



V.92 Modem on Hold for Cisco AS5350, Cisco AS5400, and Cisco AS5850 Universal Gateways and Cisco AS5800 Universal Access Servers

Feature History

Release	Modification
12.2(2)XA	This feature was introduced on Cisco AS5350 and Cisco AS5400 universal gateways running NextPort firmware.
12.2(2)XB	This feature was supported with Cisco IOS Software Release 12.2(2)XB.
12.2(2)XB1	This feature was supported on Cisco AS5800 universal access servers and Cisco AS5850 universal gateways.
12.2(11)T	This feature was integrated into Cisco IOS Release 12.2(11)T and support was added for the Cisco AS5350, Cisco AS5400, Cisco AS5800, and Cisco AS5850 platforms.

This feature module introduces the V.92 International Telecommunication Union Telecommunication Standardization Sector (ITU-T) standard Modem on Hold (MOH) feature on NextPort/DFC-108NP-bearing platforms for use with Cisco IOS Releases 12.2(2)XB1 and 12.2(11)T.

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Feature Overview

V.92

To remain current with industry needs, the ITU-T V.90 modem standard recommendations have been enhanced. The new standard, V.92, meets the need for a digital modem and analog modem pair on the Public Switched Telephone Network (PSTN). V.92 improves the upstream data signaling rate and adds new features that enhance modem usability. These new modem protocols and standards are implemented at the modem level.

This feature module introduces the V.92 [Modem on Hold](#) feature on Cisco AS5350, Cisco AS5400, and Cisco AS5850 universal gateways and Cisco AS5800 universal access servers.



Note

The other feature introduced with the new V.92 standard is V.92 Quick Connect, which is documented in the *V.92 Quick Connect for Cisco AS5350, Cisco AS5400, and Cisco AS5850 Universal Gateways and Cisco AS5800 Universal Access Servers* feature module. V.92 Modem On Hold and V.92 Quick Connect can be enabled independently of each other.

NextPort firmware provides V.92 capabilities bundled with existing NextPort features. The NextPort Dial Feature Card (DFC-108NP) is responsible for the ITU implementation of V.92 and the collection of statistics related to the new features, including the new Modem States that occur with the additional negotiations for V.92. The statistics are collected by the dial feature card (DFC) but are passed to and stored in Cisco IOS software. Cisco IOS software is responsible for controlling the features and displaying the new statistics.

The Cisco AS5800 uses the NextPort high density dial termination card to implement this feature. Both voice and dial technologies are supported when used in a Cisco 5850 universal gateway.



Note

V.92 is packaged with V.44 in Cisco IOS software. For more information about V.44, refer to the *V.44 LZJH Compression for Cisco AS5350, Cisco AS5400, and Cisco AS5850 Universal Gateways and Cisco AS5800 Universal Access Servers* feature module.

Modem on Hold

V.92 Modem on Hold allows a dial-in customer to suspend a modem session to answer an incoming voice call or to place an outgoing call while engaged in a modem session. When the dial-in customer uses Modem on Hold to suspend an active modem session to engage in an incoming voice call, the Internet service provider (ISP) modem listens to the original modem connection and waits for the dial-in customer's modem to resume the connection. When the voice call ends, the modem signals the telephone system to end the second call and return to the original modem connection, then the modem signals the ISP modem that it is ready to resume the modem call. Both modems renegotiate the connection, and the original exchange of data continues.



Note

This feature is designed for use on telephone lines that are configured for call-waiting service; call-waiting signals trigger the suspension of the modem session. If call-waiting service is not present on the subscriber's line, other callers receive a busy signal, and the modem session is not interrupted.

Use of the V.92 Modem on Hold feature for Cisco NextPort firmware can be controlled globally using **AT** commands (modemcaps) or can be controlled on a per-caller basis using the RADIUS distributed client/server system.

**Note**

You are not required to have a RADIUS server to use the Modem on Hold feature.

The following sections contain information about controlling the V.92 Modem on Hold feature:

- [AT Commands \(Modemcaps\) and S-Registers](#)
- [RADIUS Authorization](#)

AT Commands (Modemcaps) and S-Registers

V.92 Modem on Hold is disabled by default and is controlled with standard **AT** commands and S-registers. V.92 is enabled and disabled with the S29 S-register (S29 = 12), and Modem on Hold is controlled with the S62 S-register (S62 must be set to enable Modem on Hold). **AT** commands download the configuration to the modem at the end of every call. The **ATSn=v** and **ATSn?** **AT** commands are used to configure V.92 Modem on Hold on NextPort platforms. [Table 1](#) lists additional S-register parameters used to enable and disable the feature.

To disable V.92 Modem on Hold, you can use a modemcap (for example, s62=0s63=3s21=15s29=12) or set the S29 register to any number other than 12. You can also use the RADIUS vendor-specific attribute (VSA) to disable Modem on Hold if the feature was initially enabled by the default value (modemcap).

**Note**

If the feature is enabled using S29=12 and Modem on Hold is disabled using S62=0, statistics for the number of times a dial-in customer requests an on-hold are tracked in the MOH link information parameters. However, completely disabling the feature by setting S29 to a value other than 12 disables the reporting of all MOH statistics.

For detailed information about the **AT** commands and S-registers used to control V.92 on NextPort platforms, refer to the [AT Command Set and Register Summary for NextPort Platforms](#).

Table 1 V.92 Modem on Hold S-Registers

Name	Register	Index	Default	Description
Modem standard	S29	NextPort 0x8013	12 (V.92 enabled)	0 = V.34 Automode, without V.32ter 1 = V.34 Automode, without V.32ter 2 = V.32ter Automode 3 = V.32bis Automode 4 = V.22bis Automode 5 = K56Flex 6 = V.90 Automode (V.92 builds only) 7 = (reserved) 8 = V.110 9 = (reserved) 10 = V.120 11 = Clear Channel 12 = V.92 Automode (V.92 builds only)
MOH timeout	S62	NextPort 0x803f	0	0: MOH disabled 1: 10 seconds 2: 20 seconds 3: 30 seconds 4: 40 seconds 5: 1 minute 6: 2 minutes 7: 3 minutes 8: 4 minutes 9: 6 minutes 10: 8 minutes 11: 12 minutes 12: 16 minutes 13: No limit

RADIUS Authorization

Per-user control of Modem on Hold can be configured for caller authorization using a RADIUS server. RADIUS servers use the vendor-specific attribute (VSA) capability to configure Modem on Hold for individual users. The current attribute=value protocol syntax has been extended with the new Modem on Hold attribute. You can enter the following value for this attribute:

- An unsigned integer in the range 0 through 65,535—Represents the maximum number of seconds that a modem may remain on hold, which can range from ten seconds to an unlimited number of minutes.

**Note**

Although the integer attribute values can be specified as any value in a contiguous range, V.92 specifications limit configuration to a limited set of values. Attribute values are rounded down to the next permitted value when they are used to configure a modem.

Alternatively, you can enter the **inf** keyword, which allows the modem to remain on hold indefinitely.

If the Modem on Hold configuration is not present, or if it is not syntactically correct, the modem uses its default configuration for Modem on Hold. The default operation can be modified by using a modemcap string. Following authentication of a dial-in user, an additional control command is sent to the modem if the dial-in user does not have a default Modem on Hold configuration.

**Note**

Code space requirements for RADIUS support is less than 2KBs. There are no additional data space requirements.

V.92 Modem on Hold running on systems using RADIUS authorization increases the length of RADIUS response packets by approximately 20 bytes. RADIUS databases increase in size by approximately the same amount for each dial-in user with a nondefault Modem on Hold attribute value.

With RADIUS, authentication and authorization occur as part of the same process. When a caller connects to the access server, the caller enters a user ID and password in response to prompts from the access server. This information is formatted as a RADIUS request packet and is sent to the appropriate RADIUS server. If the user ID is valid and the password matches, the RADIUS server responds with a packet containing authorization data for the connection. This authorization data contains the Modem on Hold configuration if it is present in the RADIUS database.

The access server interprets the response from the RADIUS server and performs any actions associated with the authorization data. For Modem on Hold, a command is sent from the Cisco IOS host to the NextPort channel to set the Modem on Hold parameters. No confirmation from the channel is required.

When the client modem requests a Modem on Hold operation, the modem switches to an on-hold state, which prevents further data from being queued to the connection. When the Cisco IOS software receives the request to go on hold, any transmit packets queued to local Cisco IOS queues (packets not already posted to the queues shared between the Cisco IOS software and the modem) are discarded. This mechanism reduces the possibility that stale data will be transmitted to the modem when the connection is reactivated. It also reduces the number of buffer resources that are tied up while a modem is on hold.

**Note**

When using a RADIUS server, placement of commas is important. The asterisk in the modem-on-hold attribute indicates that the attribute is optional. If a modem does not support Modem on Hold, then the call might continue anyway. If the asterisk is replaced by an "=", the attribute is required, and modems that do not support Modem on Hold terminate the calls following authentication.

The value of the attribute is the number of seconds allowed for the on-hold state. This value is rounded by the Cisco IOS software to one of the permissible values. The number can be replaced with the **inf** command, which allows unlimited on-hold time. Case is significant for both attribute names and values.

**Note**

If your router is configured for RADIUS, the RADIUS server must be accessible to the router. The server must also be capable of responding to authentication requests with VSA attributes.

Configuring V.92 Modem on Hold with RADIUS

If you use RADIUS to configure the Modem on Hold feature, use the modem-on-hold attribute, where the VALUE attribute is a nonnegative integer in seconds for maximum time on hold allowed. VALUE can be one of the following:

- modem-on-hold=VALUE—MOH support is required for call to be accepted.
- modem-on-hold*VALUE—MOH support is optional.

The following example shows RADIUS enabled where Modem on Hold is optional:

```
vendor-specific=9:1:modem-on-hold*VALUE
```



Note

The examples shown below were established on the Cistron open-source server. Your server syntax may vary.

```
# This user can use MOH without time limits. (inf)
# MOH capability is not required for the connection (*)
testi Auth-Type = Local, Password = "test"
Service-Type = Login-User,
Cisco-AVPair = "modem-on-hold*inf"

# This user can use MOH for 30 seconds.
# MOH capability is not required for the connection.
test30 Auth-Type = Local, Password = "test"
Service-Type = Login-User,
Cisco-AVPair = "modem-on-hold*30"

# This user can not use MOH.
# MOH capability is not required for the connection.
test0 Auth-Type = Local, Password = "test"
Service-Type = Login-User,
Cisco-AVPair = "modem-on-hold*0"

# This user can not use MOH.
# But MOH capability IS required for the connection.
# If the user logs on to a device that does not support
# MOH (eg the console), he will be disconnected after
# authentication.
testr Auth-Type = Local, Password = "test"
Service-Type = Login-User,
Cisco-AVPair = "modem-on-hold=0"

# This user gets the default MOH setting.
# The default setting is disabled, unless overridden
# by a modemcap entry.
testx Auth-Type = Local, Password = "test"
Service-Type = Login-User

# This user can go on hold for 60 seconds
# in a PPP link. The service type determines
# which calls get the MOH setting.
lucy Auth-Type = Local, Password = "test"
Service-Type = Framed-User,
Cisco-AVPair = "modem-on-hold*60"
```



Note

The service type defines when the AVPair is applied. For different RADIUS servers, the Cisco-AVPair syntax might be different, but the value in quotes does not change. Case is important: The entire text in quotes must be lowercase.

For more information about using RADIUS, refer to the *Configuring RADIUS* documentation.

Modem Enhancements for V.92 Modem On Hold

The following modem enhancements have been made for the implementation of the V.92 Modem on Hold feature:

- [Disconnect Reasons](#)
- [Duration Limit Timer](#)
- [Modem on Hold Link Information Parameters](#)
- [Modem States](#)
- [New and Modified MIBs](#)

Disconnect Reasons

V.92 Modem on Hold Disconnect Reasons is the method by which a modem tells the Cisco IOS software (host) why it has terminated its session with a client through the Modem on Hold clear-down by modem and the Modem on Hold timeout values. [Table 2](#) lists the new Modem on Hold Disconnect Reasons.

Table 2 *Modem On Hold Disconnect Reasons*

Name	Description
DR_MOH_CLRD	Modem On Hold clear-down by modem
DR_MOH_TIMEOUT	Modem On Hold timeout value reached

Duration Limit Timer

The Modem on Hold duration limit timer is supported within dialed number ID service (DNIS), calling line ID (CLID), RADIUS (but not TACACS+), and global resource pool manager server (RPMS) virtual groups. This support permits ISPs to associate the Modem on Hold feature and its timer limit according to customer needs. When the Modem on Hold timer is active (a modem is on hold), it must take precedence over the idle timer. For example, if the idle value is five minutes and the Modem on Hold duration limit is ten minutes, the customer is permitted to be on another call for up to ten minutes without being disconnected after five minutes by the idle timer. The Modem on Hold timer value resets at the end of each on-hold session.

Modem on Hold Link Information Parameters

Table 3 *Modem on Hold Link Information Parameters*

Name	Description
MOH Status	0: Modem is not on hold 1: Modem is on hold
MOH Count	Number of times the modem is on hold
MOH Request Count	Number of times the modem received Modem on Hold requests.
Total MOH Time	Total holding time: 65,535 seconds maximum

Table 3 *Modem on Hold Link Information Parameters*

Name	Description
Current MOH Time	Current holding time: 65,535 seconds maximum
Call Waiting Retrains	Number of times a retrain occurred due to a call-waiting signal

Modem States

This feature supports modem states, which are discrete states that a modem transitions through, during, and after negotiation with a client modem. These states include the Modem on Hold input state, the Steady input state, and the Steady, Steady Retrain, and Terminate output states.

New and Modified MIBs

Existing MIBs that show the status of modem settings have been extended to show V.92 Modem on Hold configuration status. New MIBs have been created to report the incidence of V.92 Modem on Hold request calls coming into the server and to monitor on-hold status.

Supported Module Firmware and Cisco IOS Software

V.92 Modem on Hold is supported on the following firmware and software:

- **Module Firmware**—The module firmware is a combination of modem (Digital Signal Processor or DSP) firmware and the module controller firmware. It is responsible for the collection of statistics and the actual implementation of V.92, including additional required state transitions.
- **Cisco IOS software**—The Cisco IOS software is responsible for the control and statistics reporting of the new features, including modemcaps, RADIUS authorization, and command-line interface (CLI) support. See the [“Related Documents” section on page 9](#) for information about new Cisco IOS Release features.

Benefits**Allows Voice Calls Without Interruption of Existing Modem Connection**

V.92 Modem on Hold allows the origination and reception of voice calls without disturbing preexisting modem sessions. With Modem on Hold, calls can ring through to the dial-in user without requiring the expense of a second telephone line.

Per-Use Enabling

Service providers can enable Modem on Hold on a per-user basis for premium service opportunities.

Standard Modem Feature

V.92 is a standard modem feature that is offered as a no-cost upgrade to the installed system.

V.92 Compatibility

Modems that support V.92 are fully compatible with modems that do not support it. If a modem that supports Modem on Hold connects with a modem that does not support it, the modems will connect normally. However, the Modem on Hold function is not available for that call.

Restrictions

- Client modem vendors must supply their own utilities to enable Modem on Hold with each client modem.
- There is no standard method for notifying remote or user applications that a modem session has been placed on hold. Extending timeouts or increasing the maximum number of attempts to perform certain operations might be necessary. No e-mail data should be lost because of on-hold times.
- When a Modem on Hold transaction returns to the data-connected state, it retains the same IP network connection. Any other connected applications might not be returned to their prior state, depending on the application's data transaction requirements during the Modem on Hold active state.
- Configuration of these features using S-registers is carried out by using modemcaps (AT commands). Cisco IOS software does not check these values to guarantee that they are valid. The behavior of invalid values is determined by the module.
- Authorization of Modem on Hold is not provided as a standard service by RADIUS. However, RADIUS provides a vendor-specific attribute (VSA) capability that can be used to extend authorization mechanisms. This capability is already used by Cisco routers to provide other custom services.
- Cisco IOS software is packaged as multiple program image types with varying capabilities. Because not all modem interfaces support Modem on Hold and because images may be built to support specific modem types, not all software images contain functions to control Modem on Hold. In addition, the modems that do support Modem on Hold implement their control functions differently. Therefore, registry functions are used to interface between RADIUS, local authorization, and Modem on Hold control for modems.
- Server-initiated Modem on Hold is not supported
- During a suspended modem session, some data might be dropped. The ISP idle timer, which disconnects a dial-in user if there is no data exchanged for a period of time, should be reset and suspended while a connection is on hold.

**Note**

Many client modems used in Europe are known to have problems with the Modem on Hold feature. The vendors are aware of the issue and are working to correct it. If you are having trouble with the Modem on Hold feature in Europe, it is suggested that the customer contact the client modem vendor to verify that the modem complies with the telephony signaling for call waiting, caller ID, and 3-way calling in their particular country.

Related Features and Technologies

- V.92 Quick Connect
- V.44 LZJH data compression service
- Mindspeed CSMv6 hardware solution

Related Documents

- *AT Command Set and Register Summary for NextPort Platforms*
- Cisco AS5350 documentation index

- Cisco AS5400 documentation index
- Cisco AS5800 documentation index
- Cisco AS5850 documentation index
- Cisco AS5800 Universal Access Server Release Notes
- Cisco IOS Release 12.2 Master Indexes
- *Comparing NextPort SPE Commands to MICA Modem Commands*
- *Managing Port Services on the Cisco AS5400 Universal Gateway*
- *Managing and Troubleshooting the NextPort Dial Feature Card*
- New Features in Release 12.2(2)XB
- *NextPort Port Service Management for the Cisco AS5400 Universal Gateway*
- *Release Notes for Cisco AS5350 Universal Gateways for Cisco IOS Release 12.2 XA*
- *Release Notes for Cisco AS5350 and AS5350HPX Universal Gateways for Cisco IOS Release 12.2 XB*
- Cisco IOS Release 12.2T Cross-Platform Release Notes
- *SPE and Firmware Download Enhancements*
- *V.44 LZJH Compression for Cisco AS5350 and Cisco AS5400 Universal Gateways*
- *V.92 Quick Connect for Cisco AS5350 and Cisco AS5400 Universal Gateways*

Supported Platforms

- Cisco AS5350
- Cisco AS5400
- Cisco AS5800
- Cisco AS5850

Table 4 Cisco IOS Release and Platform Support for this Feature

Platform	12.2(2)XA	12.2(2)XB1	12.2(11)T
Cisco AS5350	X	X	X
Cisco AS5400	X	X	X
Cisco AS5800	Not supported	X	X
Cisco AS5850	Not supported	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 quickly 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

- V.44
- V.92 Modem on Hold
- V.92 Quick Connect

MIBs

- CISCO-MODEM-MGMT-MIB
- CISCO-CALL-TRACKER-MODEM-MIB

To locate and download MIBs for selected platforms, Cisco IOS releases, and feature sets, use Cisco MIB Locator found at the following URL:

<http://tools.cisco.com/ITDIT/MIBS/servlet/index>

If Cisco MIB Locator does not support the MIB information that you need, you can also obtain a list of supported MIBs and download MIBs from the Cisco MIBs page at the following URL:

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

To access Cisco MIB Locator, 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 found at this URL:

<http://www.cisco.com/register>

RFCs

No new or changed RFCs are supported by this feature.

Prerequisites

- Cisco IOS Release 12.2(2)XB1 or 12.2(11)T.
- Minimum of 32K memory needed for bundled Cisco NextPort firmware
- Additional data space needed on the modem module (refer to Cisco NextPort documentation)
- Basic configuration of the Cisco AS5350, Cisco AS5400, Cisco AS5800, or Cisco AS5850
- Upgraded modem firmware
- NextPort DFC installed
- Modems must be capable of supporting Modem on Hold

Configuration Tasks

None

For additional information, refer to the following documents:

- V.44 LZJH Compression for Cisco AS5350, Cisco AS5400, and Cisco AS5850 Universal Gateways and Cisco AS5800 Universal Access Servers
- *V.92 Quick Connect for Cisco AS5350, Cisco AS5400, and Cisco AS5850 Universal Gateways and Cisco AS5800 Universal Access Servers*

Monitoring and Maintaining Modem on Hold

Use the following **show** commands in privileged EXEC mode.

Command	Purpose
Router# show spe modem active	Displays the modem service statistics of all active calls on specified service processing elements (SPEs).
Router# show spe modem disconnect-reason	Displays the digital disconnect reasons for the specified SPE or SPE range.
Router# show port operational-status	Displays the operational status of the specified ports or the specified port range.
Router# show port modem log	Displays the event log with oldest event first.
Router# show port configuration	Displays the configuration information for specified ports or the specified port range.
Router# show spe modem csr	Displays the call success rate (CSR) for the specified SPEs.

Command	Purpose
Router# <code>show spe modem summary</code>	Displays the modem service history statistics for specified SPEs.
Router# <code>show call calltracker active</code>	Displays the port level information stored within the Call Tracker active database for all active modem calls.

Configuration Examples

None

Command Reference

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

- `show call calltracker active`
- `show port configuration`
- `show port modem log`
- `show port operational-status`
- `show spe modem active`
- `show spe modem csr`
- `show spe modem disconnect-reason`
- `show spe modem summary`

show call calltracker active

To display all information stored within the Call Tracker active database for all active calls, use the **show call calltracker active** command in privileged EXEC mode.

```
show call calltracker active [category [isdn | modem | other | v110 | v120]]
```

Syntax Description	category
	(Optional) Displays Call Tracker data for a specific type of call. The default is to show all calls, regardless of type. By specifying the category keyword with one of the optional modem type keywords, Call Tracker only shows calls whose records indicate that category.
	isdn Displays Call Tracker data for calls on the ISDN.
	modem Displays all of the information calls.
	other Displays Call Tracker data for other call categories.
	v110 Displays Call Tracker data for V.110 calls.
	v120 Displays Call Tracker data for V.120 calls.

Defaults Specific activity and configuration information is not displayed.

Command Modes Privileged EXEC

Command History	Release	Modification
	12.1(2)XH	This command was introduced.
	12.1(3)T	This command was introduced.
	12.2(2)XA	This command was supported on the Cisco AS5350.
	12.2(2)XB1	This command was supported with Cisco IOS Release 12.2(2)XB.
	12.2(11)T	This command was integrated into Cisco IOS Release 12.2(11)T.

Usage Guidelines This command allows you to display call activity for a single supported call category type, if desired, by using the **category** keyword with one of the optional keywords.

The Call Tracker feature is enabled by entering the **calltracker enable** command. If there is no call on the specified port, the information of the most recent call is displayed. The **show calltracker active** command shows all calls, regardless of type, unless specified by the **category** option field.

(For detailed information about the Call Tracker feature, refer to the *Cisco IOS Call Tracker* feature module.)

Examples The following example shows Call Tracker activity for modem calls:

```
Router# show call calltracker active category modem
----- call handle=0000000058 -----
```


show call calltracker active

Related Commands	Command	Description
	show calltracker handle	Displays the detailed data stored within Call Tracker for a specific call having specified unique call handle identifier.
	show calltracker history	Displays all the information stored within the Call Tracker history database table for the most recent disconnected calls.

show port configuration

To display the configuration information for specified ports or the specified port range, use the **show port configuration** command in privileged EXEC mode.

Cisco AS5400 with NextPort DFC

```
show port config {slot | slot/port}
```

Cisco AS5800 with Universal Port Card

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

Syntax	Description
<i>slot</i>	All ports on the specified slot. For the AS5400, slot values range from 0 to 7.
<i>slot/port</i>	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.
<i>shelf/slot</i>	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.
<i>shelf/slot/port</i>	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 Privileged EXEC

Command History	Release	Modification
	12.1(1)XD	This command was introduced on the Cisco AS5400.
	12.1(3)T	This command was supported on the Cisco AS5400 and Cisco AS5800.
	12.2(2)XA	This command was supported on the Cisco AS5350.
	12.2(2)XB1	This command was supported with Cisco IOS Release 12.2(2)XB.
	12.2(11)T	This command was integrated into Cisco IOS Release 12.2(11)T.

Usage Guidelines The port should have an associated active session when the **show port configuration** command is entered.

Examples The following example shows output from the **show port configuration** command on the Cisco AS5400 with NextPort dial feature card (DFC). This example shows port configuration for the modem service port slot 1, port 0.

```
Router# show port configuration 1/0

Service Type                               :Modem service
```

show port configuration

```

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.44Tx  V.44Rx
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
MOH Timeout                    :No limit
QC Configuration               :Enabled ANSpcm Level -12dBm
V.44 Max Tx Codewords          :256
V.44 Max Rx Codewords          :256
V.44 Max Tx String Length      :32
V.44 Max Rx String Length      :32
V.44 Max Tx History Size       :256
V.44 Max Rx History Size       :256

```

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 configuration 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

```

Table 5 show port configuration Field Descriptions

Field	Description
Service Type	Digital or analog service type.
Originate/Answer Mode:	Answer or originate. Default is answer.
Data Bits Selection:	7, 8, or 9 data bits. Default is 8.
Parity Selection:	0 = no parity, 1 = even parity, 2 = odd parity. Default is no parity.
Stop Bits Selection:	1 or 2 stop bits. Default is 1 stop bit.
V.42 ODP generation:	Disabled or generate ODP sequence when originating a V.42 call. Default is Generate ODP sequence when originating a V.42 call.
Error Correction Autodetect Time-out value:	Maximum period during which the modem will run an automated detection machine upon the incoming data. Default is 5000 ms.
Protocol Negotiation Time-out value:	Maximum wait for error correction protocol negotiation before fallback. Default is 10000 ms.
Protocol Negotiation Fallback Character:	0 to 127. Default is 13.
Protocol Negotiation Retransmission Limit:	0 = Do not disconnect on excessive retransmission; 1 to 255 = number of successive retransmissions to cause disconnect. Default is 12.
Error Correction Frame Length:	Buffer length; 64 to 1024 octets of data. Default is 256.
Data Compression:	Disabled, V.42bis, MNP5, or V.42bis or MNP5 (V.42 has precedence). Default is V.42bis or MNP5 (V.42 has precedence).
ARA Error Correction:	ARA1.0 & ARA2.0 Disabled, Enabled for Answer only, Enabled for Answer originate ARA1.0, and Enabled for Answer originate ARA2.0. Default is Enabled for Answer only.
V.42 Error Correction:	V.42(LAP-M) Disabled, V.42(LAP-M) Originate & Answer enabled. Default is disabled.
MNP Error Correction:	MNP Disabled or MNP Originate and Answer enabled. Default is MNP Originate and Answer enabled.

Table 5 show port configuration Field Descriptions (continued)

Field	Description
Link Protocol Fallback:	Asynchronous framing (Start/Stop/Parity), Synchronous framing (Raw 8 bits to DSP), or Disconnect (Hang-up). Default is Asynchronous framing (Start/Stop/Parity).
DSP processor MVIP TDM slice:	0 to 15.
Calling Tone:	Disable or Send calling tone. Default is disable.
Guard Tone:	Guard tone disabled, Use Guard tone (V.22 & V.22bis only). Default is disabled.
Modem Standard:	V.34bis Automode with terbo, V.34bis Automode skip terbo, V.32 terbo Automode, V.32bis Automode, V.22bis Automode, or K56Flex 1.1. Default is V.34bis Automode with terbo.
Max. Connect Rate:	75 to 56000 bps.
Min. Connect Rate:	75 to 56000 bps.
Signal Quality Threshold:	No action on bit errors, Bit Errors >=1:100 cause recovery, Bit Errors >=1:1000 cause recovery, Bit Errors >=1:10000 cause recovery, Bit Errors >=1:100000 cause recovery, or Bit Errors >=1:1000000 cause recovery. Default is 1:1000.
Fallback/Fallforward Squelch Timer:	Time to delay after a speed shift before allowing another speed shift. Default is 500 ms.
Fall Forward Timer:	Elapsed time with continuous good signal quality to cause a fall forward. Default is 10000 ms.
Fall Back Timer:	Elapsed time with bad signal quality to cause a fallback. Default is 500 ms.
Terminate Time-out:	Elapsed time after a disconnect request before forcing a link disconnect. During this period, the modem sends buffered data and then clears down the link. Default is 20 seconds.
Wait for Data Mode Time-out:	Maximum time during link establishment before disconnection. Default is 40; 60 for K56Flex.
Lost Carrier To Hang-up Delay:	Maximum time without a carrier to cause the link disconnect. Default is 1400 ms.
Transmit Level Setting:	6dBm, 7dBm, 8dBm, -20dBm, or -21dBm. Default is 9 dBm.
Retrain Limit:	Maximum successive failed retrains to cause the link to disconnect. Default is 4.
V.34 Max. Symbol Rate:	2400 baud, 2743 baud, 2800 baud, 3000 baud, 3200 baud, or 3429 baud. Default is 3429 baud.
V.34 Min. Symbol Rate:	2400 baud, 2743 baud, 2800 baud, 3000 baud, 3200 baud, or 3429 baud. Default is 2400 baud.
V.34 Carrier Frequency:	Low Carrier, High Carrier, or Auto Carrier Selection. Default is High Carrier.
V.34 Preemphasis Filter Selection:	0 to 10 = a selected filter; 11 = Automatic Preemphasis Selection. Default is 11.

Table 5 *show port configuration Field Descriptions (continued)*

Field	Description
Tx and Rx Signaling Type:	NULL signaling, MF signaling, DTMF signaling, Lower band R2 signaling, Upper band R2 signaling, or R1 signaling. Default is NULL signaling.
Call Progress Tone Detection:	No tone detection, Dial tone detection, Ring-Back tone detection, or Busy tone detection. Default is no tone detection.
+++ Escape Detection:	Disabled, Enabled, or Enabled-in-Originate-Mode-Only. Default is Enabled-in-Originate-Mode-Only.
AT Command Processor:	Disabled or Enabled. Default is disabled.
Call Set Up Delay:	No delay before link initiation, delay value (1 to 255). Default is no delay.
Automatic Answer:	Answer immediately, delay value (1 to 255 seconds). default is 1 second.
Escape Detection Character:	ASCII value (0 to 127). Default is 43.
Carriage Return Character:	ASCII value (0 to 127). Default is 13.
Line Feed Character:	ASCII value (0 to 127). Default is 10.
Backspace Character:	ASCII value (0 to 127). Default is 8.
Pause Before Blind Dialing:	2 to 255 seconds. Default is 2.
Wait For Carrier After Dial:	Wait for data mode timeout.
Comma Dial Modifier Time:	2 to 255 seconds. Default is 2.

Related Commands

Command	Description
show port operational-status	Displays the operational status of the specified ports or a specified range of ports.

show port modem log

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

Cisco AS5400 with NextPort DFC

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

Cisco AS5800 with Universal Port Card

```
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.
<i>slot</i>	(Optional) All ports on the specified slot. For the AS5400, slot values range from 0 to 7.
<i>slot/port</i>	(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.
<i>shelf/slot</i>	(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.
<i>shelf/slot/port</i>	(Optional) 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 Privileged EXEC

Command History	Release	Modification
	12.1(1)XD	This command was introduced on the Cisco AS5400.
	12.1(3)T	This command was supported on the Cisco AS5400 and Cisco AS5800.
	12.2(2)XA	This command was supported on the Cisco AS5350. Additional link and states information was added.
	12.2(2)XB1	This command was supported with Cisco IOS Release 12.2(2)XB.
	12.2(11)T	This command was integrated into Cisco IOS Release 12.2(11)T.

Usage Guidelines The port modem test log displays the results of the service processing element (SPE) diagnostics tests.

Examples Link Info and States are the affected changes in the modem log with this feature. The states are shown in numeric order. The following example shows port events status on slow 1, port 0.

Router# **show port modem log**

Port 1/0 Events Log

Modem Static event:

```

Connect Protocol           : LAP-M
Compression                : V.44
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 msec
TX,RX Bit Rate            : 31200, 28800
Robbed Bit Signalling (RBS) pattern : 0
Digital Pad                : None
Digital Pad Compensation  : None
MNP10EC                   : MNP10EC not active
QC Configuration          : No QC Requested
DC Negotiated Tx,Rx String Length : 142, 142
DC Negotiated Tx,Rx Codewords : 2048, 2048
DC Negotiated Tx,Rx History Size : 10240, 10240
Diagnostic Code            : 00 00 00 00 00 00 00 00

```

Modem Dynamic event:

```

Sq Value                   : 6
Signal Noise Ratio         : 37 dB
Receive Level              : -12 dBm
Phase Jitter Frequency    : 2 Hz
Phase Jitter Level        : 2 degrees
Far End Echo Level        : -90 dBm
Phase Roll                 : 0 degrees
Total Retrans              : 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
Total Speedshifts         : 0
MOH Status                 : MOH Off
MOH Count                  : 0
MOH Request Count         : 0
Total MOH Time             : 0 secs
Current MOH Time           : 0 secs
Call Waiting Retrans      : 0
DC Encoder,Decoder Stat   : Compressed, Compressed
DC Tx,Rx Compression Ratio : 0.00:1, 0.00:1
DC Tx,Rx Dictionary Reset Count : 0, 0
Diagnostic Code            : 00 00 00 00 00 00 00 00

```

Modem End Connect event:

```

Call Timer                 : 31 secs
Disconnect Reason Info    : 0x108
  Type (=4 ) : Rx (line to host) data flushing - OK
  Class (=1 ) : DSP condition
  Reason (=8 ) : Modem On Hold clear-down by modem
Total Retrans              : 0
EC Retransmission Count   : 1
Characters transmitted, received : 3, 105
Characters received BAD    : 0
PPP/SLIP packets transmitted, received : 0, 0
PPP/SLIP packets received (BAD/ABORTED) : 0
EC packets transmitted, received OK : 3, 8

```

■ show port modem log

```

EC packets (Received BAD/ABORTED)      : 0
Total Speedshifts                       : 0
MOH Status                              : MOH Off
MOH Count                               : 0
MOH Request Count                       : 0
Total MOH Time                          : 0 secs
Current MOH Time                        : 0 secs
Call Waiting Retrains                   : 0
DC Tx,Rx Compression Ratio              : 0.00:1, 0.00:1
DC Tx,Rx Dictionary Reset Coun         : 0, 0
Diagnostic Code                          : 00 00 00 00 00 00 00 00

```

Modem State event:

```

State: Idle
State: Connect
State: Link
State: Quick Connect
State: Train Up
State: EC Negotiating
State: Steady
State: Steady Retrain
State: Steady Speedshift
State: Steady Escape
State: Terminate
State: Modem On Hold
State: Steady QC
State: V.8bis Exchange
State: Ranging
State: Ranging Short
State: Half Duplex Train

```

The following is sample output for the Cisco AS5800 with universal port card. 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 msec
      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 Retrans               : 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
.
.
.

```

Table 6 describes the significant fields shown in the displays.

Table 6 show port modem log Field Descriptions

Field	Event State	Description
Port<slot/port> /Events Log		Port number and slot is displayed.
Service type:		Data fax modem is displayed.
Service mode:		Data fax modem mode.

Table 6 *show port modem log Field Descriptions (continued)*

Field	Event State	Description
Session State:		Idle or busy state.
Incoming called number.		The number of the incoming call.
Modem <slot/port> Events Log:		The modem for which log events are currently displayed.
Modem State Event	Current state of the MICA modem, which can be any of the following:	
	Connect	Modem is connected to a remote host.
	Open	Open modem event.
	Link	Link protocol event occurred.
	Training	Modem retraining event.
	EC correction	Error correction frames transmitted or received.
	Steady	Steady modem event.
	Bad	Inoperable state, which is configured by the modem bad command.
	Bad*	Inoperable state, which is configured by the modem startup-test command during initial power-up testing.
	Reset	Modem is in reset mode.
	D/L	Modem is downloading firmware.
	Bad FW	Downloaded modem firmware is not operational.
	Busy	Modem is out of service and not available for calls
	Idle	Modem is ready for incoming and outgoing calls.

Table 6 *show port modem log Field Descriptions (continued)*

Field	Event State	Description
Static event:	Current static event of the MICA modem, which can be any of the following:	
	Connect protocol	Connection protocol used for the current session, which can be SYNC mode, ASYNC mode, ARA1.0, ARA2.0, LAP-M, or MNP.
	Compression	Type of compression used for the current session, which can be None, V.42bis TX, V.42bis RX, V.42bis both, or MNP5 data compression.
	Connected standard	Standards protocol used to connect, which can be V.21, Bell103, V.22, V.22bis, Bell212, V.23, V.32, V.32bis, V.32terbo, V.34, V.34+, or K56Flex 1.1.
	TX, RX symbol rate	Symbol rate used to send samples to the line or receive samples off of the line.
	TX, RX carrier frequency	Carrier frequency used by the remote service provider.
	TX, RX trellis coding	Trellis coding received and transmitted.
	Frequency offset	+/-32 in 1/8 Hx steps.
	Round trip delay	Total round trip propagation delay of the link, which is expressed in milliseconds.
	TX, RX bit rate	For RX, the bit rate from the remote service provider to the local service provider. For TX, the bit rate from the local service provider to the remote service provider.

Table 6 show port modem log Field Descriptions (continued)

Field	Event State	Description
Dynamic event:	Current dynamic event of the MICA modem, which can be any of the following:	
	Sq value	Signal quality value, which can be between 0 and 7 (0 is the worst possible quality).
	Signal noise ratio	Expressed in decibels, which can be between 0 and 70 dB steps.
	Receive level	Expressed in decibels, which can be between 0 and -128 dBm steps.
	Phase jitter frequency	+/-32 in 1/8 Hz steps.
	Phase jitter level	0 to 90 degrees.
	Far end echo level	0 to -90 in dBm of far end echo level (that portion of the transmitted analog signal that has bounced off the remote modem's analog front end).
	Phase roll	+/-32 in 1/8 Hz steps.
	Total retrains	Count of total retrains.
	EC retransmission	Count of total error correction retransmissions that occurred during the duration of the link.
	Characters received, transmitted	Count of total characters received and transmitted.
	Characters received BAD	A subset of the above total (Characters received, transmitted). Represents the total number of parity error characters.
	PPP/SLIP packets received, transmitted	Total count of PPP/SLIP packets transmitted and received. This total could include all PPP/SLIP packets, including BAD/ABORTED packets.
	PPP/SLIP packets received, (BAD/ABORTED)	Total count of the bad or aborted PPP/SLIP packets, which is a subset of the above (PPP/SLIP packets received, transmitted).
	EC packets transmitted, received	Count of total error correction frames transmitted or received. This total could include all error correction packets, including BAD/ABORTED packets.
	EC packets (received BAD/ABORTED)	Total count of the bad or aborted error correction packets, which is a subset of the above (EC packets transmitted, received).

Related Commands

Command	Description
port modem startup-test	Performs diagnostic testing for all modems.
port modem autotest	Enables modem autotest. Automatically and periodically performs a modem diagnostics test for modems inside the access server or router.
show spe modem active	Displays active modem statistics of all SPEs, a specified SPE, or the specified SPE range.

show port operational-status

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

Cisco AS5400 with NextPort DFC

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

Cisco AS5800 with Universal Port Card

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

Syntax	Description
<i>slot</i>	All ports on the specified slot. For the AS5400, slot values range from 0 to 7.
<i>slot/port</i>	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.
<i>shelf/slot</i>	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.
<i>shelf/slot/port</i>	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 Privileged EXEC

Command History	Release	Modification
	12.1(1)XD	This command was introduced on the Cisco AS5400.
	12.1(3)T	This command was supported on the Cisco AS5400 and Cisco AS5800.
	12.2(2)XA	This command was supported on the Cisco AS5350. Additional disconnect reasons and states information was added.
	12.2(2)XB1	This command was supported with Cisco IOS Release 12.2(2)XB.
	12.2(11)T	This command was integrated into Cisco IOS Release 12.2(11)T.

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 the command is entered.

Examples The following example displays operational status for port 1 located in slot 2, with SPE 0 on a Cisco AS5400 with NextPort DFC:

```
5400# show port operational-status 2/1
Slot/SPE/Port -- 2/0/1
Service Type                               :Modem service
```

```

Disconnect Reason Info           :0x109
Type (=4 ): Rx (line to host) data flushing - OK
Class (=1 ): DSP condition
Reason (=9 ): Modem On Hold timeout value reached
Modulation Standard              :V.34+
TX/RX Bit Rate                   :31200/14400
Connect Protocol                 :LAP-M
Compression                      :V.44
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 msec
Total Retrans                   :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
Total Speedshifts               : 0
Total MOH Time                  : 0 secs
Current MOH Time                : 0 secs
MOH Status                      : MOH Off
MOH Count                      : 0
MOH Request Count               : 0
Call Waiting Retrans           : 0
DC Encoder,Decoder State       : Compressed, Compressed
DC Tx,Rx Compression Ratio     : 0.00:1, 0.00:1
DC Tx,Rx Dictionary Reset Count : 0, 0
Diagnostic Code                 : 00 00 00 00 00 00 00 00
RBS Pattern                    :0
Digital Pad                     :0
Digital Pad Compensation        :0

```

The following example displays operational status for a V.110 digital service for the Cisco AS5400 on slot 2, SPE 3, port 23:

```

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

```

■ **show port operational-status**

```

EC packets (Received BAD/ABORTED)      : 0
PPP/SLIP packets transmitted, received : 8/8
PPP/SLIP packets received (BAD/ABORTED) : 0
Sync Loss                               : 0

```

The following example shows output from the **show port operational-status** command for the Cisco AS5800 on shelf 1, slot 8:

```

Router# show port operational-status 1/8

Shelf/Slot/SPE/Port -- 1/8/32/194
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             : 31200/31200
Connect Protocol           : LAP-M
Compression                : V.42bis
Call Timer                 : 18 secs
Link Signal Quality        : 6
SNR                        : 38 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 : Off-None/On-Active
TX/RX Nonlinear Encoding   : Off-None/On-Active
TX/RX Precoding            : Off-None/On-Active
TX/RX Xmit Level Reduction : 6/5 dBm
Receive Level              : -15 dBm
Frequency Offset           : 0 Hz
Phase Jitter Frequency    : 5 Hz
Phase Jitter Level        : 2 degrees
Far End Echo Level        : -90 dBm
Phase Roll                 : 0 degrees
Round Trip Delay          : 1 msec
Total Retrans              : 0
Self Test Error count     : 0
EC Retransmission count   : 1
EC packets transmitted/received OK : 34/14
EC packets (Received BAD/ABORTED) : 0
Characters transmitted/received : 9393/355
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
.
.
.

```

[Table 7](#) describes the significant fields shown in the displays.

Table 7 *show port operational-status Field Descriptions*

Field	Description
Slot/SPE/Port	Displays the slot and port designation for the SPE card location.
Service type	Indicates the type of service; data, fax, or voice.
Disconnect Reason Info	The reason for disconnect is displayed.
Modulation Standard	Modulation standard can be V.21, Bell103, V.22, V.22bis, Bell 212, V.23, V.32, V.32bis, V.32terbo, V.34, V.34+, or K56Flex 1.1.
Connect Protocol	Connect protocol for the current session, which can be SYNC mode, ARA1.0, ARA2.0, LAP-M, MNP, FAX mode, SS7/COT, or V.110.
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.
Count. Characters transmitted/received	Count of total characters received and transmitted for SYNC/ASYN 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 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 packets (Received BAD/ABORTED)	This is identical to EC Retransmission.
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 and 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 that 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 speeds shift up to a higher rate. If the Sq value is high (for example, 7) and the bit rate is low, then there may be a problem at the remote end receiver.

Table 7 show port operational-status Field Descriptions (continued)

Field	Description
Modulation Standard	Modulation standard that 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 (that is, phase jitter is not normally present).
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 transmitted/received	Total count of PPP/SLIP packets transmitted and received. This total could include all PPP/SLIP packets, including BAD/ABORTED packets.
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.
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 pulse code modulation (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 about -22 dBm, and in Europe is -12 dBm. A good range is from -12 dBm to -24 dBm.
Round Trip Delay	Total round trip propagation delay of the link (in milliseconds). 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 28.8-kbps connection demands an SNR of about 37 dB. Lower than this and the quality of the connection diminishes. A 33.6-kbps connection demands an SNR of 38 to 39 dB. Also note that a “clean” line has an SNR of about 41 dB.
Total Retrains	Count of total retrains and speed shifts.

Table 7 *show port operational-status Field Descriptions (continued)*

Field	Description
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 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 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 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 nonlinear distortion. Nonlinear 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 Precoding	Serves the same purpose as the pre-emphasis index but instead manages the bits and not the raw transmit signals. This is done only when asked and therefore will occur in the RX mode. The values may be either none or active. This technique is used with V.34 and V.34+ standards.
TX/RX Xmit Level Reduction	Effects the transmit signal with 0 to 15 in dBm of reduction. If nonlinear distortion is detected, the modem prompts 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 Commands

Command	Description
port modem startup-test	Performs diagnostic testing for all modems.

■ show port operational-status

Command	Description
port modem autotest	Enables modem autotest. Automatically and periodically performs a modem diagnostics test for modems inside the access server or router.
show spe modem active	Displays active modem statistics of all SPEs, a specified SPE, or the specified SPE range.

show spe modem active

To display the modem service statistics of all active calls on specified service processing elements (SPEs), use the **show spe modem active** command in privileged EXEC mode.

Cisco AS5400 with NextPort DFC

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

Cisco AS5800 with Universal Port Card

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

Syntax Description	slot	All ports on the specified slot. For the AS5400, slot values range from 0 to 7.
	slot/spe	All ports on the specified slot and SPE. For the 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 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 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 Privileged EXEC

Command History	Release	Modification
	12.1(1)XD	This command was introduced on the Cisco AS5400.
	12.1(3)T	This command was supported on the Cisco AS5400 and Cisco AS5800.
	12.2(2)XA	This command was supported on the Cisco AS5350.
	12.2(2)XB1	This command was supported with Cisco IOS Release 12.2(2)XB.
	12.2(11)T	This command was integrated into Cisco IOS Release 12.2(11)T.

Examples The following is sample output from 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 is sample output from the **show spe modem active** command on the Cisco AS5800 with universal port card. This example displays active modem statistics for shelf 1, slot 8:

```
Router# show spe modem active 1/8
```

■ show spe modem active

```

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

```

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 a specified range of SPEs.

show spe modem csr

To display the call success rate (CSR) for the specified service processing elements (SPEs), use the **show spe modem csr** command in privileged EXEC mode.

Cisco AS5400 with NextPort DFC

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

Cisco AS5800 with universal port card

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

Syntax Description	summary	Shows all call success rate statistics for all SPEs.
	<i>slot</i>	All ports on the specified slot. For the AS5400, slot values range from 0 to 7.
	<i>slot/spe</i>	All ports on the specified slot and SPE. For the AS5400, slot values range from 0 to 7 and SPE values range from 0 to 17.
	<i>shelf/slot</i>	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.
	<i>shelf/slot/spe</i>	All ports on the specified SPE. 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 Privileged EXEC

Command History	Release	Modification
	12.1(1)XD	This command was introduced on the Cisco AS5400.
	12.1(3)T	This command was supported on the Cisco AS5400 and Cisco AS5800.
	12.2(2)XA	This command was supported on the Cisco AS5350.
	12.2(2)XB1	This command was supported with Cisco IOS Release 12.2(2)XB.
	12.2(11)T	This command was integrated into Cisco IOS Release 12.2(11)T.

Usage Guidelines The **show spe modem csr** command displays the modem call success rate statistics for a specific SPE, range of SPEs, or all 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 dial feature card (DFC):

```
Router# show spe modem csr summary
```

show spe modem csr

```

Avg Hold      Inc  calls          Out  calls      Failed   No   Succ
Time          Succ  Fail  Avail      Succ   Fail  Avail Dial  Answer Pct
00:00:44     1    0    216        0     0    216   0    0     100%

```

The following is sample output from the **show spe modem csr summary** command on the Cisco AS5800 with universal port card:

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 port operational-status	Displays the operational status of a specific port or range of ports.
show spe	Displays history statistics of all service processing elements (SPEs), a specified SPE, or a 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** command in privileged EXEC mode.

Cisco AS5400 with NextPort DFC

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

Cisco AS5800 with universal port card

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

Syntax Description	summary	Shows the disconnect reasons for all SPEs.
	<i>slot</i>	All ports on the specified slot. For the AS5400, slot values range from 0 to 7.
	<i>slot/spe</i>	All ports on the specified slot and SPE. For the AS5400, slot values range from 0 to 7 and SPE values range from 0 to 17.
	<i>shelf/slot</i>	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.
	<i>shelf/slot/spe</i>	All ports on the specified SPE. 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 Privileged EXEC

Command History	Release	Modification
	12.1(1)XD	This command was introduced on the Cisco AS5400.
	12.1(3)T	This command was supported on the Cisco AS5400 and Cisco AS5800.
	12.2(2)XA	This command was supported on the Cisco AS5350. Additional output reporting was added to the Class Other and Class DSP categories.
	12.2(2)XB1	This command was supported with Cisco IOS Release 12.2(2)XB.
	12.2(11)T	This command was integrated into Cisco IOS Release 12.2(11)T.

Usage Guidelines The disconnect reasons are displayed with Class boundaries.

Examples The following example shows output for the **show spe modem disconnect-reason summary** command on the Cisco AS5400 with NextPort dial feature card (DFC).

```
Router# show spe modem disconnect-reason 1/0
```

show spe modem disconnect-reason

```

===CLASS OTHER===  ===CLASS DSP=====  ===CLASS HOST=====  ===CLASS EC LCL===
Software Rst      0 No Carrier          0 Hst NonSpec        0 No LR              0
EC Termntd       0 No ABT dtctd       0 Hst Busy           0 LR Param1         0
Bad MNP5 Rx      0 Trainup flr       0 Hst No answr      0 LR Incmpt         0
DC General       0 Retrain Lt        0 Hst DTR            0 Retrns Lt         0
Bad COP stat     0 ABT end flr       0 Hst ATH            0 Inactivity        0
ATH              0 COT Ack           0 Hst NoDialTn      0 Protocol Err      0
Aborted          0 COT Nak 1         0 Hst No Carr       0 Fallbck Term      0
Connect Tout     0 COT Nak 2         0 COT Off            0 No XID             0
Reset DSP        0 MOH Clr Down      0 COT Timeout       0 XID Incmpt        0
DC Codeword      0 MOH Timeout       0 Hst Ack            0 Disc              0
DC Empty Nd      0                               0                               0 DM                0
DC Large Tok     0 ===CLASS EC LD===  ==CLASS EC FRMR===  Bad NR              0
DC Reserved      0 LD No LR           0 Frmr Bad Cmd      0 SABME Online     0
DC Char Size     0 LD LR Param1      0 Frmr Data         0 XID Online        0
DC Rx Dict       0 LD LR Incmpt      0 Frmr Length       0 LR Online         0
DC Rx Hist       0 LD Retrns Lt      0 Frmr Bad NR       0                               0
DC Rx String     0 LD Inactivty      0                               0 =====N O N E=====
DC Negotiate     0 LD Protocol       0 ===CLASS EC CMD===  None                0
DC Compress      0 LD User            0 Bad Cmd           0                               0
                                                    TOTAL              0

```

The following is sample output from the **show spe modem disconnect-reason summary** command on the Cisco AS5800 with universal port card:

Router# **show spe modem disconnect-reason summary**

```

===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                               0
ATH              0                               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 service processing elements (SPEs), a specified SPE, or a specified range of SPEs.
show spe modem summary	Displays summary of modem statistics for the specified SPE or a specified range of SPEs.

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** command in privileged EXEC mode.

Cisco AS5400 with NextPort DFC

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

Cisco AS5800 with universal port card

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

Syntax	Description
<i>slot</i>	(Optional) All ports on the specified slot. For the AS5400, slot values range from 0 to 7.
<i>slot/spe</i>	(Optional) All ports on the specified slot and SPE. For the AS5400, slot values range from 0 to 7 and SPE values range from 0 to 17.
<i>shelf/slot</i>	(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.
<i>shelf/slot/spe</i>	(Optional) All ports on the specified SPE. 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 Privileged EXEC

Command History	Release	Modification
	12.1(1)XD	This command was introduced on the Cisco AS5400.
	12.1(3)T	This command was supported on the Cisco AS5400 and Cisco AS5800.
	12.2(2)XA	This command was supported on the Cisco AS5350.
	12.2(2)XB1	This command was supported with Cisco IOS Release 12.2(2)XB.
	12.2(11)T	This command was integrated into Cisco IOS Release 12.2(11)T.

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

```
Router# show spe modem summary
Async1/00 - 3/107, TTY216 - 539
  1 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      0 recovers
```

show spe modem summary

```

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   0  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   0  24000   0  14400   0   4800   0
31200   0  21600   0  12000   0   2400   0
28800   0  19200   0   9600   0   1200   0

```

The following is sample output from 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 port operational-status	Displays the operational status of a specific port or range of ports.
show spe	Displays history statistics of all service processing elements (SPEs), a specified SPE, or a specified range of SPEs.

Glossary

CLI—command-line interface.

CSMv6—Mindspeed modem hardware solution.

CSR—call success rate.

DFC—dial feature card.

DSP—Digital Signal Processor. Microprocessor on which the modulation/demodulation process is carried out.

ISP—Internet service provider.

ITU-T—International Telecommunication Union Telecommunication Standardization Sector.

LZJH—Lempel-Ziv-Jeff-Heath data compression algorithm used in V.44.

MICA—Modem ISDN channel aggregation. Used as a generic term to describe the Dial Technology Division (DTD) high-density modem technology.

MOH—Modem on Hold functionality specified in V.92.

NextPort—Device driver architecture for Cisco IOS software that supports the NextPort hardware and software interfaces. Supports the Universal Port concept.

PCM—pulse code modulation.

PPP—Point-to-Point Protocol.

PSTN—Public Switched Telephone Network.

SPE—service processing element.

universal port—Concept of a single device that can terminate one digital signaling level zero (DS0) with a data modem, fax modem, ISDN, or voice solution.

QC—Quick Connect functionality specified in V.92.

V.44—ITU modem standard for LZJH data compression algorithm.

V.92—ITU modem standard that contains Quick Connect and Modem On Hold.

VSA—vendor specific attribute (RADIUS).

