fail   Avail    Succ    Fail   Avail Dial    Answer  Pct
   002631    4827     285      93       0       0      93      5       0   94%
```

Related Commands

Command	Description
show spe modem summary	Displays summary of modem statistics for the specified SPE or range of SPEs.
show spe	Displays history statistics of all SPEs, a specified SPE, or the specified range of SPEs.

show spe modem disconnect-reason

To display all modem disconnect reasons for the specified Service Processing Element (SPE), use the **show spe modem disconnect-reason** EXEC command.

Cisco AS5350 and Cisco AS5400 with NextPort DFC

show spe modem disconnect-reason {**summary** | *slot* | *slot*/*spe*}

Cisco AS5800 with Universal Port DFC

show spe modem disconnect-reason {**summary** | *shelf*/*slot* | *shelf*/*slot*/*spe*}

Syntax Description

summary	Shows the disconnect reasons for all SPEs.
slot	All ports on the specified slot. For the Cisco AS5400, slot values range from 0 to 7.
slot/*spe*	All ports on the specified slot and SPE. For the Cisco AS5400, slot values range from 0 to 7 and SPE values range from 0 to 17.
shelf/*slot*	All ports on the specified shelf and slot. For the Cisco AS5800, shelf values range from 0 to 1 and UPC slot values range from 2 to 11.
shelf/*slot*/*spe*	All ports on the specified SPE. For the Cisco AS5800, shelf values range from 0 to 1, slot values range from 2 to 11, and SPE values range from 0 to 53.

Command Modes

EXEC

Command History

Release	Modification
12.1(1)XD	This command was introduced on the Cisco AS5400.
12.1(3)T	This command was integrated into Cisco IOS Release 12.1(3)T on the Cisco AS5400 and Cisco AS5800.
12.1(5)XM1	This command was introduced on the Cisco AS5350 universal gateway.
12.2(11)T	This command was integrated into Cisco IOS Release 12.2(11)T and support was added for the Cisco AS5350.

Usage Guidelines

Disconnect reasons are reasons why active calls are disconnected. The disconnect reasons are displayed with Class boundaries. The **show spe modem disconnect-reason** command is equivalent to the **show modem call stats** MCIA modem command.

Examples

The following example shows output for the **show spe modem disconnect-reason summary** command on the Cisco AS5400 with NextPort DFC:

```
Router# show spe modem disconnect-reason 5/6
#SPE 5/06   :
===CLASS OTHER====  =====CLASS DSP====  ===CLASS EC LCL===  ==CLASS EC FRMR===
```

```
Software Rst     0  No Carrier       0  No LR            0  Frmr Bad Cmd     0
EC Termntd       0  No ABT dtctd     0  LR Param1        0  Frmr Data        0
Bad MNP5 Rx      0  Trainup flr      0  LR Incmpt        0  Frmr Length      0
Bad V42B         0  Retrain Lt       0  Retrns Lt        0  Frmr Bad NR      0
Bad COP stat     0  ABT end flr      0  Inactivity       0
ATH              0                     Protocol Err     0  ===CLASS EC LD====
Aborted          0  ====CLASS HOST====  Fallbck Term     0  LD No LR         0
Connect Tout     0  Hst NonSpec      0  No XID           0  LD LR Param1     0
Reset DSP        0  Hst Busy         0  XID Incmpt       0  LD LR Incmpt     0
                    Hst No answr     0  Disc             0  LD Retrns Lt     0
===CLASS EC Cmd===  Hst DTR          1  DM               0  LD Inactivty     0
Bad Cmd          0  Hst ATH          0  Bad NR           0  LD Protocol      0
                    Hst NoDialTn     0  SABME Online     0  LD User          0
=====N O N E======  Hst No Carr      0  XID Online       0
None             0  Hst Ack          0  LR Online        0  TOTAL            1
```

The following example shows the output for the **show spe modem disconnect-reason** command on the Cisco AS5800 with Universal Port DFC:

```
Router# show spe modem disconnect-reason
===CLASS OTHER====  =====CLASS DSP====  ===CLASS EC LCL===  ==CLASS EC FRMR===
Software Rst     0  No Carrier      21  No LR            0  Frmr Bad Cmd     0
EC Termntd       0  No ABT dtctd     0  LR Param1        0  Frmr Data        0
Bad MNP5 Rx      0  Trainup flr     26  LR Incmpt        0  Frmr Length      0
Bad V42B        12  Retrain Lt       0  Retrns Lt       37  Frmr Bad NR      0
Bad COP stat     0  ABT end flr      0  Inactivity       0
ATH              0                     Protocol Err     5  ===CLASS EC LD====
Aborted          0  ====CLASS HOST====  Fallbck Term    22  LD No LR         0
Connect Tout    11  Hst NonSpec    799  No XID           5  LD LR Param1     0
Reset DSP        0  Hst Busy         0  XID Incmpt       0  LD LR Incmpt     0
                     Hst No answr     0  Disc          2718  LD Retrns Lt     0
===CLASS EC Cmd===  Hst DTR        870  DM               0  LD Inactivty     0
Bad Cmd          0  Hst ATH          0  Bad NR           0  LD Protocol      0
                     Hst NoDialTn     0  SABME Online     0  LD User          0
=====N O N E======  Hst No Carr      0  XID Online       0
None            29  Hst Ack          0  LR Online        0  TOTAL         4555
```

Related Commands

Command	Description
show spe	Displays history statistics of all SPEs, a specified SPE, or the specified range of SPEs.
show spe modem summary	Displays summary of modem statistics for the specified SPE or range of SPEs.

show spe modem high speed

To display the total number of connections within each modulization or codec for a specific range of Service Processing Elements (SPEs), use the **show spe modem high speed** EXEC command.

Cisco AS5350 and Cisco AS5400 with NextPort DFC

show spe modem high speed {**summary** | *slot* | *slot*/*spe*}

Cisco AS5800 with Universal Port DFC

show spe modem high speed {**summary** | *shelf*/*slot* | *shelf*/*slot*/*spe*}

Syntax Description

summary	Shows a brief list of all modulation connections negotiated.
slot	All ports on the specified slot. For the Cisco AS5400, slot values range from 0 to 7.
slot/*spe*	All ports on the specified slot and SPE. For the Cisco AS5400, slot values range from 0 to 7 and SPE values range from 0 to 17.
shelf/*slot*	All ports on the specified shelf and slot. For the Cisco AS5800, shelf values range from 0 to 1 and UPC slot values range from 2 to 11.
shelf/*slot*/*spe*	All ports on the specified SPE. For the Cisco AS5800, shelf values range from 0 to 1, slot values range from 2 to 11, and SPE values range from 0 to 53.

Defaults

No default behavior or values.

Command Modes

EXEC

Command History

Release	Modification
12.1(1)XD	This command was introduced on the Cisco AS5400.
12.1(3)T	This command was integrated into Cisco IOS Release 12.1(3)T on the Cisco AS5400 and Cisco AS5800.
12.1(5)XM1	This command was introduced on the Cisco AS5350 universal gateway.
12.2(11)T	This command was integrated into Cisco IOS Release 12.2(11)T and support was added for the Cisco AS5350.

Examples

The following example shows output for the **show spe modem high speed** command on the Cisco AS5400 with NextPort DFC:

```
Router# show spe modem high speed
#SPE 1/0      :
 Modln       V.FC            V.34          K56Flex           V.90      Modln
 Speed    Tx     Rx       Tx     Rx       Tx     Rx       Tx     Rx    Speed
 56000  ------ ------   ------ ------   000000 ------   000000 ------  56000
```

```
 54667  ------ ------   ------ ------        -      -        0      -  54667
 54000  ------ ------   ------ ------        0      -        -      -  54000
 53333  ------ ------   ------ ------        -      -        0      -  53333
 52000  ------ ------   ------ ------        0      -        0      -  52000
 50667  ------ ------   ------ ------        -      -        0      -  50667
 50000  ------ ------   ------ ------        0      -        -      -  50000
 49333  ------ ------   ------ ------        -      -        0      -  49333
 48000  ------ ------   ------ ------        0      -        0      -  48000
 46667  ------ ------   ------ ------        -      -        0      -  46667
 46000  ------ ------   ------ ------        0      -        -      -  46000
 45333  ------ ------   ------ ------        -      -        0      -  45333
 44000  ------ ------   ------ ------        0      -        0      -  44000
 42667  ------ ------   ------ ------        -      -        0      -  42667
 42000  ------ ------   ------ ------        0      -        -      -  42000
 41333  ------ ------   ------ ------        -      -        0      -  41333
 40000  ------ ------   ------ ------        0      -        0      -  40000
 38667  ------ ------   ------ ------        -      -        0      -  48667
 38000  ------ ------   ------ ------        0      -        -      -  38000
 37333  ------ ------   ------ ------        -      -        0      -  37333
 36000  ------ ------   ------ ------        0      -        0      -  36000
 34667  ------ ------   ------ ------        -      -        0      -  34667
 34000  ------ ------   ------ ------        0      -        -      -  34000
 33600  ------ ------        0      0        -      -        -      0  33600
 33333  ------ ------        -      -        -      -        0      -  33333
 32000  ------ ------        -      -        0      -        0      -  32000
 31200  ------ ------        0      0        -      0        -      0  31200
 30667  ------ ------        -      -        -      -        0      -  30667
 29333  ------ ------        -      -        -      -        0      -  29333
 28800       0      0        0      0        -      0        -      0  28800
 28000       -      -        -      -        -      -        0      -  28000
 26400       0      0        0      0        -      0        -      0  26400
 24000       0      0        0      0        -      0        -      0  24000
 21600       0      0        0      0        -      0        -      0  21600
 19200       0      0        0      0        -      0        -      0  19200
 16800       0      0        0      0        -      0        -      0  16800
 14400       0      0        0      0        -      0        -      0  14400
 12000       -      -        0      0        -      0        -      0  12000
  9600       -      -        0      0        -      0        -      0   9600
  7200       -      -        0      0        -      0        -      0   7200
  4800       -      -        0      0        -      0        -      0   4800
  2400       -      -        0      0        -      -        -      -   2400
 TOTAL     0000000         0000000         0000000         0000000     TOTAL
#SPE 1/1      :
 Modln       V.FC            V.34          K56Flex           V.90       Modln
 Speed    Tx     Rx       Tx     Rx       Tx     Rx       Tx     Rx     Speed
 56000  ------ ------   ------ ------   000000 ------   000000 ------  56000
 54667  ------ ------   ------ ------        -      -        0      -  54667
 54000  ------ ------   ------ ------        0      -        -      -  54000
 53333  ------ ------   ------ ------        -      -        0      -  53333
 52000  ------ ------   ------ ------        0      -        0      -  52000
 50667  ------ ------   ------ ------        -      -        0      -  50667
 50000  ------ ------   ------ ------        0      -        -      -  50000
 49333  ------ ------   ------ ------        -      -        0      -  49333
 48000  ------ ------   ------ ------        0      -        0      -  48000
 46667  ------ ------   ------ ------        -      -        0      -  46667
 46000  ------ ------   ------ ------        0      -        -      -  46000
 45333  ------ ------   ------ ------        -      -        0      -  45333
 44000  ------ ------   ------ ------        0      -        0      -  44000
 42667  ------ ------   ------ ------        -      -        0      -  42667
 42000  ------ ------   ------ ------        0      -        -      -  42000
 41333  ------ ------   ------ ------        -      -        0      -  41333
 40000  ------ ------   ------ ------        0      -        0      -  40000
 38667  ------ ------   ------ ------        -      -        0      -  48667
 38000  ------ ------   ------ ------        0      -        -      -  38000
```

```
 37333  ------ ------    ------ ------        -      -        0      -  37333
 36000  ------ ------    ------ ------        0      -        0      -  36000
 34667  ------ ------    ------ ------        -      -        0      -  34667
 34000  ------ ------    ------ ------        0      -        -      -  34000
 33600  ------ ------         0      0        -      -        -      0  33600
 33333  ------ ------         -      -        -      -        0      -  33333
 32000  ------ ------         -      -        0      -        0      -  32000
 31200  ------ ------         0      0        -      0        -      0  31200
 30667  ------ ------         -      -        -      -        0      -  30667
 29333  ------ ------         -      -        -      -        0      -  29333
 28800       0      0         0      0        -      0        -      0  28800
 28000       -      -         -      -        -      -        0      -  28000
 26400       0      0         0      0        -      0        -      0  26400
 24000       0      0         0      0        -      0        -      0  24000
 21600       0      0         0      0        -      0        -      0  21600
 19200       0      0         0      0        -      0        -      0  19200
 16800       0      0         0      0        -      0        -      0  16800
 14400       0      0         0      0        -      0        -      0  14400
 12000       -      -         0      0        -      0        -      0  12000
  9600       -      -         0      0        -      0        -      0   9600
  7200       -      -         0      0        -      0        -      0   7200
  4800       -      -         0      0        -      0        -      0   4800
  2400       -      -         0      0        -      -        -      -   2400
 TOTAL     0000000          0000000          0000000          0000000     TOTAL
```

.

The following example shows output for the **show spe modem high speed** command on the Cisco AS5800 with Universal Port DFC:

```
Router# show spe modem high speed 1/8/1
    --  Indicates an invalid speed for a standard
#SPE 1/08/01   :
 Modln       V.FC          V.34           K56Flex          V.90       Modln
 Speed    Tx     Rx      Tx     Rx      Tx     Rx       Tx     Rx    Speed
 60000  ------ ------  ------ ------  000000 ------  ------ ------  60000
 58000  ------ ------  ------ ------       0 ------  ------ ------  58000
 56000  ------ ------  ------ ------       0      -       0      -  56000
 54667  ------ ------  ------ ------       -      -       0      -  54667
 54000  ------ ------  ------ ------       0      -       -      -  54000
 53333  ------ ------  ------ ------       -      -       0      -  53333
 52000  ------ ------  ------ ------       0      -       0      -  52000
 50667  ------ ------  ------ ------       -      -       0      -  50667
 50000  ------ ------  ------ ------       0      -       -      -  50000
 49333  ------ ------  ------ ------       -      -       0      -  49333
 48000  ------ ------  ------ ------       0      -       0      -  48000
 46667  ------ ------  ------ ------       -      -       0      -  46667
 46000  ------ ------  ------ ------       0      -       -      -  46000
 45333  ------ ------  ------ ------       -      -       0      -  45333
 44000  ------ ------  ------ ------       0      -       0      -  44000
 42667  ------ ------  ------ ------       -      -       0      -  42667
 42000  ------ ------  ------ ------       0      -       -      -  42000
 41333  ------ ------  ------ ------       -      -       0      -  41333
 40000  ------ ------  ------ ------       0      -       0      -  40000
 38667  ------ ------  ------ ------       -      -       0      -  38667
 38400  ------ ------  ------ ------       -      -       -      -  38400
 38000  ------ ------  ------ ------       0      -       -      -  38000
 37333  ------ ------  ------ ------       -      -       0      -  37333
 36000  ------ ------  ------ ------       0      -       0      -  36000
 34666  ------ ------  ------ ------       -      -       0      -  34666
 34000  ------ ------  ------ ------       0      -       -      -  34000
 33600  ------ ------       0      1       -      -       -      0  33600
 33333  ------ ------       -      -       -      -       0      -  33333
 32000  ------ ------       -      -       0      -       0      -  32000
 31200  ------ ------       6      1       -      0       -      0  31200
 30667  ------ ------       -      -       -      -       0      -  30667
```

```
29333  ------ ------        -      -        -      -        0      -  29333
28800       0      0        0      4        -      0        -      0  28800
28000       -      -        -      -        -      -        0      -  28000
26400       0      0        0      0        -      0        -      0  26400
24000       0      0        0      0        -      0        -      0  24000
21600       0      0        0      0        -      0        -      0  21600
19200       0      0        0      0        -      0        -      0  19200
16800       0      0        0      0        -      0        -      0  16800
14400       0      0        0      0        -      0        -      0  14400
12000       -      -        0      0        -      0        -      0  12000
 9600       -      -        0      0        -      0        -      0   9600
 7200       -      -        0      0        -      0        -      0   7200
 4800       -      -        0      0        -      0        -      0   4800
 2400       -      -        0      0        -      -        -      -   2400
TOTAL     0000000         0000012         0000000         0000000
```

Related Commands

Command	Description
show spe modem low speed	Displays the connect-speeds within each low-speed modulation or codec for the specified Service Processing Elements (SPEs).

show spe modem high standard

To display the total number of connections within each high modulation or codec for a specific range of Service Processing Element (SPE), use the **show spe modem high standard** EXEC command.

Cisco AS5350 and Cisco AS5400 with NextPort DFC

show spe modem high standard {**summary** | *slot* | *slot*/*spe*}

Cisco AS5800 with Universal Port DFC

show spe modem high standard {**summary** | ***shelf*/*slot*** | ***shelf*/*slot*/*spe***}

Syntax Description

summary	Shows a brief list of all modulation connections negotiated.
slot	All ports on the specified slot. For the Cisco AS5400, slot values range from 0 to 7.
slot/*spe*	All ports on the specified slot and SPE. For the Cisco AS5400, slot values range from 0 to 7 and SPE values range from 0 to 17.
shelf/*slot*	All ports on the specified shelf and slot. For the Cisco AS5800, shelf values range from 0 to 1 and UPC slot values range from 2 to 11.
shelf/*slot*/*spe*	All ports on the specified SPE. For the Cisco AS5800, shelf values range from 0 to 1, slot values range from 2 to 11, and SPE values range from 0 to 53.

Defaults

No default behavior or values.

Command Modes

EXEC

Command History

Release	Modification
12.1(1)XD	This command was introduced on the Cisco AS5400.
12.1(3)T	This command was integrated into Cisco IOS Release 12.1(3)T on the Cisco AS5400 and Cisco AS5800.
12.1(5)XM1	This command was introduced on the Cisco AS5350 universal gateway.
12.2(11)T	This command was integrated into Cisco IOS Release 12.2(11)T and support was added for the Cisco AS5350.

Examples

The following example shows output for the **show spe modem high standard** command on the Cisco AS5400 with NextPort DFC. This example displays standard low-speed connections for SPEs in slot 5:

```
Router# show spe modem high standard 5
SPE/Mod->     V.FC     V.34  K56Flex     V.90
5/00             0        1        2        1
5/01             0        0        0        0
```

```
5/02             0        0        0        0
5/03             0        0        0        0
5/04             0        0        0        0
5/05             0        0        0        0
5/06             0        0        0        2
5/07             0        0        0        0
5/08             0        0        0        0
5/09             0        0        0        0
5/10             0        0        0        0
5/11             0        0        0        0
5/12             0        0        0        0
5/13             0        0        0        0
5/14             0        0        0        0
5/15             0        0        0        0
5/16             0        0        0        0
5/17             0        0        0        0
TOTAL     00000000 00000001 00000002 00000003
```

The following example shows output for the **show spe modem high standard** command on the Cisco AS5800 with Universal Port DFC. This example displays standard low-speed connections for SPEs in slot 8:

```
Router# show spe modem high standard 1/8/1
SPE/Mod->     V.FC     V.34  K56Flex     V.90
1/08/01          0        6        0        0
TOTAL     00000000 00000006 00000000 00000000
```

Related Commands

Command	Description
show spe modem low standard	Displays the connect-speeds within each low-speed modulation or codec for the SPE.

show spe modem low speed

To display the connect-speeds within each low-speed modulation or codec for the specified Service Processing Elements (SPEs), use the **show spe modem low speed** EXEC command.

Cisco AS5350 and Cisco AS5400 with NextPort DFC

show spe modem low speed {**summary** | *slot* | *slot*/*spe*}

Cisco AS5800 with Universal Port DFC

show spe modem low speed {**summary** | *shelf*/*slot* | *shelf*/*slot*/*spe*}

Syntax Description

summary	Shows a brief list of all modulation connections negotiated.
slot	(Optional) All ports on the specified slot. For the Cisco AS5400, slot values range from 0 to 7.
slot/*spe*	(Optional) All ports on the specified slot and SPE. For the Cisco AS5400, slot values range from 0 to 7 and SPE values range from 0 to 17.
shelf/*slot*	(Optional) All ports on the specified shelf and slot. For the Cisco AS5800, shelf values range from 0 to 1 and UPC slot values range from 2 to 11.

Defaults

No default behavior or values.

Command Modes

EXEC

CommandHistory

Release	Modification
12.1(1)XD	This command was introduced on the Cisco AS5400.
12.1(3)T	This command was integrated into Cisco IOS Release 12.1(3)T on the Cisco AS5400 and Cisco AS5800.
12.1(5)XM1	This command was introduced on the Cisco AS5350 universal gateway.
12.2(11)T	This command was integrated into Cisco IOS Release 12.2(11)T and support was added for the Cisco AS5350.

Examples

The following example shows output for the **show spe modem low speed** command on the Cisco AS5400 with NextPort DFC. This example displays standard low-speed connections:

```
Router# show spe modem low speed
#SPE 1/0    :                                  <--     MODEM   FAX       -->
 Speed   B103   V.21   B212   V.22  V.22b   V.32  V.32b    V.27t   V.29   V.17
 14400 ------ ------ ------ ------ ------ ------     30   ------ ------      0
 12000 ------ ------ ------ ------ ------ ------      0   ------ ------      0
  9600 ------ ------ ------ ------ ------      0      0   ------      0      0
  7200 ------ ------ ------ ------ ------      -      0   ------      0      0
  4800 ------ ------ ------ ------ ------      0      0        0      0 ------
```

```
  2400 ------ ------ ------ ------      0 ------ ------        0 ------ ------
  1200 ------ ------      0      0      6 ------ ------   ------ ------ ------
   600 ------ ------ ------ ------ ------ ------ ------   ------ ------ ------
   300      0      0 ------ ------ ------ ------ ------   ------ ------ ------
 TOTAL 000000 000000 000000 000000 000006 000000 000030   000000 000000 000000
#SPE 1/1    :                              <--     MODEM   FAX       -->
 Speed   B103   V.21   B212   V.22  V.22b   V.32  V.32b    V.27t   V.29   V.17
 14400 ------ ------ ------ ------ ------ ------     30   ------ ------      0
 12000 ------ ------ ------ ------ ------ ------      0   ------ ------      0
  9600 ------ ------ ------ ------ ------      0      0   ------      0      0
  7200 ------ ------ ------ ------ ------      -      0   ------      0      0
  4800 ------ ------ ------ ------ ------      0      0        0      0 ------
  2400 ------ ------ ------ ------      0 ------ ------        0 ------ ------
  1200 ------ ------      0      0      6 ------ ------   ------ ------ ------
   600 ------ ------ ------ ------ ------ ------ ------   ------ ------ ------
   300      0      0 ------ ------ ------ ------ ------   ------ ------ ------
 TOTAL 000000 000000 000000 000000 000006 000000 000030   000000 000000 000000
```

The following example shows output for the **show spe modem low speed** command on the Cisco AS5800 with Universal Port DFC. This example displays standard low-speed connections for SPEs in slot 8:

```
Router# show spe modem low speed 1/8/0 1/8/6
    --  Indicates an invalid speed for a standard
#SPE 1/08/00   :                          <--       MODEM   FAX       -->
 Speed   B103  V.21  B212  V.22 V.22b  V.23  V.32 V.32b   V.27t  V.29  V.17
 14400  ----- ----- ----- ----- ----- ----- -----     0   ----- -----     0
 12000  ----- ----- ----- ----- ----- ----- -----     0   ----- -----     0
  9600  ----- ----- ----- ----- ----- -----     0     0   -----     0     0
  7200  ----- ----- ----- ----- ----- -----     -     0   -----     0     0
  4800  ----- ----- ----- ----- ----- -----     0     0       0     0 -----
  2400  ----- ----- ----- -----     0 ----- ----- -----       0 ----- -----
  1200  ----- -----     0     0     0     0 ----- -----   ----- ----- -----
   300      0     0 ----- ----- ----- ----- ----- -----   ----- ----- -----
 TOTAL  00000 00000 00000 00000 00000 00000 00000 00000   00000 00000 00000
ÿ
```

Related Commands

Command	Description
show spe modem high speed	Displays the total number of connections within each modulization or codec for a specific range of Service Processing Elements (SPEs).

show spe modem low standard

To display the total number of connections within each low modulation or codec for the specified Service Processing Elements (SPEs), use the **show spe modem low standard** EXEC command.

Cisco AS5350 and Cisco AS5400 with NextPort DFC

show spe modem low standard {**summary** | *slot* | *slot*/*spe*}

Cisco AS5800 with Universal Port DFC

show spe modem low standard {**summary** | *shelf*/*slot* | *shelf*/*slot*/*spe*}

Syntax Description

summary	Shows a brief list of all modulation connections negotiated.
slot	(Optional) All ports on the specified slot. For the Cisco AS5400, slot values range from 0 to 7.
slot/*spe*	(Optional) All ports on the specified slot and SPE. For the Cisco AS5400, slot values range from 0 to 7 and SPE values range from 0 to 17.
shelf/*slot*	(Optional) All ports on the specified shelf and slot. For the Cisco AS5800, shelf values range from 0 to 1 and UPC slot values range from 2 to 11.
shelf/*slot*/*spe*	(Optional) All ports on the specified SPE. For the Cisco AS5800, shelf values range from 0 to 1, slot values range from 2 to 11, and SPE values range from 0 to 53.

Defaults

No default behavior or values.

Command Modes

EXEC

Command History

Release	Modification
12.0(6)T	This command was introduced on the Cisco AS5400.
12.1(3)T	This command was integrated into Cisco IOS Release 12.1(3)T on the Cisco AS5400 and Cisco AS5800.
12.1(5)XM1	This command was introduced on the Cisco AS5350 universal gateway.
12.2(11)T	This command was integrated into Cisco IOS Release 12.2(11)T and support was added for the Cisco AS5350.

Examples

The following example displays standard low speed connections for SPEs in slot 5 on the Cisco AS5400.

```
Router# show spe modem low standard 5
                                                <--        MODEM   FAX        -->
SPE/Mod->  B103  V.21  B212  V.22 V.22b  V.23  V.32 V.32b   V.27t  V.29  V.17
5/00          0     0     0     0     0     0     0     0       0     0     0
5/01          0     0     0     0     0     0     0     0       0     0     0
```

```
5/02          0     0     0     0     0     0     0     0        0     0     0
5/03          0     0     0     0     0     0     0     0        0     0     0
5/04          0     0     0     0     0     0     0     0        0     0     0
5/05          0     0     0     0     0     0     0     0        0     0     0
5/06          0     0     0     0     0     0     0     0        0     0     0
5/07          0     0     0     0     0     0     0     0        0     0     0
5/08          0     0     0     0     0     0     0     0        0     0     0
5/09          0     0     0     0     0     0     0     0        0     0     0
5/10          0     0     0     0     0     0     0     0        0     0     0
5/11          0     0     0     0     0     0     0     0        0     0     0
5/12          0     0     0     0     0     0     0     0        0     0     0
5/13          0     0     0     0     0     0     0     0        0     0     0
5/14          0     0     0     0     0     0     0     0        0     0     0
5/15          0     0     0     0     0     0     0     0        0     0     0
5/16          0     0     0     0     0     0     0     0        0     0     0
5/17          0     0     0     0     0     0     0     0        0     0     0
TOTAL     00000 00000 00000 00000 00000 00000 00000 00000    00000 00000 00000
```

The following example displays standard low speed connections for SPEs in slot 8 on the Cisco AS5800.

```
Router# show spe modem low standard 1/8
                                                <--        MODEM   FAX       -->
SPE/Mod->  B103  V.21  B212  V.22 V.22b  V.23  V.32 V.32b   V.27t  V.29  V.17
1/08/00       0     0     0     0     0     0     0     0        0     0     0
1/08/01       0     0     0     0     0     0     0     0        0     0     0
1/08/02       0     0     0     0     0     0     0     0        0     0     0
1/08/03       0     0     0     0     0     0     0     0        0     0     0
1/08/04       0     0     0     0     0     0     0     0        0     0     0
1/08/05       0     0     0     0     0     0     0     0        0     0     0
1/08/06       0     0     0     0     0     0     0     0        0     0     0
1/08/07       0     0     0     0     0     0     0     0        0     0     0
1/08/08       0     0     0     0     0     0     0     0        0     0     0
1/08/09       0     0     0     0     0     0     0     0        0     0     0
1/08/10       0     0     0     0     0     0     0     0        0     0     0
1/08/11       0     0     0     0     0     0     0     0        0     0     0
1/08/12       0     0     0     0     0     0     0     0        0     0     0
1/08/13       0     0     0     0     0     0     0     0        0     0     0
1/08/14       0     0     0     0     0     0     0     0        0     0     0
1/08/15       0     0     0     0     0     0     0     0        0     0     0
1/08/16       0     0     0     0     0     0     0     0        0     0     0
1/08/17       0     0     0     0     0     0     0     0        0     0     0
1/08/18       0     0     0     0     0     0     0     0        0     0     0
1/08/19       0     0     0     0     0     0     0     0        0     0     0
1/08/20       0     0     0     0     0     0     0     0        0     0     0
                                                <--        MODEM   FAX       -->
SPE/Mod->  B103  V.21  B212  V.22 V.22b  V.23  V.32 V.32b   V.27t  V.29  V.17
1/08/21       0     0     0     0     0     0     0     0        0     0     0
1/08/22       0     0     0     0     0     0     0     0        0     0     0
1/08/23       0     0     0     0     0     0     0     0        0     0     0
1/08/24       0     0     0     0     0     0     0     0        0     0     0
1/08/25       0     0     0     0     0     0     0     0        0     0     0
1/08/26       0     0     0     0     0     0     0     0        0     0     0
1/08/27       0     0     0     0     0     0     0     0        0     0     0
1/08/28       0     0     0     0     0     0     0     0        0     0     0
1/08/29       0     0     0     0     0     0     0     0        0     0     0
1/08/30       0     0     0     0     0     0     0     0        0     0     0
1/08/31       0     0     0     0     0     0     0     0        0     0     0
1/08/32       0     0     0     0     0     0     0     0        0     0     0
1/08/33       0     0     0     0     0     0     0     0        0     0     0
1/08/34       0     0     0     0     0     0     0     0        0     0     0
1/08/35       0     0     0     0     0     0     0     0        0     0     0
1/08/36       0     0     0     0     0     0     0     0        0     0     0
1/08/37       0     0     0     0     0     0     0     0        0     0     0
1/08/38       0     0     0     0     0     0     0     0        0     0     0
```

```
1/08/39       0     0     0     0     0     0     0     0       0     0     0
1/08/40       0     0     0     0     0     0     0     0       0     0     0
1/08/41       0     0     0     0     0     0     0     0       0     0     0
1/08/42       0     0     0     0     0     0     0     0       0     0     0
                                          <--       MODEM   FAX       -->
SPE/Mod->  B103  V.21  B212  V.22 V.22b  V.23  V.32 V.32b   V.27t  V.29  V.17
1/08/43       0     0     0     0     0     0     0     0       0     0     0
1/08/44       0     0     0     0     0     0     0     0       0     0     0
1/08/45       0     0     0     0     0     0     0     0       0     0     0
1/08/46       0     0     0     0     0     0     0     0       0     0     0
1/08/47       0     0     0     0     0     0     0     0       0     0     0
1/08/48       0     0     0     0     0     0     0     0       0     0     0
1/08/49       0     0     0     0     0     0     0     0       0     0     0
1/08/50       0     0     0     0     0     0     0     0       0     0     0
1/08/51       0     0     0     0     0     0     0     0       0     0     0
1/08/52       0     0     0     0     0     0     0     0       0     0     0
1/08/53       0     0     0     0     0     0     0     0       0     0     0
TOTAL     00000 00000 00000 00000 00000 00000 00000 00000   00000 00000 00000
```

Related Commands

Command	Description
show spe modem high standard	Displays the total number of connections within each high modulation or codec for a specific range of SPE.

show spe modem summary

To display summary of modem statistics for the specified Service Processing Element (SPE) or range of SPEs, use the **show spe modem summary** EXEC command.

Cisco AS5350 and Cisco AS5400 with NextPort DFC

show spe modem summary [*slot* | *slot*/*spe*]

Cisco AS5800 with Universal Port DFC

show spe modem summary [*shelf*/*slot* | *shelf*/*slot*/*spe*]

Syntax Description

slot	(Optional) All ports on the specified slot. For the Cisco AS5400, slot values range from 0 to 7.
slot/*spe*	(Optional) All ports on the specified slot and SPE. For the Cisco AS5400, slot values range from 0 to 7 and SPE values range from 0 to 17.
shelf/*slot*	(Optional) All ports on the specified shelf and slot. For the Cisco AS5800, shelf values range from 0 to 1 and UPC slot values range from 2 to 11.
shelf/*slot*/*spe*	(Optional) All ports on the specified SPE. For the Cisco AS5800, shelf values range from 0 to 1, slot values range from 2 to 11, and SPE values range from 0 to 53.

Defaults

No default behavior or values.

Command Modes

EXEC

Command History

Release	Modification
12.1(1)XD	This command was introduced on the Cisco AS5400.
12.1(3)T	This command was integrated into Cisco IOS Release 12.1(3)T on the Cisco AS5400 and Cisco AS5800.
12.1(5)XM1	This command was introduced on the Cisco AS5350 universal gateway.
12.2(11)T	This command was integrated into Cisco IOS Release 12.2(11)T and support was added for the Cisco AS5350.

Examples

The following example displays the **show spe modem summary** command on the Cisco AS5400.

```
Router# show spe modem summary
Async1/00 - 5/107, TTY216 - 755
     786 incoming completes          4 incoming failures
       0 outgoing completes          0 outgoing failures
       0 failed dial attempts        0 ring no answers          0 autotests
       0 no carriers                 0 dial timeouts            0 autotest fails
       0 no dial tones               0 link failures            0 fail count
       0 watchdog timeouts           0 protocol errors          0 recovers
```

```
Transmit Speed Counters       :
 Speed    Calls  Speed    Calls  Speed    Calls  Speed    Calls  Speed    Calls
 60000        0  48000        0  38400        0  30666        0  12000        0
 58000        0  46666        0  38000        0  29333        0   9600        0
 56000        0  46000        0  37333        0  28800       10   7200        0
 54666        0  45333        0  36000        0  28000        0   4800        0
 54000        0  44000        0  34666        0  26400        0   2400        0
 53333        0  42666        0  34000        0  24000        0   1200        0
 52000        0  42000        0  33600      631  21600        0    300        0
 50666        0  41333        0  33333        0  19200        0
 50000        0  40000        0  32000        0  16800        0
 49333        0  38666        0  31200      145  14400        0

Transmit Speed Counters       :
 Speed    Calls  Speed    Calls  Speed    Calls  Speed    Calls  Speed    Calls
 60000        0  48000        0  38400        0  30666        0  12000        0
 58000        0  46666        0  38000        0  29333        0   9600        0
 56000        0  46000        0  37333        0  28800       10   7200        0
 54666        0  45333        0  36000        0  28000        0   4800        0
 54000        0  44000        0  34666        0  26400        0   2400        0
 53333        0  42666        0  34000        0  24000        0   1200        0
 52000        0  42000        0  33600      631  21600        0    300        0
 50666        0  41333        0  33333        0  19200        0
 50000        0  40000        0  32000        0  16800        0
 49333        0  38666        0  31200      145  14400        0

Receive Speed Counters        :
 Speed    Calls  Speed    Calls  Speed    Calls  Speed    Calls  Speed    Calls
 38400        0  26400        0  16800        0   7200        0    300        0
 33600      786  24000        0  14400        0   4800        0
 31200        0  21600        0  12000        0   2400        0
 28800        0  19200        0   9600        0   1200        0
```

The following example displays the **show spe modem summary** command on the Cisco AS5800.

```
Router# show spe modem summary
Async1/2/00 - 1/3/323, TTY972 - 1619
     4827 incoming completes        284 incoming failures
        0 outgoing completes          0 outgoing failures
        0 failed dial attempts        0 ring no answers          0 autotests
        0 no carriers                11 dial timeouts           0 autotest fails
        0 no dial tones               0 link failures           0 fail count
        0 watchdog timeouts        2787 protocol errors         0 recovers
Transmit Speed Counters
  Speed    Calls  Speed    Calls  Speed    Calls  Speed    Calls  Speed Calls
  60000        0  48000      432  38400        0  30666        0  12000 143
  58000        0  46666        0  38000        4  29333        0   9600 5
  56000       15  46000       56  37333      111  28800      700   7200 11
  54666        0  45333      299  36000       84  28000        5   4800 2
  54000        0  44000      227  34666        0  26400      267   2400 0
  53333      123  42666        0  34000       39  24000       46   1200 3
  52000      563  42000       68  33600      323  21600       27    300 0
  50666        0  41333       38  33333        9  19200       38
  50000       59  40000       65  32000       20  16800       12
  49333      371  38666        0  31200      654  14400        5

Receive Speed Counters
  Speed    Calls  Speed    Calls  Speed    Calls  Speed    Calls  Speed Calls
  38400        0  26400     2286  16800       11   7200        1    300 2
  33600      113  24000      267  14400      139   4800        1
  31200      216  21600       56  12000        4   2400        3
  28800     1665  19200       47   9600       16   1200        0
```

Related Commands

Command	Description
show spe	Displays history statistics of all SPEs, a specified SPE, or the specified range of SPEs.
show spe digital	Displays history statistics of all digital SPEs, in summary form or for SPEs starting with a specified slot or a specified shelf/slot/range of SPEs
show spe modem disconnect-reason	Displays all modem disconnect reasons for the specified SPE or range of SPEs.
show spe modem summary	Displays summary of modem statistics for the specified SPE or range of SPEs.

show spe recovery

To display SPE recovery statistics, use the **show spe recovery** EXEC command.

Cisco AS5350 and Cisco AS5400 with NextPort DFC

show spe recovery [*slot* | *slot*/*spe*]

Cisco AS5800 with Universal Port DFC

show spe recovery [*shelf*/*slot* | *shelf*/*slot*/*spe*]

Syntax Description

slot	(Optional) All ports on the specified slot. For the Cisco AS5400, slot values range from 0 to 7.
slot/*spe*	(Optional) All ports on the specified slot and SPE. For the Cisco AS5400, slot values range from 0 to 7 and SPE values range from 0 to 17.
shelf/*slot*	(Optional) All ports on the specified shelf and slot. For the Cisco AS5800, shelf values range from 0 to 1 and UPC slot values range from 2 to 11.
shelf/*slot*/*spe*	(Optional) All ports on the specified SPE. For the Cisco AS5800, shelf values range from 0 to 1, slot values range from 2 to 11, and SPE values range from 0 to 53.

Defaults

No default behavior or values.

Command Modes

EXEC

Command History

Release	Modification
12.1(1)XD	This command was introduced on the Cisco AS5400.
12.1(3)T	This command was integrated into Cisco IOS Release 12.1(3)T on the Cisco AS5400 and Cisco AS5800.
12.1(5)XM1	This command was introduced on the Cisco AS5350.
12.2(11)T	This command was integrated into Cisco IOS Release 12.2(11)T and support was added for the Cisco AS5350.

Usage Guidelines

Use this command to see a list of recovered SPEs.

Examples

The following example displays the **show spe recovery** command on the Cisco AS5400.

```
Router# show spe recovery

SPE#      Session Abort   Session NAK   Call Failure
1/00                  0             0              0
1/01                  0             0              0
```

```
1/02                    0               0               0
1/03                    0               0               0
1/04                    0               0               0
1/05                    0               0               0
1/06                    0               0               0
1/07                    0               0               0
1/08                    0               0               0
1/09                    0               0               0
1/10                    0               0               0
1/11                    0               0               0
1/12                    0               0               0
1/13                    0               0               0
1/14                    0               0               0
1/15                    0               0               0
1/16                    0               0               0
1/17                    0               0               0
```

The following example displays the **show spe recovery** command on the Cisco AS5800.

```
Router# show spe recovery 1/8
SPE#      Session Abort   Session NAK   Call Failure
1/08/00                 0             0              0
1/08/01                 0             0              0
1/08/02                 0             0              0
1/08/03                 0             0              0
1/08/04                 0             0              0
1/08/05                 0             0              0
1/08/06                 0             0              0
1/08/07                 0             0              0
1/08/08                 0             0              0
1/08/09                 0             0              0
1/08/10                 0             0              0
1/08/11                 0             0              0
1/08/12                 0             0              0
1/08/13                 0             0              0
1/08/14                 0             0              0
1/08/15                 0             0              0
1/08/16                 0             0              0
1/08/17                 0             0              0
1/08/18                 0             0              0
1/08/19                 0             0              0
1/08/20                 0             0              0
1/08/21                 0             0              0
1/08/22                 0             0              0
1/08/23                 0             0              0
1/08/24                 0             0              0
1/08/25                 0             0              0
1/08/26                 0             0              0
1/08/27                 0             0              0
1/08/28                 0             0              0
1/08/29                 0             0              0
1/08/30                 0             0              0
1/08/31                 0             0              0
1/08/32                 0             0              0
1/08/33                 0             0              0
1/08/34                 0             0              0
1/08/35                 0             0              0
1/08/36                 0             0              0
1/08/37                 0             0              0
1/08/38                 0             0              0
1/08/39                 0             0              0
1/08/40                 0             0              0
1/08/41                 0             0              0
1/08/42                 0             0              0
1/08/43                 0             0              0
```

```
1/08/44                 0               0               0
1/08/45                 0               0               0
1/08/46                 0               0               0
1/08/47                 0               0               0
1/08/48                 0               0               0
1/08/49                 0               0               0
1/08/50                 0               0               0
1/08/51                 0               0               0
1/08/52                 0               0               0
1/08/53                 0               0               0
```

Related Commands

Command	Description
show spe	Displays SPE status.

show spe version

To display the firmware version on a Service Processing Element (SPE), use the **show spe version** EXEC command. Also, this command displays the version to firmware file mappings.

Cisco AS5350 and Cisco AS5400 with NextPort DFC

show spe version [*slot* | *slot*/*spe*]

Cisco AS5800 with Universal Port DFC

show spe version [*shelf*/*slot* | *shelf*/*slot*/*spe*]

Syntax Description

slot	(Optional) All ports on the specified slot. For the Cisco AS5400, slot values range from 0 to 7.
slot/*spe*	(Optional) All ports on the specified slot and SPE. For the Cisco AS5400, slot values range from 0 to 7 and SPE values range from 0 to 17.
shelf/*slot*	(Optional) All ports on the specified shelf and slot. For the Cisco AS5800, shelf values range from 0 to 1 and UPC slot values range from 2 to 11.
shelf/*slot*/*spe*	(Optional) All ports on the specified SPE. For the Cisco AS5800, shelf values range from 0 to 1, slot values range from 2 to 11, and SPE values range from 0 to 53.

Defaults

No default behavior or values.

Command Modes

EXEC

Command History

Release	Modification
12.0(7)T	This command was integrated into the Cisco IOS Release 12.0(7)T.
12.1(1)XD	This command was introduced on the Cisco AS5400.
12.1(3)T	This command was integrated into Cisco IOS Release 12.1(3)T on the Cisco AS5400 and Cisco AS5800.
12.1(5)XM1	This command was introduced on the Cisco AS5350.
12.2(11)T	This command was integrated into Cisco IOS Release 12.2(11)T and support was added for the Cisco AS5350.

Usage Guidelines

Use the **show spe version** command to display the firmware version running on a specific SPE. If *shelf*/*slot*/*spe* is specified, the firmware version for the identified SPE or range of SPEs is displayed. If *slot* is specified, the firmware version for the identified SPEs in this slot or range of slots is displayed. If no argument is specified, all SPE versions are displayed.

Note The **show spe version** command is similar to the **show modem mapping** MICA modem command.

Examples

The following example displays the output of **show spe version** on a Cisco AS5400:

```
Router# show spe version

IOS-Bundled Default Firmware-Filename              Version  Firmware-Type
===================================               =======  =============
system:/ucode/np_spe_firmware1                    0.6.5.5  SPE firmware
                                                  0.0.0.0  Portware

On-Flash Firmware-Filename                        Version  Firmware-Type
==========================                        =======  =============
flash:np.spe                                      0.6.4.5  SPE firmware

  SPE-# SPE-Type   SPE-Port-Range     Version    UPG Firmware-Filename
   4/00    CSMV6         0000-0005     0.6.5.5    N/A np.spe
   4/01    CSMV6         0006-0011     0.6.5.5    N/A ios-bundled default
   4/02    CSMV6         0012-0017     0.6.5.5    N/A ios-bundled default
   4/03    CSMV6         0018-0023     0.6.5.5    N/A ios-bundled default
   4/04    CSMV6         0024-0029     0.6.5.5    N/A ios-bundled default
   4/05    CSMV6         0030-0035     0.6.5.5    N/A ios-bundled default
   4/06    CSMV6         0036-0041     0.6.5.5    N/A ios-bundled default
   4/07    CSMV6         0042-0047     0.6.5.5    N/A ios-bundled default
   4/08    CSMV6         0048-0053     0.6.5.5    N/A ios-bundled default
   4/09    CSMV6         0054-0059     0.6.5.5    N/A ios-bundled default
   4/10    CSMV6         0060-0065     0.6.5.5    N/A ios-bundled default
   4/11    CSMV6         0066-0071     0.6.5.5    N/A ios-bundled default
   4/12    CSMV6         0072-0077     0.6.5.5    N/A ios-bundled default
   4/13    CSMV6         0078-0083     0.6.5.5    N/A ios-bundled default
   4/14    CSMV6         0084-0089     0.6.5.5    N/A ios-bundled default
   4/15    CSMV6         0090-0095     0.6.5.5    N/A ios-bundled default
   4/16    CSMV6         0096-0101     0.6.5.5    N/A ios-bundled default
   4/17    CSMV6         0102-0107     0.6.5.5    N/A ios-bundled default
```

The following example displays the output of **show spe version** on a Cisco AS5800:

```
Router# show spe version 1/8
IOS-Bundled Default Firmware-Filename              Version  Firmware-Type
===================================               =======  =============
system:/ucode/np_spe_firmware1                    0.0.6.81 SPE firmware
system:/ucode/mica_board_firmware                 2.7.2.0  Mica Portware

On-Flash Firmware-Filename                        Version  Firmware-Type
==========================                        =======  =============
slot0:np_6_81.spe                                 0.0.6.81 SPE firmware
slot0:np_6_80.spe                                 0.0.6.80 SPE firmware
slot0:mica-modem-pw.2.7.1.1.bin                   2.7.1.0  Mica Portware
slot0:mica-modem-pw.2.7.2.0.bin                   2.7.2.0  Mica Portware

  SPE-# SPE-Type   SPE-Port-Range     Version    UPG Firmware-Filename
1/08/00    CSMV6         0000-0005    0.0.6.81    N/A ios-bundled default
1/08/01    CSMV6         0006-0011    0.0.6.81    N/A ios-bundled default
1/08/02    CSMV6         0012-0017    0.0.6.81    N/A ios-bundled default
1/08/03    CSMV6         0018-0023    0.0.6.81    N/A ios-bundled default
1/08/04    CSMV6         0024-0029    0.0.6.81    N/A ios-bundled default
1/08/05    CSMV6         0030-0035    0.0.6.81    N/A ios-bundled default
1/08/06    CSMV6         0036-0041    0.0.6.81    N/A ios-bundled default
1/08/07    CSMV6         0042-0047    0.0.6.81    N/A ios-bundled default
1/08/08    CSMV6         0048-0053    0.0.6.81    N/A ios-bundled default
```

```
1/08/09    CSMV6        0054-0059    0.0.6.81    N/A ios-bundled default
1/08/10    CSMV6        0060-0065    0.0.6.81    N/A ios-bundled default
1/08/11    CSMV6        0066-0071    0.0.6.81    N/A ios-bundled default
1/08/12    CSMV6        0072-0077    0.0.6.81    N/A ios-bundled default
1/08/13    CSMV6        0078-0083    0.0.6.81    N/A ios-bundled default
1/08/14    CSMV6        0084-0089    0.0.6.81    N/A ios-bundled default
1/08/15    CSMV6        0090-0095    0.0.6.81    N/A ios-bundled default
1/08/16    CSMV6        0096-0101    0.0.6.81    N/A ios-bundled default
1/08/17    CSMV6        0102-0107    0.0.6.81    N/A ios-bundled default
1/08/18    CSMV6        0108-0113    0.0.6.81    N/A ios-bundled default
1/08/19    CSMV6        0114-0119    0.0.6.81    N/A ios-bundled default
1/08/20    CSMV6        0120-0125    0.0.6.81    N/A ios-bundled default
1/08/21    CSMV6        0126-0131    0.0.6.81    N/A ios-bundled default
1/08/22    CSMV6        0132-0137    0.0.6.81    N/A ios-bundled default
1/08/23    CSMV6        0138-0143    0.0.6.81    N/A ios-bundled default
1/08/24    CSMV6        0144-0149    0.0.6.81    N/A ios-bundled default
1/08/25    CSMV6        0150-0155    0.0.6.81    N/A ios-bundled default
1/08/26    CSMV6        0156-0161    0.0.6.81    N/A ios-bundled default
1/08/27    CSMV6        0162-0167    0.0.6.81    N/A ios-bundled default
1/08/28    CSMV6        0168-0173    0.0.6.81    N/A ios-bundled default
1/08/29    CSMV6        0174-0179    0.0.6.81    N/A ios-bundled default
1/08/30    CSMV6        0180-0185    0.0.6.81    N/A ios-bundled default
1/08/31    CSMV6        0186-0191    0.0.6.81    N/A ios-bundled default
1/08/32    CSMV6        0192-0197    0.0.6.81    N/A ios-bundled default
1/08/33    CSMV6        0198-0203    0.0.6.81    N/A ios-bundled default
1/08/34    CSMV6        0204-0209    0.0.6.81    N/A ios-bundled default
1/08/35    CSMV6        0210-0215    0.0.6.81    N/A ios-bundled default
1/08/36    CSMV6        0216-0221    0.0.6.81    N/A ios-bundled default
1/08/37    CSMV6        0222-0227    0.0.6.81    N/A ios-bundled default
1/08/38    CSMV6        0228-0233    0.0.6.81    N/A ios-bundled default
1/08/39    CSMV6        0234-0239    0.0.6.81    N/A ios-bundled default
1/08/40    CSMV6        0240-0245    0.0.6.81    N/A ios-bundled default
1/08/41    CSMV6        0246-0251    0.0.6.81    N/A ios-bundled default
1/08/42    CSMV6        0252-0257    0.0.6.81    N/A ios-bundled default
1/08/43    CSMV6        0258-0263    0.0.6.81    N/A ios-bundled default
1/08/44    CSMV6        0264-0269    0.0.6.81    N/A ios-bundled default
1/08/45    CSMV6        0270-0275    0.0.6.81    N/A ios-bundled default
1/08/46    CSMV6        0276-0281    0.0.6.81    N/A ios-bundled default
1/08/47    CSMV6        0282-0287    0.0.6.81    N/A ios-bundled default
1/08/48    CSMV6        0288-0293    0.0.6.81    N/A ios-bundled default
1/08/49    CSMV6        0294-0299    0.0.6.81    N/A ios-bundled default
1/08/50    CSMV6        0300-0305    0.0.6.81    N/A ios-bundled default
1/08/51    CSMV6        0306-0311    0.0.6.81    N/A ios-bundled default
1/08/52    CSMV6        0312-0317    0.0.6.81    N/A ios-bundled default
1/08/53    CSMV6        0318-0323    0.0.6.81    N/A ios-bundled default
```

Related Commands

Command	Description
firmware location	Upgrades SPE firmware after the new SPE firmware image is retrieved from Cisco.com or elsewhere.
show spe	Displays history statistics of all SPEs, a specified SPE, or the specified range of SPEs.

shutdown (port level)

To disable a port, use the **shutdown** port configuration command. To change the administrative state of a port from out-of-service to in service, use the **no** form of this command

shutdown

no shutdown

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

Port configuration

Command History

Release	Modification
12.1(1)XD	This command was introduced on the Cisco AS5400.
12.1.(3)T	This command was integrated into Cisco IOS Release 12.1(3)T on the Cisco AS5400 and Cisco AS5800.
12.1(5)XM1	This command was introduced on the Cisco AS5350 universal gateway.
12.2(11)T	This command was integrated into Cisco IOS Release 12.2(11)T and support was added for the Cisco AS5350.

Usage Guidelines

The **shutdown** command is equivalent to the **modem shutdown** MICA modem command.

Examples

The example below first resets and un-resets port 1 to 18 before executing shutdown command.

```
router(config)# port 1/1 1/18
router(config-port)# shutdown
router(config-port)# no shutdown
router(config-port)#
```

Related Commands

Command	Description
busyout	To disable a port, use the shutdown port configuration command. To change the administrative state of a port from out-of-service to in service, use the no form of this command
clear spe	Resets the port and clears any active calls to the port
slear spe	Reboots SPEs that are in any state.
show spe	Displays history statistics of all SPEs, a specified SPE, or the specified range of SPEs.

shutdown (SPE level)

To take a Service Processing Element (SPE) out of service, use the **shutdown** spe configuration command. Use the **no** form of this command to change the administrative state of this SPE from down to up.

shutdown

no shutdown

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values

Command Modes

SPE configuration

Command History

Release	Modification
12.1(1)XD	This command was introduced on the Cisco AS5400.
12.1.(3)T	This command was integrated into Cisco IOS Release 12.1(3)T on the Cisco AS5400 and Cisco AS5800.
12.1(5)XM1	This command was introduced on the Cisco AS5350 universal gateway.
12.2(11)T	This command was integrated into Cisco IOS Release 12.2(11)T and support was added for the Cisco AS5350.

Usage Guidelines

The **shutdown** SPE configuration command takes a Service Processing Element (SPE) out of service. The **no** form of this command changes the administrative state of the SPE from down to up.

Examples

The following example first resets port 1 to 18.

```
router(config)# spe 1/1 1/18
router(config-port)# shutdown
router(config-port)# no shutdown
router(config-port)#
```

Related Commands

Command	Description
busyout	Disables an SPE by waiting for all the active services on the specified SPE to terminate.
clear spe	Reboots SPEs that are in any state
show spe	Displays history statistics of all SPEs, specified SPE or the specified SPE range.

spe

To access the Service Processing Element (SPE) configuration mode and set the range of SPEs, use the **spe** global configuration command. To exit SPE configuration mode, use the exit command.

Cisco AS5350 and Cisco AS5400 with NextPort DFC

spe {*slot* | *slot*/*spe*}

Cisco AS5800 with Universal Port DFC

spe {*shelf*/*slot* | *shelf*/*slot*/*spe*}

Syntax Description

slot	(Optional) All ports on the specified slot. For the Cisco AS5400, slot values range from 0 to 7.
slot/spe	(Optional) All ports on the specified slot and SPE. For the Cisco AS5400, slot values range from 0 to 7 and SPE values range from 0 to 17.
shelf/slot	(Optional) All ports on the specified shelf and slot. For the Cisco AS5800, shelf values range from 0 to 1 and UPC slot values range from 2 to 11.
shelf/slot/spe	(Optional) All ports on the specified SPE. For the Cisco AS5800, shelf values range from 0 to 1, slot values range from 2 to 11, and SPE values range from 0 to 53.

Defaults

None

Command Modes

Global configuration

Command History

Release	Modification
12.0(4)XI1	This command was introduced.
12.0(5)T	This command was integrated into Cisco IOS Release 12.0(5)T.
12.1(1)XD	This command was introduced on the Cisco AS5400.
12.1.(3)T	This command was integrated into Cisco IOS Release 12.1(3)T on the Cisco AS5400 and Cisco AS5800.
12.1(5)XM1	This command was introduced on the Cisco AS5350 universal gateway.
12.2(11)T	This command was integrated into Cisco IOS Release 12.2(11)T and support was added for the Cisco AS5350.

Usage Guidelines

The **spe** global configuration command enables the SPE configuration mode. Configure your SPE by specifying a slot and an SPE associated with the slot; or, you can configure a range of SPEs by specifying the first and last SPE in the range.

In the SPE configuration mode, the available SPE configuration commands are shown by typing**?** in that mode:

```
router(config)# spe 5/4 5/6
router(config-spe)# ?
SPE Configuration Commands:
  busyout   Busyout SPE
  default   Set a command to its defaults
  exit      Exit from SPE Configuration Mode
  firmware  Firmware used for the SPE
  help      Description of the interactive help system
  no        Negate a command or set its defaults
  shutdown  Take the SPE out of Service
```

When the universal gateway is booted, the **spe** global configuration command specifies the location from where the firmware image is downloaded to the SPE. If the **spe** configuration command is used to download the firmware from flash memory and then subsequently the **no** version of the exact command is entered, then the **spe** command downloads the embedded firmware.

Note Use this command when traffic is low since the **spe** download does not begin until the modems have no active calls.

Caution The **spe** command is a configuration command—save it using the **write memory** command, otherwise the configuration will not be saved. If the configuration is not saved, the downloading of the specified firmware will not occur after the next reboot.

Examples

The following example shows the **spe** command being used from global configuration mode to access the SPE configuration mode for the SPE range from 1/2 to 1/4:

```
router(config)# spe 1/2 1/4
```

The example below specifies the range for use of the shutdown command.

```
router(config)# spe 1/1 1/18
router(config-spe)# shutdown
router(config-spe)# no shutdown
router(config-spe)#
```

Related Commands

Command	Description
show spe	Display history statistics of all SPEs, specified SPE or the specified SPE range.

spe call-record modem

To generate a modem call-record at the end of each call, use the **spe call-record** global configuration command. Use the **no** form of the command to cancel the request to generate the reports.

spe call-record modem {max-userid *number* | quiet}

no spe call-record modem {max-userid *number* | quiet}

Syntax Description

max-userid *number*	Maximum length of the User ID for the modem call record report in number of bytes. The range is 0 to 100
quiet	Disables logging to the console and the terminal, but not to syslog.

Defaults

SPE call-record Enabled

Command Modes

Global configuration

CommandHistory

Release	Modification
12.1(1)XD	This command was introduced on the Cisco AS5400. This command replaces the **modem call-record** and **show modem call-stats** commands.
12.1.(3)T	This command was integrated into Cisco IOS Release 12.1(3)T on the Cisco AS5400 and Cisco AS5800.
12.1(5)XM1	This command was introduced on the Cisco AS5350 universal gateway.
12.2(11)T	This command was integrated into Cisco IOS Release 12.2(11)T and support was added for the Cisco AS5350.

Usage Guidelines

The **spe modem-call-record** command is equivalent to the **modem call-record** command.

Examples

The following example displays SPE call-record:

```
router# config t
router(config)# spe call-record modem max-userid 50
router(config)# end
router#
00:18:30: %SYS-5-CONFIG_I: Configured from console by console
router# write
Building configuration...
[OK]
```

The following is an example of traces generated when call terminates. The logs from the **show port modem** log command do not change as a result of using the **spe call-record** command.

```
...
%LINK-3-UPDOWN: Interface Async5/105, changed state to down
%MODEMCALLRECORD-6-PM_TERSE_CALL_RECORD: DS0 slot/contr/chan=4/2/15,
```

```
slot/port=5/37, call_id=EE, userid=touraco-e1-4, ip=79.188.24.1,
calling=(n/a), called=35160, std=V.34+, prot=LAP-M, comp=V.42bis,
init-rx/tx b-rate=33600/33600, finl-rx/tx b-rate=33600/33600, rbs=0,
d-pad=None, retr=1, sq=5, snr=10495, rx/tx chars=286/266, bad=0, rx/tx
ec=16/6, bad=0, time=96, finl-state=Steady Retrain,
disc(radius)=(n/a)/(n/a), disc(modem)=1F00 <unknown>/Requested by
host/non-specific host disconnect
%MODEMCALLRECORD-6-PM_TERSE_CALL_RECORD: DS0 slot/contr/chan=4/1/24,
slot/port=5/38, call_id=FD, userid=touraco-e1-4, ip=79.205.24.1,
calling=(n/a), called=35170, std=V.34+, prot=LAP-M, comp=V.42bis,
init-rx/tx b-rate=33600/33600, finl-rx/tx b-rate=33600/33600, rbs=0,
d-pad=None, retr=1, sq=5, snr=10495, rx/tx chars=289/267, bad=0, rx/tx
ec=17/7, bad=0, time=93, finl-state=Steady Retrain,
disc(radius)=(n/a)/(n/a), disc(modem)=1F00 <unknown>/Requested by
host/non-specific host disconnect
%MODEMCALLRECORD-6-PM_TERSE_CALL_RECORD: DS0 slot/contr/chan=4/3/15,
slot/port=5/2, call_id=FF, userid=touraco-e1-4, ip=79.200.24.1,
calling=(n/a), called=35170, std=V.34+, prot=LAP-M, comp=V.42bis,
init-rx/tx b-rate=33600/33600, finl-rx/tx b-rate=33600/33600, rbs=0,
d-pad=None, retr=1, sq=5, snr=10495, rx/tx chars=287/270, bad=0, rx/tx
ec=17/7, bad=0, time=92, finl-state=Steady Retrain,
disc(radius)=(n/a)/(n/a), disc(modem)=1F00 <unknown>/Requested by
host/non-specific host disconnect
%MODEMCALLRECORD-6-PM_TERSE_CALL_RECORD: DS0 slot/contr/chan=4/3/10,
slot/port=5
...
```

spe country

To specify the country while setting the NextPort DFC parameters (including country code and encoding), use the spe country global configuration command. To set the country code to the default value, use the no form of this command.

spe country {*country_name* | **e1-default**}

no spe country {*country_name* | **e1-default**}

Syntax Description

country_name	Name of the country
e1-default	Use this command when using the E1 interface.

Defaults

Disabled

Command Modes

Global configuration

Command History

Release	Modification
12.1(1)XD	This command was introduced on the Cisco AS5400.
12.1.(3)T	This command was integrated into Cisco IOS Release 12.1(3)T on the Cisco AS5400 and Cisco AS5800.
12.1(5)XM1	This command was introduced on the Cisco AS5350 universal gateway.
12.2(11)T	This command was integrated into Cisco IOS Release 12.2(11)T and support was added for the Cisco AS5350.

Usage Guidelines

On the Cisco universal gateway, DS-0 companding law selection is configured for the entire system rather than on individual voice ports. Set spe country to the appropriate country.

If T1s are configured, the default is t1-default; if E1s are configured, the default is e1-default.

The Cisco universal gateway must be in an Idle state (no calls are active) to run the spe country command. All sessions on all modules in all slots must be Idle.

Note The spe country command is similar to the modem country command.

Keyword	Country	Companding Law
australia	Australia	a-law
austria	Austria	a-law
belgium	Belgium	a-law
china	China	a-law

Keyword	Country	Companding Law
cyprus	Cyprus	a-law
czech-republic	Czech/Slovak Republic	a-law
denmark	Denmark	a-law
el-default	Default for E-1	a-law
finland	Finland	a-law
france	France	a-law
germany	Germany	a-law
hong-kong	Hong Kong	u-law
india	India	a-law
ireland	Ireland	a-law
italy	Italy	a-law
japan	Japan	u-law
malaysia	Malaysia	a-law
netherlands	Netherlands	a-law
new-zealand	New Zealand	a-law
norway	Norway	a-law
poland	Poland	a-law
portugal	Portugal	a-law
russia	Russia	a-law
singapore	Singapore	a-law
south-africa	South Africa	a-law
spain	Spain	a-law
sweden	Sweden	a-law
switzerland	Switzerland	a-law
t1-default	Default for T1	u-law
thailand	Thailand	a-law
turkey	Turkey	a-law
united-kingdom	United Kingdom	a-law
usa	United States of America	u-law

Examples

The command below sets the country code to E1 default.

```
router(config)# spe country e1-default
```

spe download maintenance

To perform download maintenance on Service Processing Elements (SPEs) that are marked for recovery, use the **spe download** global configuration command. To disable download maintenance on SPEs, use the **no** form of this command.

spe download maintenance {time *hh*:*mm* | stop-time *hh*:*mm* | max-spes *num-of-spes* | window *time-period* | expired-window {disable | drop-call | reschedule}}

no spe download maintenance {time *hh*:*mm* | stop-time *hh*:*mm* | max-spes *num-of-spes* | window *time-period* | expired-window {drop-call | reschedule}}

Syntax Description

drop-call	Force download by dropping active calls.
expired-window	Action to take if SPE maintenance is not completed within the window. Default is **reschedule**.
max-spes *num-of-spes*	Maximum number of SPEs that can simultaneously be in maintenance. The value is between 1-10000. The default is equal to 20 percent of the maximum number of SPEs in each NextPort DFC.
reschedule	Defer recovery to the next maintenance time
stop-time *hh*:*mm*	Time of the day to stop the download maintenance activity. Enter the value in the format of the variable as shown.
time *hh*:*mm*	Time of the day to start the download maintenance activity. Enter the value in the format of the variable as shown. Default is 03:00 a.m.
window time-period	Time window to perform the maintenance activity. The value is between 0-360 minutes. Default is 60 minutes.

Defaults

Enabled

Command Modes

Global configuration

Command History

Release	Modification
12.1(1)XD	This command was introduced on the Cisco AS5400. Together with the **spe recovery** command, the **spe download maintenance** command replaces the **modem recovery maintenance** command introduced in 12.0.
12.1.(3)T	This command was integrated into Cisco IOS Release 12.1(3)T on the Cisco AS5400 and Cisco AS5800.
12.1(5)XM1	This command was introduced on the Cisco AS5350 universal gateway.
12.2(11)T	This command was integrated into Cisco IOS Release 12.2(11)T and support was added for the Cisco AS5350.

Usage Guidelines

The SPE download maintenance activity takes place when SPEs are marked for recovery. The settings are enabled by default. When you want to change the default settings to a desired setting, use the spe download maintenance command parameters to perform **SPE download maintenance** activity with the specific changes.

Enter the **time** hh:mm keyword to set a time to start the SPE download maintenance activity. Then enter the **stop-time** hh:mm keyword to set a time to stop the download maintenance. Next enter the **max-spes** number keyword to set the number of SPEs for the download maintenance. Then enter the window **time-period** keyword to set a time period to perform the download maintenance. Finally, enter the **expired-window** keyword to set actions in the event the SPE download maintenance is not completed in the set **window** time-period.

The download maintenance activity starts at the set **start** time and steps through all SPEs that need recovery and the SPEs that need a firmware upgrade. The download maintenance activity starts maintenance on the maximum number of set SPEs for maintenance. The system waits for the **window** delay time for all the ports on the SPE to become inactive before moving the SPE to the Idle state. Immediately after the SPE moves to Idle state, the system starts to download firmware. If the ports are still in use by the end of **window** delay time, depending upon the **expired-window** setting, connections on the SPE ports are shutdown and the firmware is downloaded by choosing the **drop-call** option, or the firmware download is rescheduled to the next download maintenance time by choosing the **reschedule** option. This process continues until the number of SPEs under maintenance is below **max-spes**, or until **stop-time** (if set), or until all SPEs marked for recovery or upgrade have had their firmware reloaded.

Examples

The following example displays the spe download maintenance with the different keyword parameters:

```
Router(config)# spe download maintenance time 03:00

Router(config)# spe download maintenance stop-time 04:00

Router(config)# spe download maintenance max-spes 50

Router(config)# spe download maintenance window 30

Router(config)# spe download maintenance expired-window reschedule
```

Related Commands

Command	Description
firmware location	Downloads firmware from flash into the modems from this file location.
firmware upgrade	Specifies the method in which the SPE will be downloaded.
show spe version	Displays the firmware version on an SPE.
spe recovery	Sets an SPE port for recovery.

spe log-size

To set the buffer size for the port event log, use the **spe log-size** global configuration command.

spe log-size *number*

Syntax Description

number	Defines the number of recorded events.

Defaults

No default behavior or values

Command Modes

Global configuration

Command History

Release	Modification
12.1(1)XD	This command was introduced on the Cisco AS5400.
12.1.(3)T	This command was integrated into Cisco IOS Release 12.1(3)T on the Cisco AS5400 and Cisco AS5800.
12.1(5)XM1	This command was introduced on the Cisco AS5350 universal gateway.
12.2(11)T	This command was integrated into Cisco IOS Release 12.2(11)T and support was added for the Cisco AS5350.

Examples

This example sets the buffer size for the event log at 50.

```
router(config)# spe log-size 50
router(config)#
```

Related Commands

Command	Description
show port digital log	Displays the digital data event log with oldest event first.
show prot modem log	Displays the modem port history event log or modem test log.

spe poll

To set the statistical polling interval, use the spe poll global configuration command.

spe poll {auto | time *seconds***}**

Syntax Description

auto	NextPort only: Async transfer of statistics
time *seconds*	polling interval. The seconds range is 2–60.

Defaults

Enable for **auto**.

12 seconds for **time**.

Command Modes

Global configuration.

Command History

Release	Modification
12.1(1)XD	This command was introduced on the Cisco AS5400.
12.1(3)T	This command was integrated into Cisco IOS Release 12.1(3)T on the Cisco AS5400 and Cisco AS5800.
12.1(5)XM1	This command was introduced on the Cisco AS5350 universal gateway.
12.2(11)T	This command was integrated into Cisco IOS Release 12.2(11)T and support was added for the Cisco AS5350.

Usage Guidelines

The spe poll command is equivalent to the modem poll MICA modem command.

Examples

The example sets the statistics election to 20 seconds:

```
Router# spe poll time 20
```

Related Commands

Command	Description
clear counters spe	Clears statistical counters for all types of servers.
clear service counters	
modem poll retry	

spe recovery

To set an SPE port for recovery, use the **spe recovery** global configuration command.

spe recovery {**port-action** {**disable** | **recover** | **none**} | **port-threshold** *num-failures*}

Syntax Description

port-action	Action to apply to the port for recovery. Default is **none**.
disable	Set the port in a BAD state.
recover	Set the port for recovery.
none	Set the port for recovery. Default is **none**.
port-threshold *num-failures*	The number of consecutive failed attempts made on the port before applying **port-action**. Enter an integer value. Default is 30 consecutive call failures.

Command Modes

Global configuration

Command History

Release	Modification
12.1(1)XD	This command was introduced on the Cisco AS5400.
12.1.(3)T	This command was integrated into Cisco IOS Release 12.1(3)T on the Cisco AS5400 and Cisco AS5800.
12.1(5)XM1	This command was introduced on the Cisco AS5350 universal gateway.
12.2(11)T	This command was integrated into Cisco IOS Release 12.2(11)T and support was added for the Cisco AS5350.

Usage Guidelines

When an SPE port fails to connect after repeated tries, this is an indication that a problem exists in SPE/firmware. A SPE port in this state is recovered by downloading firmware.

This command moves an SPE port that fails to connect consecutively *num-failures* (**port-threshold**) to a state based on (**port-action**). The port is disabled (**disable**), and then marked for recovery (**recover**). Any SPE which has a port marked for recovery is downloaded when the SPE is in *IDLE* state.

Examples

The following example displays the help entries, which describe the command parameters.

```
router(config)# spe recovery ?
  port-action     Action to apply on port for recovery
  port-threshold  # of consecutive failed call attempts on a port to apply
                  port-action
```

Related Commands

Command	Description
clear port	Clears a SPE port and terminates active service if the port has a call up.
clear spe	Cold starts SPEs that are in a Bad state.
firmware upgrade	Specifies an SPE firmware upgrade method.
show spe	Displays history statistics of all SPEs, specified SPE or the specified SPE range.
show spe version	Displays the firmware version on an SPE and displays the version to firmware file mappings.
spe download maintenance	Performs download maintenance on SPEs that are marked for recovery.

test port modem back-to-back

To test two specified ports back-to-back and transfer a specified amount of data between the ports, use the **test port modem back-to-back** EXEC command.

Cisco AS5350 and Cisco AS5400 with NextPort DFC

test port modem back-to-back {*slot*/*port*}

Cisco AS5800 with Universal Port DFC

test port modem back-to-back {*shelf*/*slot*/*port*}

Syntax Description

slot/*port*	(Optional) The specified port range on a slot. For the Cisco AS5350, slot values range from 0 to 7 and port values range from 0 to 10
shelf/*slot*/*port*	(Optional) The specified port range on a shelf and slot. For the Cisco AS5800, shelf values range from 0 to 1, slot values range from 2 to 11, and port values range from 0 to 323.

Defaults

No default behavior or values

Command Modes

EXEC

Command History

Release	Modification
11.2	The **test modem back-to-back** command was introduced. This command form is not used in this feature.
12.1(1)XD	This command was introduced on the Cisco AS5400, replacing the **test modem back-to-back** command.
12.1.(3)T	This command was integrated into Cisco IOS Release 12.1(3)T on the Cisco AS5400 and Cisco AS5800.
12.1(5)XM1	This command was introduced on the Cisco AS5350 universal gateway.
12.2(11)T	This command was integrated into Cisco IOS Release 12.2(11)T and support was added for the Cisco AS5350.

Usage Guidelines

The test port modem back-to-back command should be performed on different combinations to determine a good port.

Note The test port modem back-to-back command is similar to the test modem back-to-back MICA modem command.

Examples

The following example displays a back-to-back test:

```
Router# test port modem back-to-back 1/1/1

Repetitions (of 10-byte packets) [1]:
*Mar  02 12:13:51.743:%PM_MODEM_MAINT-5-B2BCONNECT:Modems (2/10) and (3/20) connected in
back-to-back test:CONNECT33600/V34/LAP
*Mar  02 12:13:52.783:%PM_MODEM_MAINT-5-B2BMODEMS:Modems (3/20) and (2/10) completed
back-to-back test:success/packets = 2/2
```

Related Commands

Command	Description
port modem autotest	Automatically and periodically performs a modem diagnostic test for modems inside the universal gateway or router.
port modem startup test	Performs diagnostic testing for all modems.
show port modem test	Displays the modem port history event log or modem test log.

Glossary

bps—Bits-per-second.

byte—Bits of information.

call or port—A name used to represent the binding of a TDM channel, service, and data queue to support a bidirectional service on the NextPort module.

Control Processor (CP)—A processor on the module that supports the NextPort messaging interface.

DFC—dial feature card, the NextPort modem carrier card (AS54-DFC-108NP) that occupies a slot in the Cisco AS5350.

EST Queue—An Error / Status / Trace message queue used to communicate out-of-band information between the host and the module.

host—A physical card that the NextPort module connects to. This can be either the platform, backplane, or a carrier card.

Mb—Megabit. 1,048,576 million bits.

MB—Megabyte. 1,048,576 million bytes.

MIB—Management Information Base.

NextPort module—A hardware card that supports the NextPort hardware and software interfaces.

Port Management Database—A database that consists of Service Processing Element and port level management information for all services.

port, timeslot, or DS0—The atomic element of a TDM stream. It provides a bandwidth of 64,000 bps.

Receive or Rx—Indicates the direction from the TDM stream to the module to the host.

Service—The algorithm executing on the NextPort module that implements a particular protocol. Two typical examples of services are a data modem and Voice over IP.

Service Processing Unit (SPU)—The processor on the module that runs protocols to process in-band data.

shared memory interface—A communication mechanism where a block of memory can be accessed by multiple processors and that is used to exchange information.

SPE—Service Processing Element. A component of a NextPort module to which sessions are assigned. An SPE is a logical entity that groups six modems.

TDM—Time division multiplexing. The process whereby a high-bandwidth channel is subdivided into multiple lower-bandwidth channels.

TDM channel—One or more time slots of the HMVIP stream that constitute a single data stream. The TDM channel bandwidth is determined by 64,000 multiplied by the number of time slots in the channel.

TDM stream—An HMVIP serial data stream operating at 8.192 MHz and capable of supporting 8.192MB throughput.

Transmit or Tx—Indicates the direction from the host to the module to the TDM stream.

universal service—A port on a NextPort module that can be switched freely between two or more services without changing the TDM channel.