Dial and System Management Commands for the Cisco AS5800

Contents

This document describes the new and changed dial and system management commands for the Cisco AS5800 universal access server. The following topics are included:

Feature Overview

The features provided in this release are implemented in a set of commands for managing the Cisco AS5800. Most of the commands are forms of the **show** command, used to display status on various system functions, such as the Dial Shelf Interconnect Protocol (DSIP and Dial Shelf Interconnect (DSI).

- Other commands are provided to manage and monitor performance and status of T1 ports and channels, modem cards and modems.
- Other commands configure the shelf-ID, set cable impedance and line termination values, report on clocks and configure the synch clock priority of a clock source.
- A special command enables remote execution of certain dial shelf commands from the router.
- A set of commands is provided to determine the version level and to upgrade modem firmware.
- A set of debug commands is also provided.
- In addition to the commands, the Cisco AS5800 release provides a set of MIBs for SNMP-based applications.

Note The **show modem** command in this document has been updated to reflect some changes up to and including Cisco IOS release 11.3(7)AA.

Platform

The Cisco AS5800 universal access server is a high-density ISDN and modem WAN aggregation system that provides digital and analog call termination. It is intended to be used in service provider dial point-of-presence (POP), or centralized enterprise dial environments. The Cisco AS5800 rack-mounted system consists of a dial shelf, a router shelf, and a system controller. See Figure 1.

For more information on the Cisco AS5800, go to the Cisco Connection Online (CCO), http://www.cisco.com or the Cisco Documentation CD-ROM. The CCO path is:

Cisco Connection Online: **Cisco Product Documentation**: **Access Servers and Access Routers**: **Access Servers**: **Cisco AS5800**.

The path on the Cisco Documentation CD-ROM is similar to that on CCO. You can also use the CCO search facility.

Supported MIBs and RFCs

The Cisco AS5800 supports the following new Management Information Bases (MIBs):

- Entity
- Health Monitor
- Expression
- Modem Management
- POP Management

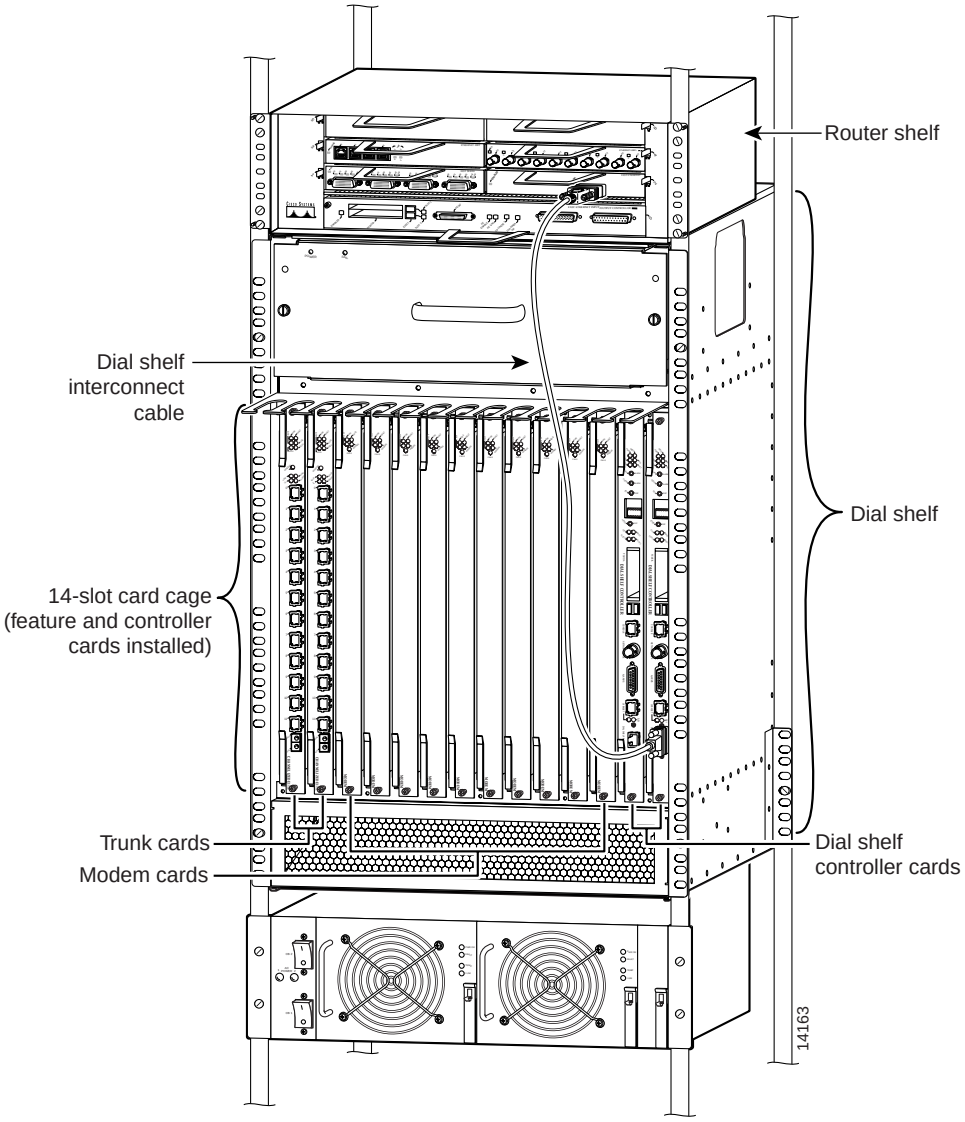
In addition, this feature supports the following existing MIBs:

- Call History
- ISDN MIB

For descriptions of supported MIBs and how to use MIBs, see Cisco's MIB website on CCO at http://www.cisco.com/public/sw-center/netmgmt/cmtk/mibs.shtml.

The Cisco AS5800 also supports RFC 1406 (T1 MIB).

Figure 1 Cisco AS5800 Universal Access Server—Simplified Front View



Configuration Tasks

This section describes how to configure the new Cisco IOS features introduced by the Cisco AS5800. It includes the following topics:

- Managing Distributed System Interconnect Protocol (DSIP)
- Configuring the Shelf IDs
- Executing Commands Remotely
- Configuring T1 Cable Length and T1/E1 Line Termination
- Configuring Clocks
- Using Busyout Commands

- Upgrading Modem Firmware
- Configuration Examples
- Debugging System Components

Basic configuration of the Cisco AS5800 is described in the software installation and configuration guide that accompanies the hardware. The software installation and configuration guide includes basic configuration of the modem cards and channelized T1 and E1 trunk cards, configuring ISDN and analog calls, and configuring access service security. Additional information can be obtained from the Cisco IOS configuration guides, in particular, the *Dial Solutions Configuration Guide*.

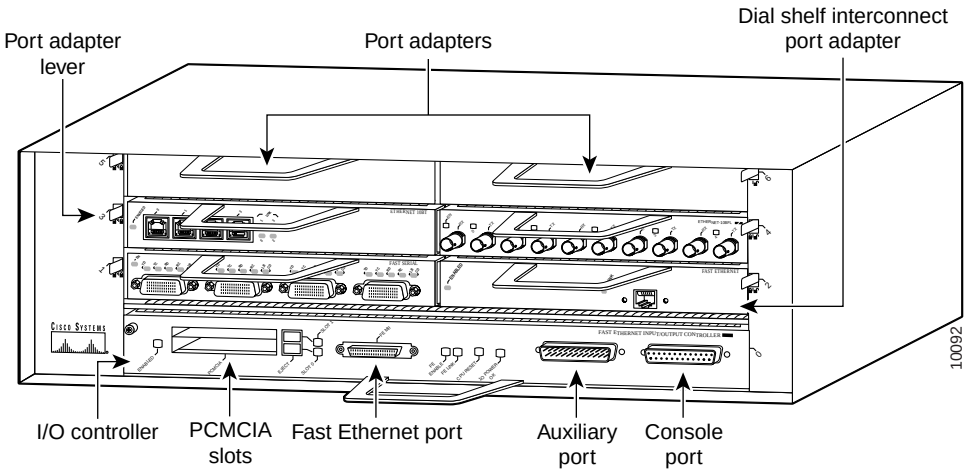
New and modified commands associated with the Cisco AS5800, T1 and E1 trunk cards, and modem cards are described in this document. To monitor and maintain the Cisco AS58000, several new **show** commands have been added.

Refer to the "Command Reference" section for details on all new and changed commands provided in this release.

The Cisco AS5800 access server interfaces is configured by connecting a terminal station or PC to the Cisco 7206 router shelf console port. This console port is located on the I/O controller front panel, as shown in Figure 2.

The dial shelf controller image can be upgraded by copying the new image from the network from a Personal Computer Memory Card International Association (PCMCIA) Flash memory card on the dial shelf controller card.

Figure 2 Cisco 7206 Router Shelf

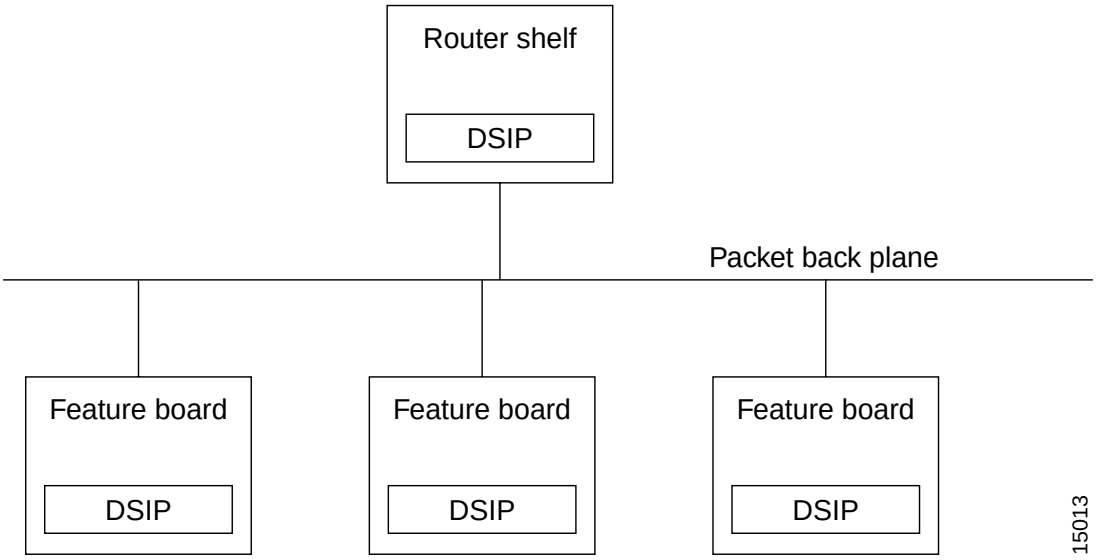


It is possible to connect directly to the system console interface in the dial shelf controller to execute dial shelf configuration commands, but this is not recommended. All commands necessary for dial shelf configuration, show, and debug tasks can be executed remotely from the router console. A special command called **execute-on** is provided for this purpose. This command enables a special set of Exec mode commands to be executed on the router or the dial shelf.

Managing Distributed System Interconnect Protocol (DSIP)

Distributed System Interconnect Protocol (DSIP) is used for communication between router shelf and dial shelf on an AS5800. Figure 3 diagrams the components of the architecture. The router shelf is the host for DSIP commands, which can be run remotely on the feature boards of the dial shelf using the command, **execute-on**. DSIP communicates over the packet backplane via the dial shelf interconnect (DSI) cable.

Figure 3 DSIP Architecture in the Cisco AS5800



Using DSIP Commands

DSIP commands do not configure the DSIP or the 5800 system. Instead the are all concerned with monitoring and troubleshooting the DSI and the DSIP. The following commands are provided:

The following example uses two of these DSIP-related commands.

Command	Purpose
clear dsip tracing	Used to clear tracing statistics for the Distributed System Interconnect Protocol (DSIP). Use in the EXEC mode.
show dsi	The **show dsi** command is related to the DSIP command because it display the status of the dial shelf interconnect adapter, which is used to physically connect the router shelf and the dial shelf to enable DSIP communications. Use in the Privileged EXEC mode.
show dsip	Used to display all information about the Distributed System Interconnect Protocol (DSIP)in the EXEC mode.
show dsip clients	Used to display information about Distributed System Interconnect Protocol (DSIP) clients in the EXEC mode
show dsip nodes	Used to display information about the processors running the Distributed System Interconnect Protocol (DSIP). Use in the EXEC mode.
show dsip ports	Used to display information about local and remote ports. Use the EXEC mode.
show dsip queue	Used to display the number of messages in the retransmit queue waiting for acknowledgment. Use the EXEC mode.
show dsip tracing	Used to display Distributed System Interconnect Protocol (DSIP) tracing buffer information. Use the EXEC mode.

Command	Purpose
show dsip transport	Used to display information about the Distributed System Interconnect Protocol (DSIP) transport statistics for the control/data and IPC packets and registered addresses. Use the EXEC mode.
show dsip version	Used to display Distributed System Interconnect Protocol (DSIP) version information. Use the EXEC mode.

The following DSIP debug commands are also provided:

- **debug dsip**
- **debug modem dsip**

For more information on debugging, see the "Command Reference" section.

Example Troubleshooting Scenario

If the case of a Router Shelf that boots but there is no communication between the router and dial shelves, the following procedure can be used.

Step 1 Run the **show dsip transport** command.

Step 2 Check the "DSIP registered addresses" column. If there are zero entries here, there is some problem with the Dial Shelf Interconnect (DSI). Check if the DSI is installed in the router shelf.

Step 3 If there is only one entry and it is our own local address, then first sanity check the physical layer. Make sure that there is a physical connection between the RS and DS. If everything is fine from cabling point of view, go to step 3.

Step 4 Check the DSI health by issuing the **show dsi** command. This gives a consolidated output of DSI controller and interface. Check for any errors like runts, giants, throttles and other usual FE interface errors.

Step 5 Among registered addresses: if an entry for a particular dial shelf slot is not found, but most of other card entries are present, the problem is most likely with that dial shelf slot. The DSI hardware on that feature board is probably bad.

Configuring the Shelf IDs

The Cisco AS5800 consists of a router shelf and a dial shelf. To distinguish the slot/port number on the Cisco AS5800, you must now specify the shelf number with many of the Cisco IOS commands. The default shelf number is 0 for the router shelf and 1 for the dial shelf.

Caution You must reload the Cisco AS5800 for the new shelf number to take effect. Because the shelf number is part of the interface names when you reload, all NVRAM interface configuration information is lost.

Normally you do not need to change the shelf IDs; however, if you do, we recommend that you change the shelf number when you initially access the setup facility. For information on the setup facility, refer to the *Cisco AS5800 Universal Access Server Software Installation and Configuration Guide*.

Using Shelf ID Commands

If you are booting the router shelf from the network (netbooting), to change the shelf numbers using the **shelf-id** command, perform the following tasks beginning in EXEC mode:

Step	Command	Purpose
1	**copy startup-configure tftp**	Save your current configuration. Changing the shelf number removes all interface configuration information when you reload the Cisco AS5800.
2	**configure terminal**	Enter configuration mode.
3	**shelf-id** *number* **router-shelf**	Configure the router shelf ID.
4	**shelf-id** *number* **dial-shelf**	Configure the dial shelf ID.
5	**exit**	Exit configuration mode.
6	**copy running-config startup-config**	Save your configuration. This step is Optional.
7	**show version**	Verify that the correct shelf number will be changed after the next reload.
8	**reload**	Reload the Cisco AS5800.
9		Type “yes” to the “save config” prompt.
10		Configure one interface so that router shelf has connectivity to the server with the configuration.
11	**copy tftp startup-config**	Because changing the shelf number removes all interface configuration information when you reload the Cisco AS5800, edit your configuration file saved in step 1 and download it.

If you are booting the router shelf from Flash memory, perform the following tasks beginning in EXEC mode:

Step	Command	Purpose
1	**copy running-config tftp** or **copy startup-config tftp**	Save your current (latest) configuration to a server.
2	**configure terminal**	Enter configuration mode.
3	**shelf-id** *number* **router-shelf**	Configure the router shelf ID.
4	**shelf-id** *number* **dial-shelf**	Configure the dial shelf ID.
5	**exit**	Exit configuration mode.
6	**copy running-config startup-config**	Save your configuration. This step is Optional. If this step is skipped, type “No” to the ‘save configuration’ prompt.
7	**show version**	Verify that the correct shelf number will be changed after the next reload.
8		Edit configuration file saved in Step 1.
9	**copy tftp startup-config**	Copy edited configuration to NVRAM on the Cisco AS5800.
10	**reload**	Reload the system.

Executing Commands Remotely

You can be logged into the router shelf console, enter a command that you wish to execute on a card installed in the dial shelf. This command is a convenience that avoids connecting the console to the DSC. For more information, see the Usage Guidelines for the command in the Command Reference section.

Perform any of the following tasks in privileged EXEC mode:

Step	Command	Purpose
1	**execute-on slot** *slot command*	Execute a command from the router shelf on a specific slot in the dial shelf.
2	**execute-on all** *command*	Execute a command from the router shelf on all cards in the dial shelf.

Configuring T1 Cable Length and T1/E1 Line Termination

When you configure your channelized T1 trunk cards, you can change the line build-out of the cable pair connected to the port. To specify the build-out value, use either the **cablelength long** or the **cablelength short** command. These commands are not required for E1 trunk cards.

For cables longer than 655 feet, use the **cablelength long** command; For cables up to and including 655 feet, use the **cablelength short** command.

The line termination command allows you to set the T1/E1 port termination to 75-ohms unbalanced or 120-ohms balanced.

Cable Length Short

The following cable length short configurations define the length range (in feet), between your Network Access Server (NAS) and your repeater. The **cablelength short** command is configured for a channelized T1 only and includes the following settings:

- 133 feet (0-133 feet)
- 266 feet (134-266 feet)
- 399 feet (267-399 feet)
- 533 feet (400-533 feet)
- 655 feet (534-655 feet)

Note Although you can specify a cable length from 0 to 655 feet, the hardware only recognizes fixed configuration lengths. For example, if your cable length is 50 feet between your NAS and your repeater, you should configure your cable length using the **133-feet** setting. If you later change the cable length to 200 feet, you should reconfigure your cable length using the **266-feet** setting.

Cable Length Long

The following cable length long configurations define the length range in gain and pulse requirements for the length of build-out between your Network Access Server (NAS) and your repeater that is longer than 655 feet. The **cablelength long** command is configured for a channelized T1 only and includes the following gain and pulse arguments:

- gain26 (26db Gain)
- gain36 (36db Gain)
- -15db (-15db pulse)
- -22.5db (-22.5 db pulse)
- -7.5db (-7.5 db pulse)
- 0db (0 db pulse)

Using Line Build-out Commands

The following table contains a procedure to help you configure channelized T1 lines for line build-out.

Step	Command	Description
1	**enable**	Enter the **enable** command.
	password	Enter your password.
		The prompt changes to the privileged EXEC mode prompt.
2	**configure terminal**	Enter global configuration mode by typing the **configure** command. The example is using the terminal configuration option.
		The prompt changes to the global configuration mode prompt.
3	**controller t1** *shelf/slot/port*	Enter controller configuration mode to configure your controller port by using this command. The controller ports are labeled *shelf/slot/***0** through *shelf/slot/***11** on the T1. (You must type in the slashes (/) as part of the command.
4	**cablelength short** (**133** | **266** | **399** | **533** | **655**}	Enter the controller **cablelength short** value between **0** and **655** (feet). Enter the controller **cablelength long** value using **gain** and **pulse** settings for cables longer than 655 feet. (Configure cablelength for T1 only.)
	[or]	
	cablelength long {**gain26** | **gain36**} {**-15** | **-22.5** | **-7.5** | **0**}	
5	**line termination** {**75-ohm** | **120-ohm**}	From the controller configuration mode, enter the line-termination value. (The command is used for E1 only.)

Configuring Clocks

The TDM bus in the backplane on the dial shelf must be synchronized to the T1/E1 clocks on the trunk cards. The Dial Shelf Controller (DSC) card on the daily shelf provides hardware logic to accept multiple clock sources as input and use one of them as the primary source to generate a stable, PPL synchronized output clock. The input clock can be any of the following sources.

- Trunk port in slots 0 through 5—up to 12 can be selected (2 per slot)
- An external T1 or E1 clock source fed directly through a connector on the DSC card
- A free-running clock from an oscillator in the clocking hardware on the DSC card

Using Clock Priority Commands

To configure the clock source and priority of the clock source used by the TDM bus, perform one or more of the following tasks beginning in global configuration mode:

Step	Command	Purpose
1	**dial-tdm-clock priority** *number* **trunk-slot** *slot* **port** *number*	Configure the priority of the trunk card clock.
2	**dial-tdm-clock priority** *number* **freerun**	Configure the priority of the free running clock.
3	**dial-tdm-clock priority** *number* **external** {**e1** | **t1**} [**120ohm**]	Configure the priority of the T1 or E1 external clock.
4	**exit**	Exit configuration mode.
5	**copy running-config startup-config**	Save your configuration.
6	**show dial-shelf clocks**	Verify the clocking priorities.

Using Busyout Commands

The **busyout** command informs the central-office switch that a channel is out-of-service. The busyout command does not terminate an existing call; instead, after you hang up or end a call, a new call cannot be established on a channel that has received a **busyout** command instruction.

For example, **busyout** stops new calls from coming into a trunk card, or specific modem or range of modems. You can busyout all modems on a modem card or specific DS0s in channelized Tl cas-group (channel association signaling) or E1 lines.

For debugging or other reasons, you might want to stop calls from coming into a trunk card, specific modem, or range of modems. You should use the busyout command to stop calls to a trunk card or modem card before removing the card from the shelf.

How to Busyout a Trunk Card or Individual Modem

To busyout a trunk card, perform the following tasks in Privileged EXEC mode. The **busyout** command on a trunk card takes out of service all DS0 channels that are physically present on that trunk card. If you specify a port number in addition to the shelf and slot number, only the individual modem is busied out.

Step	Command	Purpose
1	**busyout** *shelf/slot/port*	From the privileged exec mode, specify the T1 port or modem to be busied out. If you do not specify a port number but only a shelf and slot number, the entire card is busied out. (You must type in the slashes.)
2	**show busyout**	Still in the privileged exec mode, verify that the card is busied out. If there are active calls, the software waits until the call terminates before the card is busied out.

How to Busyout a DS0 Channel or Range of Channels on a T1 Trunk Port

To busyout one or more DS0s on a channelized T1 port, perform the following tasks starting in global configuration mode, and changing to controller configuration mode.

Note The **ds0 busyout** command only applies to channelized T1 configurations, where the signaling is configured with the **cas-group** (channel association signaling) command. This command has no effect on ISDN PRI configurations, which use the **pri-group** command.

Step	Command	Purpose
1	**controller t1** *shelf/slot/port*	From the global configuration mode, specify the shelf, slot, and port of the T1 port that contains the DS0s to busyout. This command automatically enters the controller configuration mode. (You must type in the slashes.)
2	**ds0 busyout** *number-range*	From the controller configuration mode, specify the range of DS0s on the port to busyout, for example, 1, 1-10, or 1-24.
3	**exit**	Exit controller configuration mode to the global configuration mode.
4	**exit**	Exit configuration mode to the EXEC mode.
5	**show busyout**	From the EXEC mode, verify that the specified DS0s are busied out on the card. If there are active calls, the software waits until the call terminates before the DS0 is busied out.

How to Busyout a Modem Card

To busyout a modem card, perform the following tasks in Privileged EXEC mode. The busyout modem command disables the modem associated with a specified line from dialing and answering calls. The busyout command can busy out and eventually terminate all 72 ports on the modem card.

Step	Command	Purpose
1	**line** *shelf/slot/port*	From the global configuration mode, specify the line number, by specifying the shelf, slot, and port numbers; this command simultaneously enters the line configuration mode. (You must type in the slashes.)
2	**modem busyout**	Having specified the modem to be busied out with the **line** command, type the **modem busyout** command to busy out the modem. The **busyout** command disables the modem associated with line *shelf/slot/port* from dialing and answering calls.You do not need to specify a *shelf/slot/port* number again in this command
3	**modem shutdown**	Having specified the modem to be shut down with the **line** command, you can type the **modem shutdown** command to shut down the modem, whether or not it has already been busied out. You do not need to specify a *shelf/slot/port* number again in this command since you have already done so with the **line** command.
4	**exit**	Exit the line configuration mode, returning to the global configuration mode.
5	**modem busyout threshold** *number*	From global configuration mode, you can specify a threshold number using the **modem busyout threshold** *number* to balance the number of DS0s with the number of modem lines. For more information, see the Command Reference section.
6	**exit**	Exit the global configuration mode, returning to the privileged exec mode.
7	**show busyout**	From the privileged exec mode, verify that the line is busied out. If there are active calls, the software waits until the call terminates before the line is busied out.

Upgrading Modem Firmware

The default firmware image is loaded on the modem card Flash memory during system boot-up. Normally, you do not need to change the firmware image; however, you can overwrite the default image with another firmware image using the **firmware** command.[1]

In conjunction with the **pool-range** modem configuration subcommand, the **firmware** command allows you to separately upgrade modem firmware for individual or ranges of modems consisting of virtual groups of six modems or multiples thereof. (For more information, see the Command Reference section.)

A valid pool range must exist (that is, the **pool-range** modem pool configuration subcommand must have been configured) for modem overwrites to occur. Modem pooling allows you to define, select, and use separate modem pools within a single access server or router to enable different dial-in services for different customers. In this case, the modem pool specifies which modems are loaded with the new firmware image.

The specified firmware image is loaded on every modem for every slot specified in the pool range. If the modem is busy, the firmware change is deferred until the modem is available. When the modem is available, the firmware change takes place immediately.

Modem Operation at Bootup

When the Cisco 5800 router shelf boots up and parses its NVRAM, the modem cards will not be up. As a result, the overwrite firmware name is stored in the modem pool structures and no action will be taken. At boot-up time, the default firmware image is loaded first. If there is a firmware image specified by the **firmware** command, it is then loaded onto the modem card.

When a modem card becomes active, it sends a startup message to the router shelf. The router shelf then triggers a search in the various modem pools to see if any modem modules on the modem card have a specified firmware overwrite. If yes, the firmware overwrite request is relayed to the modem card, which will load the specified overwrite firmware image on the indicated modem modules.

As a result, the modem modules that are destined to run an overwrite firmware image will experience two firmware downloads at bootup time. The default modem firmware image is loaded first, followed by the overwrite modem firmware image.

Upgrade Procedure

Upgrading the Cisco AS5800 modem firmware from bundled firmware is summarized as follows:

1. The download file from the bundled image is identified.
2. The **modem-pool** is created and its range specified.
3. The form of the **firmware** command is specified and the download is initiated.

The table below lists modem firmware upgrade commands to help you configure or overwrite the default modem firmware image with another specified firmware image. Begin in privileged EXEC mode.

1If you specify a firmware image that does not exist, the information is stored so that, in the event that the modem card is updated with that firmware image, it will be loaded when the modem card image boots.

Step	Command	Purpose
1	**show modem version**	Determine the firmware version currently running on the modem card. If the version needs to be upgraded, proceed.
2	**show modem bundled-firmware**	Determine the available bundled modem firmware images per slot.
3	**configure terminal**	Enter global configuration mode. You are prompted to enter the commands.
4	**modem-pool** *pool-name*	You are in global configuration mode as indicated by the prompt. Enter modem pool configuration mode and create a modem pool.
5	**pool-range** *shelf/slot/port shelf/slot/port*	Create the range (from, up to and including) of modems whose firmware you want to overwrite. A modem range must be coextensive with the boundaries of each virtual group of six modems on a modem card. These group boundaries apply regardless of the type of modem SIMMs used on the card. Thus, numbering range examples might include: *shelf/slot/***0** *shelf/slot/***5** (port 0 to port 5 of the first group) or *shelf/slot/***0** *shelf/slot/***11** (the first two groups) or *shelf/slot/***6** *shelf/slot/***23** (the last three groups), etc. (The slashes (/) are part of the command.)
6	**firmware** *version_number*	Enter the firmware command and the version number of the bundled firmware to copied to the Cisco AS5800 Flash memory.
7	**Ctrl-Z**	Press **Return** to verify your command registers, then type **Ctrl-Z** to exit the modem-pool configuration mode and return to privileged EXEC mode. The router prompt returns. A confirmation messages indicates the firmware file used as the download file and range of modems being downloaded to. (In this case, the external portware form of the command is used as an example.) After the displaying the confirmation message, a “Configured from console” message is displayed. This is expected and does not indicate an error.
8	**copy running-config startup-config**	Save your configuration when ready.

Verify

To verify you have configured downloaded the firmware to the modems:

- After you typed the **firmware** command, check to see that the router prompt returns and you get a message similar to this example:

```
Slot 8: Firmware being upgraded to vers.2222.ios for modems in modem-pool x
```

- To verify a download has succeeded, use the **show modem version** command.

```
5800# > show modem version
 Modem Range             Module   Firmware Rev
    1/6/00 1/6/05          0      2.2.2.2
    1/6/06 1/6/11          1      2.2.2.2
    1/6/12 1/6/17          2      2.2.2.2
    1/6/18 1/6/23          3      2.2.2.2
    1/6/24 1/6/29          4      2.2.2.2
    1/6/30 1/6/35          5      2.2.2.2
    1/6/36 1/6/41          6      2.2.2.2
    1/6/42 1/6/47          7      2.2.2.2
    1/6/48 1/6/53          8      2.2.2.2
    1/6/54 1/6/59          9      2.2.2.2
    1/6/60 1/6/65         10      2.2.2.2
    1/6/66 1/6/71         11      2.2.2.2
Modem board HW version info:

Modem Range:    1/6/00 1/6/05         Modem Module:  0
```

```
Manufacture Cookie Info:
 EEPROM Type 0x0101, EEPROM Version 0x01, Board ID 0x06,
 Board Hardware Version 1.0, Item Number 73-2522-2,
 Board Revision 051, Serial Number 06298557,
 PLD/ISP Version 255.255, Manufacture Date 17-Jul-1997.

Modem Range:    1/6/06 1/6/11         Modem Module:  1
Manufacture Cookie Info:
 EEPROM Type 0x0101, EEPROM Version 0x01, Board ID 0x06,
 Board Hardware Version 1.0, Item Number 73-2522-2,
 Board Revision 051, Serial Number 06298553,
 PLD/ISP Version 255.255, Manufacture Date 17-Jul-1997.

Modem Range:    1/6/12 1/6/17         Modem Module:  2
Manufacture Cookie Info:
 EEPROM Type 0x0101, EEPROM Version 0x01, Board ID 0x06,
 Board Hardware Version 1.0, Item Number 73-2522-2,
 Board Revision 051, Serial Number 06298017,
 PLD/ISP Version 255.255, Manufacture Date 17-Jul-1997.

Modem Range:    1/6/18 1/6/23         Modem Module:  3
Manufacture Cookie Info:
 EEPROM Type 0x0101, EEPROM Version 0x01, Board ID 0x06,
 Board Hardware Version 1.0, Item Number 73-2522-2,
 Board Revision 051, Serial Number 06298019,
 PLD/ISP Version 255.255, Manufacture Date 17-Jul-1997.

Modem Range:    1/6/24 1/6/29         Modem Module:  4
Manufacture Cookie Info:
 EEPROM Type 0x0101, EEPROM Version 0x01, Board ID 0x06,
 Board Hardware Version 1.0, Item Number 73-2522-2,
 Board Revision 051, Serial Number 06298200,
 PLD/ISP Version 255.255, Manufacture Date 17-Jul-1997.
Modem Range:    1/6/30 1/6/35         Modem Module:  5

Manufacture Cookie Info:
 EEPROM Type 0x0101, EEPROM Version 0x01, Board ID 0x06,
 Board Hardware Version 1.0, Item Number 73-2522-2,
 Board Revision 051, Serial Number 06298590,
 PLD/ISP Version 255.255, Manufacture Date 17-Jul-1997.

Modem Range:    1/6/36 1/6/41         Modem Module:  6
Manufacture Cookie Info:
 EEPROM Type 0x0101, EEPROM Version 0x01, Board ID 0x06,
 Board Hardware Version 1.0, Item Number 73-2522-2,
 Board Revision 051, Serial Number 06298446,
 PLD/ISP Version 255.255, Manufacture Date 17-Jul-1997.

Modem Range:    1/6/42 1/6/47         Modem Module:  7
Manufacture Cookie Info:
 EEPROM Type 0x0101, EEPROM Version 0x01, Board ID 0x06,
 Board Hardware Version 1.0, Item Number 73-2522-2,
 Board Revision 051, Serial Number 06298593,
 PLD/ISP Version 255.255, Manufacture Date 17-Jul-1997.

Modem Range:    1/6/48 1/6/53         Modem Module:  8
Manufacture Cookie Info:
 EEPROM Type 0x0101, EEPROM Version 0x01, Board ID 0x06,
 Board Hardware Version 1.0, Item Number 73-2522-2,
 Board Revision 051, Serial Number 06298233,
 PLD/ISP Version 255.255, Manufacture Date 17-Jul-1997.

Modem Range:    1/6/54 1/6/59         Modem Module:  9
Manufacture Cookie Info:
 EEPROM Type 0x0101, EEPROM Version 0x01, Board ID 0x06,
```

```
 Board Hardware Version 1.0, Item Number 73-2522-2,
 Board Revision 051, Serial Number 06298309,
 PLD/ISP Version 255.255, Manufacture Date 17-Jul-1997.

Modem Range:    1/6/60 1/6/65         Modem Module: 10
Manufacture Cookie Info:
 EEPROM Type 0x0101, EEPROM Version 0x01, Board ID 0x06,
 Board Hardware Version 1.0, Item Number 73-2522-2,
 Board Revision 051, Serial Number 06297954,
 PLD/ISP Version 255.255, Manufacture Date 17-Jul-1997.

Modem Range:    1/6/66 1/6/71         Modem Module: 11
Manufacture Cookie Info:
 EEPROM Type 0x0101, EEPROM Version 0x01, Board ID 0x06,
 Board Hardware Version 1.0, Item Number 73-2522-2,
 Board Revision 051, Serial Number 06298008,
 PLD/ISP Version 255.255, Manufacture Date 17-Jul-1997.
```

Tips

Error messages result if the following circumstances exist:

- If you issue a firmware command on a modem pool that has no pool range already specified, an error message will result.
- If you issue a firmware command on a modem pool that is neither constrained nor constraint-capable, an error message will result.
- If the firmware specified is not part of the firmware list, a message is printed to the console. The firmware name is stored in the modem pool structures until that modem card is updated with the specified firmware image. The firmware upgrade then occurs when that modem card is rebooted.
- If any modem module has an active call on it, the firmware upgrade request is queued and deferred until the modem module becomes free.
- To deactivate a modem command, type **no** before the command, if applicable:

```
5800# (config)# no modem-pool test
```

Modem Firmware Upgrade Configuration Example

The following example is a modem firmware upgrade for a bundled image:

```
Router# configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)# modem-pool x
Router(config-modem-pool)# firmware 2.2.2.2
Router(config-modem-pool)# end
Router#
Slot 8: Firmware being upgraded to 2.2.2.2 for modems in modem-pool x
```

Configuration Examples

A full running configuration example is located on Cisco Connection Online (CCO), http://www.cisco.com/, the path is:

http://www.cisco.com/univercd/cc/td/doc/product/access/acs_serv/as5800/58sw_icg/

Basic configuration examples for the Cisco AS5800 are described in the *Cisco AS5800 Universal Access Server Software Installation and Configuration Guide.* For additional examples, refer to the Cisco IOS Release 11.3 Dial Solutions Configuration Guide.

Cisco IOS Release 11.3 documentation and Cisco AS5800 documentation can be found on the Documentation on CCO and on CD-ROM.

On Cisco Connection Online (CCO), http://www.cisco.com/, the paths are:

- Cisco Connection Online, Products and Ordering, Documentation, Cisco Documentation, Cisco Product Documentation, Cisco IOS Software Configuration, Cisco IOS Release 11.3
- Cisco Connection Online: Cisco Product Documentation: Cisco IOS Software Configuration: Cisco IOS Release 11.3: Cisco IOS 11.3 Dial Solutions Quick Configuration Guide

The path on the CD-ROM is similar to that on CCO. You can also use the website search facility.

Note The most up-to-date Cisco documentation can be found on the latest Documentation on the Web and CD-ROM. These electronic documents contain updates and modifications made after the paper documents were printed.

Debugging System Components

To troubleshoot your Cisco AS5800 system, use the debug commands in the Privileged EXEC mode as shown in the following table.

Command	Purpose
debug csm	Enables troubleshooting for call switching problems. With this command, you can trace the complete sequence of switched incoming and outgoing calls.
debug dsc clock	Displays time-division multiplexing (TDM) clock switching events on the DSC.
debug dsip	Enables the display of each DSIP message related to a modem that is transmitting from or receiving at the router shelf. This command can be applied to a single modem or a group of modems.
debug dsip {**all** | **api** | **boot** | **console** | **trace** | **transport**}	Enables the display of each DSIP message that relates to a modem and is transmitted from or received at the router shelf. This command can be applied to a single modem or a group of modems.
debug modem dsip {*tty-range* | **group** | *shelf*/*slot*/*port*}	Display debugging messages for DSIP between the router shelf and the dial shelf. Using this command, you can display booting messages generated when the download of an image occurs, view console operation, trace logging of MAC header information, and DSIP transport layer information as modules interact with the underlying physical media driver. This command can be applied to a single modem or a group of modems.
debug modem traffic	Displays debugging output for framed, unframed, and asynchronous data transmission as received from the modem cards.

Command Reference

This section documents new or modified commands on the Cisco AS5800. All other commands used with this feature are documented in the Cisco IOS Release 11.3 command references, which documentation can be found on CCO and the Documentation CD-ROM.

The following commands are new or have been modified to support the Cisco AS5800:

- **busyout**
- **cablelength long**
- **cablelength short**
- **clear dsip tracing**
- **dial-tdm-clock**
- **ds0 busyout**
- **execute-on**
- **firmware**
- **line-termination**
- **modem busyout**
- **modem busyout-threshold**
- **modem shutdown**
- **shelf-id**
- **show busyout**
- **show dial-shelf**
- **show dsc clock**
- **show dsi**
- **show dsip**
- **show dsip clients**
- **show dsip nodes**
- **show dsip ports**
- **show dsip queue**
- **show dsip tracing**
- **show dsip transport**
- **show dsip version**
- **show modem** (**summary status**)
- **show modem bundled-firmware**

busyout

The **busyout** command informs the central-office switch that a channel is out-of-service. The busyout command does not terminate an existing call; instead, after you hang up or end a call, a new call cannot be established on a channel that has received a busyout command instruction.

To busyout an entire card on the dial shelf and remove it from dial services, use the **busyout** Privileged EXEC command. To cancel busyout, use the **no** form of the command.

busyout *shelf*/*slot*/*port*
no busyout *shelf*/*slot*/*port*

Syntax Description

shelf/*slot*/*port*	Shelf number, slot number, and port number. You must type in the forward slashes (/).

Default

Busyout is disabled

Command Mode

Privileged EXEC

Usage Guidelines

This command first appeared in Cisco IOS Release 11.3(2)AA.

Release 11.3(2)AA supports T1 and T3 only. Release 11.3(2)AA does not support Channelized E1.

Release 12.0 supports T1, T3, E1and DMM HMM (Double Modem Module [12] Hex Modem Module [6]).

Use the **busyout** command before you remove a card from a shelf. The maintenance LED on the card goes ON after all the channels (or calls) have been terminated. The ON LED indicates that it is safe to remove the card from the shelf.

Use this command to busyout DS0s (digital signal level 0s) on a trunk card or all modems on a modem card.

To busyout an individual DS0, use the **ds0 busyout** controller configuration command.

To display the busyout information, use the **show busyout** Privileged EXEC command.

Restrictions

If the trunk card is using ISDN signalling, there is a limit on the amount of traffic that the exchange can accept on the signalling channel. The restrictions are:

1. A Busyout can take 1 or 2 minutes to complete for a T1 or T2 trunk card.
2. The **no busyout** command cannot be used within 3 minutes of **busyout** and vice versa; otherwise, the command will be rejected.

Examples

The following example enables **busyout** on the card in dial shelf 5, slot 4:

```
router# busyout 5/4
router#
```

Related Commands

You can use the master indexes or search online to find documentation of related commands.

ds0 busyout
modem busyout
modem busyout-threshold
modem shutdown
show busyout

cablelength long

To increase the pulse of a signal at the receiver and decrease the pulse from the transmitter using pulse equalization and line build-out for a T1 cable on an AS5800, use the **cablelength long** interface configuration command. To return the pulse equalization and line build-out values to their default settings, use the **no** form of this command.

cablelength long *dbgain-value dbloss-value*
no cablelength long

Syntax Description

dbgain-value	Number of decibels by which the receiver signal is increased. Use the keyword **gain26** or **gain36** to specify this value.
dbloss-value	Number of decibels by which the transmit signal is decreased. Use one of the following keywords to specify this value: • **0db** • **–7.5db** • **–15db** • **–22.5db**

Default

Long cable length, receiver gain of 36 dB, and transmitter loss of 0 dB.

Command Mode

Controller configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.3(2)AA.

Use this command for configuring the controller T1 interface on the access server.

A pulse equalizer regenerates a signal that has been attenuated and filtered by a cable loss. Pulse equalization does not produce a simple gain, but it filters the signal to compensate for complex cable loss. A **gain26** receiver gain compensates for a long cable length equivalent to 26 dB of loss, while a **gain36** compensates for 36 dB of loss.

The lengthening or *building out* of a line is used to control far-end crosstalk. Line build-out attenuates the stronger signal from the customer installation transmitter so that the transmitting and receiving signals have similar amplitudes. A signal difference of less than 7.5 dB is ideal. Line build-out does not produce simple flat loss (also known as *resistive* flat loss). Instead, it simulates a cable loss of 7.5 dB, 15 dB, or 22.5 dB so that the resulting signal is handled properly by the receiving equalizer at the other end.

Example

The following example increases the receiver gain by 26 decibels and decreases the transmitting pulse by 7.5 decibels for a long cable:

```
AS5200(config)# controller t1 0
AS5200(config-controller)# cablelength long gain26 -7.5db
```

Related Commands

You can use the master indexes or search online to find documentation of related commands.

cablelength short

cablelength short

To set a cable length 655 feet or shorter for a DS1 link, use the **cablelength short** controller configuration command. This command is supported on T1 controllers only. The **no** form of this command deletes the **cablelength short** value. (To set cable lengths longer than 655 feet, use the **cablelength long** command.)

cablelength short {**133 | 266 | 399 | 533 | 655**}
no cablelength short

Syntax Description

133	Specifies a cable length from 0-133 feet.
266	Specifies a cable length from 134-266 feet.
399	Specifies a cable length from 267-399 feet.
533	Specifies a cable length from 400-533 feet.
655	Specifies a cable length from 534-655 feet.

Default

There is no default for the command; however, the default for the cable is set by the **cablelength long** command.

Command Mode

Controller configuration mode

Usage Guidelines

This command first appeared in Cisco IOS Release 11.3 MA and 11.3(2)AA.

For more information, see the Usage Guidelines for the command **cablelength long**.

Example

In the following example, the cable length is set to 266 for the T1 controller in slot 0 on dial shelf 0:

```
router# configure terminal
router(config)# controller t1 1/1/0
router(config-controller)# cablelength short 266
router (config-controller)# exit
router(config)# exit
router#
```

Related Commands

You can use the master indexes or search online to find documentation of related commands.

cablelength long

clear dsip tracing

To clear tracing statistics for the Distributed System Interconnect Protocol (DSIP), use the **clear dsip tracing** EXEC command.

clear dsip tracing {**counters** | **tracing**} [**control** | **data** | **ipc**]

Syntax Description

counters	Clear the DSIP counters.
tracing	Clear the DSIP tracing buffers.
control	(Optional) Clear the control counters or tracing buffers.
data	(Optional) Clear the data counters or tracing buffers.
ipc	(Optional) Clear the inter-process communication counters or tracing buffers.

Default

If no option is specified, all control, data, and ipc counters or tracing buffers are cleared.

Command Mode

EXEC

Usage Guidelines

This command first appeared in Cisco IOS Release 11.3(2)AA.

Use this command to clear the counters displayed with the **show dsip tracing** EXEC command.

Example

In the following example, the DSIP counters are cleared (including data, control, and ipc counters):

```
router# clear dsip tracing
router#
```

Related Commands

You can use the master indexes or search online to find documentation of related commands.

show dsip version

dial-tdm-clock

To configure the clock source and priority of the clock source used by the TDM bus on the dial shelf of the Cisco AS5800, use the **dial-tdm-clock** global configuration command. To return the clock source and priority to the default values, use the no form of the command.

[**no**] **dial-tdm-clock priority** *number* {**external** {**e1 | t1**} [**120ohm**] | **freerun | trunk-slot** *slot* **port** *port*}

Syntax Description

priority *number*	Specify the priority of the clock source. The range is 1 to 50. Priority 1 is the highest priority and 50 is the lowest.
external	Specify the priority of an external clock source. The external clock source is connected to the front panel of the dial shelf controller (DSC) card.
{**e1** | **t1**} [**120ohm**]	Specify priority of the E1 (2.048 MHz) or T1 (1.54 MHz) external clock source. The default value of the external coaxial cable impedance is 75 ohm. Specify the **120ohm** option if a 120 ohm coaxial cable is connected.
freerun	Specify the priority of the local oscillator clock source.
trunk-slot *slot*	Specify the priority of the trunk card to provide the clock source. The slot number is from 0 to 5 (these are the only slots capable of providing clock sources).
port *port*	Specify the controller number on the trunk used to provide the clock source. The port number is from 0 to 28. The T1 and E1 trunk cards each have 12 ports. The T3 trunk card has 28 ports.

Default

If no clock sources are specified, the software selects the first available good clock source on a trunk port.

Command Mode

Global configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.3(2)AA.

The TDM bus in the backplane on the dial shelf must be synchronized to the T1/E1 clocks on the trunk cards. The Dial Shelf Controller (DSC) card on the dial shelf provides hardware logic to accept multiple clock sources as input and use one of them as the primary source to generate a stable, PPL synchronized output clock. The input clock can be any of the following sources:

- Trunk port in slots 0 through 5 (up to 12 can be selected (two per slot)
- An external T1 or E1 clock source fed directly through a connector on the DSC card
- A free running clock from an oscillator in the clocking hardware on the DSC card

The clock commands are listed in the configuration file with the highest priority listed first.

If the current primary clock source is good, specifying another clock source of higher priority does not cause the clock source to switch to the higher priority clock source. The new higher priority clock source is used as a backup clock source. This prevents switching of the clock source as you enter multiple **dial-tdm-clock priority** configuration commands in random order. Also, it is important not to disturb the existing clock source as long as it is good. To force the new higher priority clock source to take over from a currently good primary clock source, configure the new clock source and use the **no dial-tdm-clock priority** command to remove the current primary clock source.

To display the current primary and backup clocks along with their priorities, use the **show dial-shelf clocks** EXEC commands.

Example

In the following example, an external clock source is set at priority 1 and the trunk card in slot 4 port 1 is set at priority 5:

```
router# configure terminal
router(config)# dial-tdm-clock priority 1 external t1
router(config)# dial-tdm-clock priority 5 trunk-slot 4 port 1
router(config)# exit
router#
```

Related Command

show dial-shelf

ds0 busyout

To busyout one or more DS0s (digital signal level 0s), use the **ds0 busyout** controller configuration command. To cancel busyout on a DS0, use the **no** form of the command.

ds0 busyout *range*
no ds0 busyout *range*

Syntax Description

range	DS0 number. The range of numbers can be 1 to 24 for T1, for example, 1 - 10, or 10-24. Release 11.3(2)AA supports T1 and T3 only. Release 11.3(2)AA does not support Channelized E1. Release 12.0 supports T1, T3, E1and DMM HMM (Double Modem Module [12] Hex Modem Module [6]).

Default

Busyout is disabled

Command Mode

Controller configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.3(2)AA.

Use the **ds0 busyout** command when you to busyout a one or more DS0s (channels). If there is an active call, the software waits until the call terminates by a disconnection; then the DS0 is busied out. First you must specify the T1 line (port) containing the 24 DS0s, using the **controller T1** command.

To busyout all DS0s on a trunk card or all modems on a modem card, use the **busyout** Privileged EXEC command.

To display the busyout information, use the **show busyout** Privileged EXEC command.

Note The **ds0 busyout** command only applies to cas-group (cas = channel association signaling) configurations. This command has no effect on pri-group configuration.

Example

In this example, the controller T1 is configured with cas-group (channel association signaling). The following example removes DS0s 1 through 10 from dial-up services. These DS0s are assigned to the T1 port (line) in shelf 6, slot 0, port 0:

```
router# configure terminal
router(config)# controller t1 6/0/0
router(config-controller)# ds0 busyout 1-10
router(config-controller)# exit
router(config)# exit
router#
```

Related Commands

You can use the master indexes or search online to find documentation of related commands.

busyout
modem busyout
modem busyout-threshold
modem shutdown
show busyout

execute-on

To remotely execute from the router shelf any one of a limited set of commands on a line card in a specified slot of the dial shelf or on all card(s) in the dial shelf, use the **execute-on** privileged EXEC command. Use the **master** option to remotely execute a command on the router from a DSC.

execute-on {**slot** | **all** *slot* | **master**} *command*

There is not any **no** version of the command since it is used only to execute another command on a one-time basis; however, the remotely executed commands themselves might have no-versions.

Syntax Description

all	Executes the designated *command* on all cards on the dial shelf.
slot *slot*	Executes the designated *command* on the line card in the specified slot on the dial shelf. The range is 0-13.
master	Executes the designated *command* on the router from a DSC only. Do not use this option; it is used for technical support troubleshooting only.
command	Cisco IOS command to execute from the following partial set: **debug dsc clock**, **show context**, **show diag**, **show environment**, **show dsc clock**, **show dsi**, **show dsip, and show tech-support**. For more information on these commands, see their respective entries in the command reference sections.

Default

Disabled

Command Mode

Privileged EXEC

Usage Guidelines

This command was added in Cisco IOS Release 11.3(2)AA.

Caution Do not use this command to change configurations on dial shelf cards since such changes will not be reflected in the router shelf.

The purpose of the command is to conveniently enable certain commands to be remotely executed on the dial shelf cards, from the router without connecting to each line card. This is the recommended procedure, because it avoids the possibility of adversely affecting a good configuration of a line card in the process. The command **execute-on** does not give access to every IOS command available on the Cisco AS5800. In general, the purpose of the **execute-on** command is to provide access to statistical reports from line cards without directly connecting to the dial shelf line cards.

Using this command makes it possible to accumulate inputs for inclusion in the **show tech-support** command.

The **master** form of the command can run a designated command remotely on the router from the DSC card. However, using the console on the DSC is *not* recommended. It is used for technical support troubleshooting only.

The command **show tech-support** for each dial shelf card is bundled into the router shelf's **show tech-support** command via the execute-on facility.

The **execute-on** command also support interactive commands such as:

```
router: execute-on slave slot slot ping
```

The **execute-on** command has the same limitations/restrictions as a **vty telnet** client has, that is, it cannot reload DSC using:

```
router: execute-on slave slot slot reload
```

You can use the **execute-on** command to enable remote execution of the following partial list of commands:

- **debug dsc clock**
- **show context**
- **show diag**
- **show environment**
- **show dsc clock**
- **show dsi**
- **show dsip**
- **show tech-support**

Examples

The following example runs **show dsip** on the specified slot in the dial shelf. For the resulting **show dsip** display, see the example for **show dsip** in the command reference section.

```
router# execute-on 1 show dsip
...
```

Related Commands

You can use the master indexes or search online to find documentation of related commands.

debug dsc clock
show context
show diag
show environment
show dsc clock
show dsi
show dsip
show tech-support

firmware

To load a new firmware image on a modem card, use the **firmware** modem pool configuration command. To load the default firmware image on a modem card, use the **no** form of the command.

[**no**] **firmware** {*version-string*}
no firmware {*version-string*}

Syntax Description

version-string	(Required) Name of the bundled firmware image you want to load on the modem card. This file name is usually a number, for example: 2.2.3.1.

Default

The firmware version bundled with the current Cisco IOS software image is loaded.

Command Mode

Modem pool configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.3(2)AA.

A valid pool range must exist (that is, the **pool-range** modem pool configuration command must have been configured). Modem pooling allows service providers to define, select, and use separate pools of modems within a single access server or router to enable different dial-in services for different customers. In this case, the modem pool specifies which modems are loaded with the new firmware image.

For all access servers with internal MICA modems, the modem pool commands operate only on 6-modem boundaries. (Modems are grouped together using ranges based on 6-port boundaries.)

The specified firmware image is loaded on every modem specified in the pool-range. If the modem is busy, the firmware change is deferred until the modem is available. When the modem is available, the firmware change takes place immediately.

To determine what firmware image is currently running on the modem card, use the **show modem version** EXEC command.

To determine a list of valid firmware images, use the **show modem bundled-firmware** EXEC command. If you specify a firmware image that does not exist, the information is stored so that if the modem card is updated at a later date with a modem card image that contains that firmware image it will be loaded when the modem card image boots.

At boot-up time, the default firmware image is loaded first. If there is a firmware image specified by the **firmware** command, it is loaded on the modem card following the loading of the default firmware image.

Examples

Example 1: External Portware

The following example creates a modem pool called **denver**, assigns a pool range to **denver** beginning from dial shelf 6, slot 5, ports 0 and extending through dial shelf 6, slot 5, port 5 (a 6 modem boundary), and downloads from the ISF-specified path in the router shelf's Flash memory where the external portware file containing firmware version 2.2.2.2 resides:

```
router# configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
router(config)# modem-pool denver
router(config-modem-pool)# pool-range 6/5/0-6/5/5
router(config-modem-pool)# firmware slot0:portware.2222.ios
Slot 5: Firmware being upgraded to slot0:portware.2222.ios for modems in modem-pool
denver
router(config-modem-pool)# end
router#
```

Example 2: Bundled Firmware

This sequence identifies and downloads bundled image file, **2.2.2.2**, to all the modems in modem pool x, which is created and whose range is specified.

```
router# configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
router(config)# modem-pool x
router(config-modem-pool)# pool-range 6/5/0-6/5/5
router(config-modem-pool)# firmware 2.2.2.2
Slot 5: Firmware being upgraded to 2.2.2.2 for modems in modem-pool x
router(config-modem-pool)# end
router#
```

Related Commands

You can use the master indexes or search online to find documentation of related commands.

show modem bundled-firmware
show modem version

line-termination

To specify the line termination for the E1 port on a trunk card, use the **line-termination** controller command. To return to the default line termination, use the **no** form of the command.

line-termination {**75-ohm | 120-ohm**}
no line-termination

Syntax Description

75-ohm	Specify 75-ohm unbalanced termination.
120-ohm	Specify 120-ohm balanced termination. This is the default.

Default

120-ohms

Command Mode

Controller configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.3(2)AA.

To determine the line termination setting for the port, use the **show controller e1** command.

Example

In the following example, the line termination is set to 75-ohms for the E1 port located in shelf 6, slot 0 port 0:

```
router# configure terminal
router(config)# controller e1 6/0/0
router(config-controller)# line-termination 75-ohm
router(config-controller)# exit
router(config)# exit
router#
```

Related Command

show controller e1

modem busyout

To gracefully disable a modem from dialing or answering calls, use the **modem busyout** line configuration command. Use the **no** form of this command to re-enable a modem.

modem busyout
no modem busyout

Syntax Description

This command has no keywords or arguments.

Default

Disabled

Command Mode

Line configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.2.

The disabling action is not executed until the active modem returns to an idle state. No active connections are interrupted when you enter this command.

If a **busyout-threshold** is set, this command will be delayed until the DS0 lines to the exchange are taken out of service.

For T3 cards the message, `No Controller configured`, might appear for unconfigured T1 links in the T3.

Examples

The following example disables the modem associated with line 1/0/5 from dialing and answering calls. You do not specify a slot/port number with this command:

```
router# configure terminal
router(config)# line 1/0/5
router(config-line)# modem busyout
```

The following example busyouts a range of modems:

```
router# configure terminal
router(config)# line 1/0/5 1/0/72
router(config-line)# modem busyout
```

Related Commands

You can use the master indexes or search online to find documentation of related commands.

busyout
ds0 busyout
modem busyout-threshold
modem shutdown
show busyout

modem busyout-threshold

Use this command, whose functionality is also often termed **autobusyout**, defines a threshold when you want to maintain a balance between the number of DS0s and modems.

modem busyout-threshold *threshold-number*
no modem busyout-threshold *threshold-number*

Syntax Description

threshold-number	The number of modems that are free when the router should enforce the stipulation that the number of free DS0 lines is less than or equal to the number of modems.

Command Mode

Global Configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.3(2)AA.

This command applies to all DS0 lines coming into the router and counts all free modems in all pools.

The command periodically checks to see if the number of free modems is less that the user specified threshold and if it is it ensures the number of free DS0 channels is less than or equal to the number of modems.

This command should only be used where excess calls to one router are forwarded by the exchange to an additional router on the same exchange group number.

Since this command checks only periodically, the threshold should be greater than the number of calls the user expects to receive in 1 minute plus a safety margin. For example, if the user receives an average of 10 calls per minute, then a threshold of 20 would be advised. Very small thresholds should be avoided since they do not allow sufficient time for the exchange to respond to out-of-service notifications from the router, and callers may receive busy signals when free modems are all used.

Caution The number of DS0 lines in normal operating conditions should be approximately equal to the number of modems (for example, within 30). If it is not, this will cause a lot of messaging traffic to the exchange and may cause active calls to be dropped. This is not a concern for short periods, that is, when modem cards are replaced.

On T3 controllers, any contained T1 controllers that are not in use should be undeclared to remove them from the **autobusyout** list.

Sample Displays

The following shows the **modem busyout-threshold** command:

```
router# configure terminal
router(config)# modem busyout-threshold 30
router(config)# exit
router#
```

Related Commands

You can use the master indexes or search online to find documentation of related commands.

busyout
ds0 busyout
modem busyout
modem busyout-threshold
modem shutdown

modem shutdown

To abruptly shut down an active or idle modem installed in an access server or router, use the **modem shutdown** line configuration command. Use the **no** form of this command to take the modem out of a shutdown state and place it back in service.

modem shutdown
no modem shutdown

Syntax Description

This command has no keywords or arguments.

Default

Disabled

Command Mode

Line configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.2. Enable the **no modem shutdown** command to restore to service a modem that has been shut down.

Example

The following example abruptly shuts down the modem associated with line 1/0/6. All active calls on the modem are dropped immediately.

```
router# configure terminal
router(config)# line 1/0/6
router(config-line)# modem shutdown
```

The following example abruptly shuts down a range of modems.

```
router# configure terminal
router(config)# line 1/0/5 1/0/72
router(config-line)# modem shutdown
```

Related Commands

You can use the master indexes or search online to find documentation of related commands.

busyout
ds0 busyout
modem busyout
modem busyout-threshold
show busyout

shelf-id

To change the shelf number assigned to the router shelf or dial shelf on the Cisco AS5800, use the **shelf-id** global configuration command. To return the shelf numbers to the default value, use the **no** form of the command.

shelf-id *number* {**router-shelf | dial-shelf**}
no shelf-id *number*

Syntax Description

number	Number to assign to the shelf. Range: 0 to 9999.
router-shelf	Assign the specified number to the router shelf.
dial-shelf	Assign the specified number to the dial shelf.

Default

The default shelf number for the router shelf is 0.

The default shelf number for the dial shelf is 1 or one number higher than the specified router shelf number.

Command Mode

Global configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.3(2)AA.

The shelf number is used to distinguish between cards on the router shelf and cards on the dial shelf.

Caution You must reload the Cisco AS5800 for the shelf number to take effect. The shelf numbers are part of the interface names. When you reload the Cisco AS5800, all NVRAM interface configuration information is lost.

You can specify the shelf number through the setup facility during initial configuration of the Cisco AS5800. This is the recommended method to specify shelf numbers.

To display the shelf numbers, use the **show running-config** command. If a shelf number has been changed, the pending change is shown in the output of the **show version** command (for example, the dial-shelf ID is 87; will change to 2 on reload).

Example

In the following example, the dial shelf is assigned the number 456:

```
router# configure terminal
router(config)# shelf-id 456 dial-shelf
router(config)# exit
router#
```

Related Commands

You can use the master indexes or search online to find documentation of related commands.

setup
show running-config
show version

show busyout

To display the busyout status for a card on the dial shelf, use the **show busyout** Privileged EXEC command.

show busyout *shelf/slot/port*

Syntax Description

shelf/slot/port	Shelf, slot, and port number; for example, 1/0/5. The forward slash (/) is required.

Command Mode

Privileged EXEC

Usage Guidelines

This command first appeared in Cisco IOS Release 11.3(2)AA.

Use the **busyout** EXEC command or the **ds0 busyout** controller command to configure **busyout**.

Sample Displays

The following shows the **show busyout** command for a trunk card in slot 4 located in dial shelf 1, and the busyout was complete:

- s—Static means the channel is in an out-of-service state because of a **busyout** command.
- d—Dynamic means the channel is automatically put in an out-of-service state because of a preset and defined threshold. By default, this feature is disabled. This **autobusyout** function of the **modem busyout-threshold** is used to define a threshold when you want to maintain a balance between the number of DS0s and modems. For example:

```
configure terminal
modem busyout-threshold 10
```

- p—Pending means that after the user hangs up, the established call is terminated because of a **busyout** command. After the call terminates, the DS0 is busied out.

```
router# show busyout 1/4
Controller t1 busyout status:
(s - static d - dynamic p - pending)
1/4/0  :ppppppppppppppppppppppp.
1/4/1  :sssssssssssssssssssssss.
1/4/2  :ppppppppppppppppppppppp.
1/4/3  :ddddddddddddddddddddddd.
1/4/4  :ppppppppppppppppppppppp.
1/4/5  :ppppppppppppppppppppppp.
1/4/6  :ppppppppppppppppppppppp.
1/4/7  :sssssssssssssssssssssss.
1/4/8  :ppppppppppppppppppppppp.
1/4/9  :ppppppppppppppppppppppp.
1/4/10 :ddddddddddddddddddddddd.
1/4/11 :ppppppppppppppppppppppp.
router#
```

The following example shows the **show busyout** command, the **busyout** command, a **ds0 busyout** command, and another **show busyout** command.

```
router# show busyout 1/0
Controller t1 busyout status:
(s - static d - dynamic p - pending)
1/0/0  :ppppppppppppppppppppppp.
1/0/1  :ppppppppppppppppppppppp.
1/0/2  :ppppppppppppppppppppppp.
1/0/3  :ddddddddddddddddddddddd.
1/0/4  :ppppppppppppppppppppppp.
1/0/5  :ppppppppppppppppppppppp.
1/0/6  :ppppppppppppppppppppppp.
1/0/7  :sssssssssssssssssssss.
1/0/8  :ppppppppppppppppppppppp.
1/0/9  :ppppppppppppppppppppppp.
1/0/10 :ddddddddddddddddddddddd.
1/0/11 :ppppppppppppppppppppppp.
router#

router# configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
router (config)# contr t1 1/0/1
router (config-controller)# busyout
router (config-controller)# ds0 busyout 15-24
router (config-controller)# end
router# show busyout 1/0
Controller t1 busyout status:
(s - static d - dynamic p - pending)
1/0/0  :ppppppppppppppppppppppp.
1/0/1  :sssssssssssssssssssss.
1/0/2  :ppppppppppppppppppppppp.
1/0/3  :ddddddddddddddddddddddd.
1/0/4  :ppppppppppppppppppppppp.
1/0/5  :ppppppppppppppppppppppp.
1/0/6  :ppppppppppppppppppppppp.
1/0/7  :sssssssssssssssssssss.
1/0/8  :ppppppppppppppppppppppp.
1/0/9  :ppppppppppppppppppppppp.
1/0/10 :ddddddddddddddddddddddd.
1/0/11 :ppppppppppppppppppppppp.
router#
```

The following table describes the fields shown in the **show busyout** display.

Table 1 Show Busyout Command Output

Field	Description
s - static	The channel is in an out-of-service state because of a **busyout** command.
d - dynamic	The channel is automatically put in an out-of-service state because of a preset and defined threshold. By default, this feature is disabled. The command (**modem autobusyout**) is used to define a threshold when you want to maintain a balance between the number of DS0s and modems.
p - pending	After you hang up, the established call is terminated because of a **busyout** command. After the call terminates, the DS0 is busied out.

The following is sample **show busyout** output is for a modem card in shelf 1, slot 9:

```
router# show busyout 1/9
Slot 1/9: Busyout (no calls remaining)
router#
```

Related Commands

You can use the master indexes or search online to find documentation of related commands.

busyout
ds0 busyout
modem busyout
modem busyout-threshold
modem shutdown

show dial-shelf

To display information about the dial shelf including clocking information, use the **show dial-shelf** EXEC command.

show dial-shelf [**clocks** | **slots** slots [**clocks**]]

Syntax Description

clocks	(Optional) Show the current primary and backup clocks along with their priorities.
slot *slot*	(Optional) Show information for a specific slot. Slot number can be 0 to 14.

Command Mode

EXEC

Usage Guidelines

This command first appeared in Cisco IOS Release 11.3(2)AA.

To configure the clock source and priority of the clock source used by the TDM bus on the dial shelf, use the **dial-tdm-clock** global configuration command.

Sample Displays

The following is sample output from the **show dial-shelf** command.

```
router# show dial-shelf
Slot  Board     CPU          DRAM          I/O Memory   State         Elapsed
       Type     Util     Total (free)    Total (free)                Time
 1      CT1    0%/0%  22034060 ( 88%)  8388608 ( 49%)  Up            00:37:31
 5    Modem    0%/0%   7353996 ( 57%)  6291456 ( 35%)  Up            00:37:29
 6    Modem    0%/0%   7353996 ( 58%)  6291456 ( 35%)  Up            00:37:34
 7    Modem    5%/5%   7353996 ( 57%)  6291456 ( 35%)  Up            00:37:29
 8    Modem  19%/19%   7353996 ( 57%)  6291456 ( 35%)  Up            00:37:33
 9    Modem    8%/8%   7353996 ( 57%)  6291456 ( 35%)  Up            00:37:33
11    Modem    0%/0%   7353996 ( 57%)  6291456 ( 35%)  Up            00:37:30
12      DSC    0%/0%  20830044 ( 91%)  8388608 ( 66%)  Up            00:37:35
```

The following table describes the fields shown in the **show dial-shelf** display.

Table 2 Show Dial-Shelf Command Output

Field	Description
Slot	Slot number of the card.
Board Type	Type of card in the slot. Types include channelized T1/E1 trunk cards, modem cards, or Dial Shelf Controller (DSC) card.
CPU Util	Utilization ratio of the CPU
DRAM Total (free)	Percent of free space
I/O Memory Total (free)	Percent of free disk space
State	Current state of the card. Can be UP or DOWN.

Table 2 Show Dial-Shelf Command Output (continued)

Field	Description
Elapsed Time	The elapsed time the shelf has been up.

The following are example outputs from the **show dial-shelf clocks** command output.

Display 1

```
AS5800# show dial-shelf clocks
Primary Clock:
--------------
Slot 12:
System primary is 1/3/1 of priority 3
TDM Bus Master Clock Generator State = NORMAL

Backup clocks:
Source  Slot    Port    Priority      Status      State
-------------------------------------------------------
Trunk   1       2       10             Good        Configured

Status of trunk clocks:
-----------------------
Slot    Type    11 10  9  8  7  6  5  4  3  2  1  0
1       T1       B  B  B  B  B  B  B  B  B  G  B  B
3       T1       B  B  B  B  B  B  B  B  B  B  G  B
AS5800#
```

Display 2

```
router# show dial-shelf clocks
Slot 12:
System primary is 6/76/0 of priority 76
TDM Bus Master Clock Generator State = HOLDOVER

Backup clocks:
Source  Slot    Port    Priority      Status      State
-------------------------------------------------------

Slot    Type    11 10  9  8  7  6  5  4  3  2  1  0
0       E1       B  B  B  B  B  B  B  B  B  B  B  B
```

show dsc clock

To display information about the dial shelf controller clock, use the **show dsc clock** EXEC command.

{**execute-on**} **show dsc clock** {*slot*}

Syntax Description

slot *number*	(Required) Show information for a specific slot. Slot number must be occupied by a DSC card (12-13).

Command Mode

EXEC

Usage Guidelines

This command first appeared in Cisco IOS Release 11.3(2)AA.

You should use the **show dsc clock** command from the router using the **execute-on** command.

Sample Display

The following example shows the output from the **show dsc clock** command:

```
AS5800# execute-on slot 12 show dsc clock

DA-Slot12#
Primary Clock:
--------------
Slot: 3, Port 1, Line 0, Priority = 3 up since 00:37:56
Time elapsed since last failure of the primary = 00:38:59

Backup clocks:
Source  Slot    Port    Line    Priority    Status      State
-------------------------------------------------------------
Trunk   1       2       0       10          Good        Configured

All feature boards present are getting good clock from DSC
```

The following table describes fields in the **show dsc clock** command output display:

Table 3 Show DSC Clock Command Output Fields

Field	Description
Primary clock	The clock designated as the master timing clock.
Priority	The order in which a clock is designated to back up the primary clock or the next higher priority clock in case of its failure.
Backup Source	The clock signal source, such as a trunk, internal clock, or external generator.
Feature board	An application-specific card in the dial shelf, such as a line card.
Trunk	The trunk line connected to the ISP or central office.
Status	Whether the clock source is capable of providing a synch source signal.
State	Whether the clock source is connected and assigned a priority.

show dsi

To display information about the dial shelf interconnect, use the **show dsi** EXEC command.

{**execute on**} **show dsi**

Syntax Description

This command has no arguments or keywords; however you should use it with the **execute-on** command.

Command Mode

Privileged EXEC

Usage Guidelines

This command first appeared in Cisco IOS Release 11.3(2)AA.

The dial shelf interconnect (DSI) port adapter connects the Cisco 5814 dial shelf to the Cisco 7206 router shelf. The DSI port adapter allows data transfers between the dial shelf and the router shelf. Data is converted into packets by the feature cards, transmitted to a hub on the dial shelf controller card, and from there sent to the router shelf. Conversely, packets from the router shelf are sent to the dial shelf controller card, where they are transmitted over the backplane to the modem and trunk cards. The **show dsi** command is used to show information about the dial shelf interconnect hardware, interface, physical link, PCI registers, and address filters.

Sample Display

The following is sample output from the **show dsi** command:

```
AS5800# execute-on slot 1 show dsi

DA-Slot1>
DSI-Tx-FastEthernet0 is up, line protocol is up
  Hardware is DEC21140A, address is 0008.26b7.b008 (bia 0008.26b7.b008)
  MTU 1500 bytes, BW 100000 Kbit, DLY 100 usec, rely 255/255, load 1/255
  Encapsulation ARPA, loopback not set, keepalive set (10 sec)
  Half-duplex, 100Mb/s, 100BaseTX/FX
  ARP type: ARPA, ARP Timeout 04:00:00
  Last input 01:17:09, output 00:00:00, output hang never
  Last clearing of "show interface" counters never
  Queueing strategy: fifo
  Output queue 0/40, 0 drops; input queue 0/75, 0 drops
  5 minute input rate 0 bits/sec, 0 packets/sec
  5 minute output rate 0 bits/sec, 0 packets/sec
     6 packets input, 596 bytes, 0 no buffer
     Received 0 broadcasts, 0 runts, 0 giants, 0 throttles
     0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
     0 watchdog, 0 multicast
     0 input packets with dribble condition detected
     6170 packets output, 813483 bytes, 0 underruns
     0 output errors, 0 collisions, 1 interface resets
     0 babbles, 0 late collision, 0 deferred
     0 lost carrier, 0 no carrier
     0 output buffer failures, 0 output buffers swapped out
DSI-Rx-FastEthernet1 is up, line protocol is up
Hardware is DEC21140A, address is 0008.26b7.b008 (bia 0008.26b7.b008)
  MTU 1500 bytes, BW 100000 Kbit, DLY 100 usec, rely 255/255, load 1/255
```

```
  Encapsulation ARPA, loopback not set, keepalive set (10 sec)
  Full-duplex, 100Mb/s, 100BaseTX/FX
  ARP type: ARPA, ARP Timeout 04:00:00
  Last input 00:00:00, output never, output hang never
  Last clearing of "show interface" counters never
  Queueing strategy: fifo
  Output queue 0/40, 0 drops; input queue 0/75, 0 drops
  5 minute input rate 0 bits/sec, 0 packets/sec
  5 minute output rate 0 bits/sec, 0 packets/sec
     6280 packets input, 362493 bytes, 0 no buffer
     Received 0 broadcasts, 0 runts, 0 giants, 0 throttles
     0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
     0 watchdog, 0 multicast
     0 input packets with dribble condition detected
     0 packets output, 0 bytes, 0 underruns
     0 output errors, 0 collisions, 1 interface resets
     0 babbles, 0 late collision, 0 deferred
     0 lost carrier, 0 no carrier
     0 output buffer failures, 0 output buffers swapped out
Interface DSI-Tx-FastEthernet0
Hardware is DEC21140A
 dec21140_ds=0x604C9FC4, registers=0x3C000000, ib=0x1912E00
 rx ring entries=128, tx ring entries=256
 rxring=0x1912F00, rxr shadow=0x604CA16C, rx_head=6, rx_tail=0
 txring=0x1913740, txr shadow=0x604CA398, tx_head=138, tx_tail=138, tx_count=0
 PHY link up
 CSR0=0xFE024882, CSR3=0x1912F00, CSR4=0x1913740, CSR5=0xFC660000
 CSR6=0x320CA002, CSR7=0xFFFFA261, CSR8=0xE0000000, CSR9=0xFFFDC3FF
 CSR11=0xFFFE0000, CSR12=0xFFFFFF09, CSR15=0xFFFFFEC8
 DEC21140 PCI registers:
  bus_no=0, device_no=1
  CFID=0x00091011, CFCS=0x02800006, CFRV=0x02000022, CFLT=0x0000FF00
  CBIO=0x00000001, CBMA=0x48000000, CFIT=0x28140100, CFDA=0x00000000
 MII registers:
  Register 0x00:   FFFF  FFFF  FFFF  FFFF  FFFF  FFFF  FFFF  FFFF
  Register 0x08:   FFFF  FFFF  FFFF  FFFF  FFFF  FFFF  FFFF  FFFF
  Register 0x10:   FFFF  FFFF  FFFF  FFFF  FFFF  FFFF  FFFF  FFFF
   Register 0x18:   FFFF  FFFF  FFFF  FFFF  FFFF  FFFF  FFFF  FFFF
 throttled=0, enabled=0, disabled=0
 rx_fifo_overflow=0, rx_no_enp=0, rx_discard=0
 tx_underrun_err=0, tx_jabber_timeout=0, tx_carrier_loss=0
 tx_no_carrier=0, tx_late_collision=0, tx_excess_coll=0
 tx_collision_cnt=0, tx_deferred=0, fatal_tx_err=0, tbl_overflow=0
 HW addr filter: 0x604CABC4, ISL Disabled
  Entry= 0:  Addr=FFFF.FFFF.FFFF
  Entry= 1:  Addr=FFFF.FFFF.FFFF
  Entry= 2:  Addr=FFFF.FFFF.FFFF
  Entry= 3:  Addr=FFFF.FFFF.FFFF
  Entry= 4:  Addr=FFFF.FFFF.FFFF
  Entry= 5:  Addr=FFFF.FFFF.FFFF
  Entry= 6:  Addr=FFFF.FFFF.FFFF
  Entry= 7:  Addr=FFFF.FFFF.FFFF
  Entry= 8:  Addr=FFFF.FFFF.FFFF
  Entry= 9:  Addr=FFFF.FFFF.FFFF
  Entry=10:  Addr=FFFF.FFFF.FFFF
  Entry=11:  Addr=FFFF.FFFF.FFFF
  Entry=12:  Addr=FFFF.FFFF.FFFF
  Entry=13:  Addr=FFFF.FFFF.FFFF
  Entry=14:  Addr=FFFF.FFFF.FFFF
  Entry=15:  Addr=0008.26B7.B008

Interface DSI-Rx-FastEthernet1
Hardware is DEC21140A
dec21140_ds=0x604DDA4C, registers=0x3C000800, ib=0x1A01FC0
rx ring entries=128, tx ring entries=256
```

```
rxring=0x1A020C0, rxr shadow=0x604DDBF4, rx_head=55, rx_tail=0
txring=0x1A02900, txr shadow=0x604DDE20, tx_head=2, tx_tail=2, tx_count=0
PHY link up
CSR0=0xFE024882, CSR3=0x1A020C0, CSR4=0x1A02900, CSR5=0xFC660000
CSR6=0x320CA202, CSR7=0xFFFFA261, CSR8=0xE0000000, CSR9=0xFFFDC3FF
CSR11=0xFFFE0000, CSR12=0xFFFFFF09, CSR15=0xFFFFFEC8
DEC21140 PCI registers:
 bus_no=0, device_no=2
 CFID=0x00091011, CFCS=0x02800006, CFRV=0x02000022, CFLT=0x0000FF00
 CBIO=0x00000001, CBMA=0x48000800, CFIT=0x28140100, CFDA=0x00000000
MII registers:
 Register 0x00:   FFFF  FFFF  FFFF  FFFF  FFFF  FFFF  FFFF  FFFF
 Register 0x08:   FFFF  FFFF  FFFF  FFFF  FFFF  FFFF  FFFF  FFFF
 Register 0x10:   FFFF  FFFF  FFFF  FFFF  FFFF  FFFF  FFFF  FFFF
 Register 0x18:   FFFF  FFFF  FFFF  FFFF  FFFF  FFFF  FFFF  FFFF
throttled=0, enabled=0, disabled=0
rx_fifo_overflow=0, rx_no_enp=0, rx_discard=0
tx_underrun_err=0, tx_jabber_timeout=0, tx_carrier_loss=0
tx_no_carrier=0, tx_late_collision=0, tx_excess_coll=0
tx_collision_cnt=0, tx_deferred=0, fatal_tx_err=0, tbl_overflow=0
HW addr filter: 0x604DE64C, ISL Disabled
 Entry= 0:  Addr=FFFF.FFFF.FFFF
 Entry= 1:  Addr=FFFF.FFFF.FFFF
 Entry= 2:  Addr=FFFF.FFFF.FFFF
 Entry= 3:  Addr=FFFF.FFFF.FFFF
 Entry= 4:  Addr=FFFF.FFFF.FFFF
 Entry= 5:  Addr=FFFF.FFFF.FFFF
 Entry= 6:  Addr=FFFF.FFFF.FFFF
 Entry= 7:  Addr=FFFF.FFFF.FFFF
 Entry= 8:  Addr=FFFF.FFFF.FFFF
 Entry= 9:  Addr=FFFF.FFFF.FFFF
 Entry=10:  Addr=FFFF.FFFF.FFFF
 Entry=11:  Addr=FFFF.FFFF.FFFF
 Entry=12:  Addr=FFFF.FFFF.FFFF
 Entry=13:  Addr=FFFF.FFFF.FFFF
 Entry=14:  Addr=FFFF.FFFF.FFFF
 Entry=15:  Addr=0008.26B7.B008
```

Table 4 describes the fields shown in the **show dsi** display.

Table 4 Show DSI Command Output Fields

Field	Description
FastEthernet0 is ... is up ...is administratively down	Indicates whether the interface hardware is currently active and if it has been taken down by an administrator.
line protocol is	Indicates whether the software processes that handle the line protocol consider the line usable or if it has been taken down by an administrator.
Hardware	Hardware type (for example, MCI Ethernet, SCI,[1] CBus[2] Ethernet) and address.
Internet address	Internet address followed by subnet mask.
MTU	Maximum Transmission Unit of the interface.
BW	Bandwidth of the interface in kilobits per second.
DLY	Delay of the interface in microseconds.
rely	Reliability of the interface as a fraction of 255 (255/255 is 100% reliability), calculated as an exponential average over 5 minutes.
load	Load on the interface as a fraction of 255 (255/255 is completely saturated), calculated as an exponential average over 5 minutes.
Encapsulation	Encapsulation method assigned to interface.

Table 4 Show DSI Command Output (continued)Fields

Field	Description
ARP type:	Type of Address Resolution Protocol assigned.
loopback	Indicates whether loopback is set or not.
keepalive	Indicates whether keepalives are set or not.
Last input	Number of hours, minutes, and seconds since the last packet was successfully received by an interface. Useful for knowing when a dead interface failed.
output	Number of hours, minutes, and seconds since the last packet was successfully transmitted by the interface. Useful for knowing when a dead interface failed.
output hang	Number of hours, minutes, and seconds (or never) since the interface was last reset because of a transmission that took too long. When the number of hours in any of the "last" fields exceeds 24 hours, the number of days and hours is printed. If that field overflows, asterisks are printed.
Last clearing	Time at which the counters that measure cumulative statistics (such as number of bytes transmitted and received) shown in this report were last reset to zero. Note that variables that might affect routing (for example, load and reliability) are not cleared when the counters are cleared. *** indicates the elapsed time is too large to be displayed. 0:00:00 indicates the counters were cleared more than 2^{31}ms (and less than 2^{32}ms) ago.
Output queue, input queue, drops	Number of packets in output and input queues. Each number is followed by a slash, the maximum size of the queue, and the number of packets dropped due to a full queue.
5 minute input rate, 5 minute output rate	Average number of bits and packets transmitted per second in the last 5 minutes. If the interface is not in promiscuous mode, it senses network traffic it sends and receives (rather than all network traffic). The 5-minute input and output rates should be used only as an approximation of traffic per second during a given 5-minute period. These rates are exponentially weighted averages with a time constant of 5 minutes. A period of four time constants must pass before the average will be within two percent of the instantaneous rate of a uniform stream of traffic over that period.
packets input	Total number of error-free packets received by the system.
bytes	Total number of bytes, including data and MAC encapsulation, in the error free packets received by the system.
no buffer	Number of received packets discarded because there was no buffer space in the main system. Compare with ignored count. Broadcast storms on Ethernets and bursts of noise on serial lines are often responsible for no input buffer events.
Received ... broadcasts	Total number of broadcast or multicast packets received by the interface.
runts	Number of packets that are discarded because they are smaller than the medium's minimum packet size. For instance, any Ethernet packet that is less than 64 bytes is considered a runt.
giants	Number of packets that are discarded because they exceed the medium's maximum packet size. For example, any Ethernet packet that is greater than 1,518 bytes is considered a giant.
input errors	Includes runts, giants, no buffer, CRC, frame, overrun, and ignored counts. Other input-related errors can also cause the input errors count to be increased, and some datagrams may have more than one error; therefore, this sum may not balance with the sum of enumerated input error counts.

Table 4 Show DSI Command Output (continued)Fields

Field	Description
CRC	Cyclic redundancy checksum generated by the originating LAN station or far-end device does not match the checksum calculated from the data received. On a LAN, this usually indicates noise or transmission problems on the LAN interface or the LAN bus itself. A high number of CRCs is usually the result of collisions or a station transmitting bad data.
frame	Number of packets received incorrectly having a CRC error and a noninteger number of octets. On a LAN, this is usually the result of collisions or a malfunctioning Ethernet device.
overrun	Number of times the receiver hardware was unable to hand received data to a hardware buffer because the input rate exceeded the receiver's ability to handle the data.
ignored	Number of received packets ignored by the interface because the interface hardware ran low on internal buffers. These buffers are different than the system buffers mentioned previously in the buffer description. Broadcast storms and bursts of noise can cause the ignored count to be increased.
abort	Number of packets whose receipt was aborted.
watchdog	Number of times watchdog receive timer expired. It happens when receiving a packet with length greater than 2048.
multicast	Number of multicast packets received.
input packets with dribble condition detected	Dribble bit error indicates that a frame is slightly too long. This frame error counter is incremented just for informational purposes; the router accepts the frame.
packets output	Total number of messages transmitted by the system.
bytes	Total number of bytes, including data and MAC encapsulation, transmitted by the system.
underruns	Number of times that the transmitter has been running faster than the router can handle. This may never be reported on some interfaces.
output errors	Sum of all errors that prevented the final transmission of datagrams out of the interface being examined. Note that this may not balance with the sum of the enumerated output errors, as some datagrams may have more than one error, and others may have errors that do not fall into any of the specifically tabulated categories.
collisions	Number of messages retransmitted due to an Ethernet collision. This is usually the result of an overextended LAN (Ethernet or transceiver cable too long, more than two repeaters between stations, or too many cascaded multiport transceivers). A packet that collides is counted only once in output packets.
interface resets	Number of times an interface has been completely reset. This can happen if packets queued for transmission were not sent within several seconds. On a serial line, this can be caused by a malfunctioning modem that is not supplying the transmit clock signal, or by a cable problem. If the system notices that the carrier detect line of a serial interface is up, but the line protocol is down, it periodically resets the interface in an effort to restart it. Interface resets can also occur when an interface is looped back or shut down.
restarts	Number of times a Type 2 Ethernet controller was restarted because of errors.
babbles	The transmit jabber timer expired.
late collision	Number of late collisions. Late collision happens when a collision occurs after transmitting the preamble.

Table 4 Show DSI Command Output (continued)Fields

Field	Description
deferred	Deferred indicates that the chip had to defer while ready to transmit a frame because the carrier was asserted.
lost carrier	Number of times the carrier was lost during transmission.
no carrier	Number of times the carrier was not present during the transmission.
output buffer failures	Number of failed buffers and number of buffers swapped out.

1 Single Cell Input
2 Command Bus

Related Commands

You can use the master indexes or search online to find documentation of related commands.

show dsip clients
show dsip nodes
show dsip ports
show dsip queue
show dsip tracing
show dsip transport
show dsip version
show version

show dsip

To display all information about the Distributed System Interconnect Protocol (DSIP), use the **show dsip** EXEC command.

show dsip

Syntax Description

This command has no arguments or keywords.

Command Mode

EXEC

Usage Guidelines

This command first appeared in Cisco IOS Release 11.3(2)AA.

Your Cisco AS5800 universal access server uses a protocol used by the Cisco 7206 router shelf to communicate back and forth with the Cisco 5814 dial shelf controller card(s) and feature cards. Although dial shelf interconnect (DSI) configuration is transparent to the user, there are several show commands to help you view your setup, and debug commands to help you troubleshoot your system.

To display a subset of this information, use the **show dsip transport, show dsip clients**, **show dsip ports**, **show dsip queue**, **show dsip nodes**, and **show dsip version** commands.

Sample Display

The following is sample output from the **show dsip** command. For a description of the fields shown in the sample output, refer to the individual **show dsip** commands listed in the "Usage Guidelines" section.

```
router# show dsip

DSIP Transport Statistics:
 IPC : input msgs=8233, bytes=699488; output msgs=8233, bytes=483558
        total consumed ipc msgs=682;  total freed ipc msgs = 682
        transmit contexts in use = 11, free = 245, zombie = 0, invalid = 0
        ipc getmsg failures = 0, ipc timeouts=0
        core getbuffer failures=0, api getbuffer failures=0
      dsip test msgs rcvd = 2770, sent = 0
 CNTL: input msgs=1112, bytes=91272; output msgs=146, bytes=8760
        getbuffer failures=0
 DATA: input msgs=0, bytes=0; output msgs=426, bytes=5112

DSIP Private  Buffer Pool Hits  = 0

DSIP Registered Addresses:
 Shelf0 : Master: 00e0.b093.2238, Status=local
 Shelf1 : Slot1 : 0007.5387.4808, Status=remote
 Shelf1 : Slot5 : 0007.5387.4828, Status=remote
 Shelf1 : Slot6 : 0007.5387.4830, Status=remote
 Shelf1 : Slot7 : 0007.5387.4838, Status=remote
 Shelf1 : Slot8 : 0007.5387.4840, Status=remote
 Shelf1 : Slot9 : 0007.5387.4848, Status=remote
 Shelf1 : Slot11: 0007.5387.4858, Status=remote
 Shelf1 : Slot12: 0007.4b67.8260, Status=remote

DSIP Clients:
```

```
-------------
ID    Name
0   Console
1   Clock
2   Modem
3   Logger
4   Trunk
5   Async data
6   TDM
7   Dial shelf manager
8   Environment Mon
9   DSIP Test

Dsip Local Ports:
----------------
Client:Portname              Portid    In-Msgs   Bytes     Last-i/p
Console:Master               10004     0         0         never
Clock:Master                 10005     29        3464      00:00:40
Modem:Master                 10006     90        70162     00:23:44
Logger:Master                10007     0         0         never
Trunk:Master                 10008     1765      140480    00:00:08
Async data:Master            10009     0         0         never
TDM:Master                   1000A     7         112       00:24:19
Dial shelf manager:Master    1000B     28        4752      00:00:36
DSIP Test:Master              1000C     2922      2922      00:00:00

Dsip Remote Ports:
-----------------
Client:Portname              Portid    Out-Msgs  Bytes     Last-o/p  Last-act
Clock:Slave1                 101005F   1         24        00:24:21  00:24:21
Trunk:Slave1                 1010061   12        1776      00:24:21  00:24:21
Modem:Slave5                 1050050   96        2148      00:23:56  00:24:19
Modem:Slave6                 1060050   105       2040      00:24:00  00:24:22
Modem:Slave7                 1070050   106       2188      00:23:56  00:24:20
Modem:Slave8                 1080050   112       2212      00:24:13  00:24:35
Modem:Slave9                 1090050   115       2224      00:24:09  00:24:35
Modem:Slave11                10B0050   107       2192      00:24:09  00:24:32
Clock:Slave12                10C000D   1         24        00:24:37  00:24:37
Dial shelf manager:Slave12   10C000E   28        4752      00:00:49  00:24:35
DSIP Test:Slave12             10C000F   0         0         never  00:24:35

DSIP ipc queue:
---------------
There are 0 IPC messages waiting for acknowledgement in the transmit queue.
There are 0 messages currently in use by the system.


DSIP ipc seats:
---------------
There are 9 nodes in this IPC realm.
   ID     Type                 Name                          Last  Last
                                                             Sent  Heard
   10000 Local      IPC Master                                  0      0
 1060000 DSIP        Seat:Slave6                                10     10
 10C0000 DSIP        Seat:Slave12                               2963   13
 1080000 DSIP        Seat:Slave8                                10     10
 1090000 DSIP        Seat:Slave9                                10     10
 1010000 DSIP        Seat:Slave1                                16     16
 1070000 DSIP        Seat:Slave7                                10     10
 10B0000 DSIP        Seat:Slave11                               10     10
 1050000 DSIP        Seat:Slave5                                10     10

DSIP version information:
-------------------------
Local DSIP major version =  3,    minor version = 2
```

```
All DS slots are running DSIP versions compatible with RS

Local Clients Registered Versions:
-----------------------------------
Client Name      Major Version   Minor Version
Console          3               2
Clock            1               1
Modem            0               0
Logger           No version      No version
Trunk            No version      No version
Async data       No version      No version
TDM              No version      No version
DSIP Test        No version      No version

Mismatched  Remote Client Versions:
-----------------------------------
```

Related Commands

You can use the master indexes or search online to find documentation of related commands.

show dsip clients
show dsip nodes
show dsip ports
show dsip queue
show dsip tracing
show dsip transport
show dsip version
show version

show dsip clients

To display information about Distributed System Interconnect Protocol (DSIP) clients, use the **show dsip clients** EXEC command.

show dsip clients

Syntax Description

This command has no arguments or keywords.

Command Mode

EXEC

Usage Guidelines

This command first appeared in Cisco IOS Release 11.3(2)AA.

Use this command to see whether a client is actually registered with DSIP and using its services. For example, if the Client “Trunk” seems to be defunct on a particular node with absolutely no input/output activity. The command **show dsip ports** doesn't show any Trunk port among its local ports though all other client ports show up. The problem might be that the Trunk client didn't even register with DSIP. To confirm this, use the **show dsip clients** command.

Sample Display

The following is sample output from the **show dsip clients** command. This command lists the clients:

```
router# show dsip clients

ID    Name
0   Console
1   Clock
2   Modem
3   Logger
4   Trunk
5   Async data
6   TDM
7   Dial shelf manager
8   Environment Mon
9   DSIP Test
```

Related Commands

You can use the master indexes or search online to find documentation of related commands.

show dsip nodes
show dsip ports
show dsip queue
show dsip tracing
show dsip transport
show dsip version
show version

show dsip nodes

To display information about the processors running the Distributed System Interconnect Protocol (DSIP), use the **show dsip nodes** EXEC command.

show dsip nodes

Syntax Description

This command has no arguments or keywords.

Command Mode

EXEC

Usage Guidelines

This command first appeared in Cisco IOS Release 11.3(2)AA.

Use **show dsip nodes** to see the nodes (slots) connected by DSIP and the node specific sequence numbers. The former information is also available from **show dsip transport**. The sequence numbers are useful for support engineers while debugging a problem.

Sample Display

The following is sample output from the **show dsip nodes** command:

```
router# show dsip nodes

DSIP ipc nodes:
---------------
There are 9 nodes in this IPC realm.
   ID     Type                 Name                        Last  Last
                                                           Sent  Heard
   10000 Local      IPC Master                               0      0
 1130000 DSIP       Dial Shelf:Slave12                       12     12
 1080000 DSIP       Dial Shelf:Slave1                        1      1
 10A0000 DSIP       Dial Shelf:Slave3                        1      1
 10C0000 DSIP       Dial Shelf:Slave5                        1      1
 10D0000 DSIP       Dial Shelf:Slave6                        1      1
 10E0000 DSIP       Dial Shelf:Slave7                        1      1
 10F0000 DSIP       Dial Shelf:Slave8                        1      1
 1100000 DSIP       Dial Shelf:Slave9                        1      1
```

The following table describes the fields shown in the **show dsip** display.

Table 5 Show DSIP Nodes Command Output

Field	Description
ID	DSIP uses Cisco's IPC (Inter Process Communication) module for non-data related (client control messages etc.) traffic. A seat or node is a computational element, such as a processor, that can be communicated with using IPC services. A seat is where entities and IPC ports reside. The IPC maintains a seat table which contains the seatids of all the seats in the system. Normally this seatid is a function of the slot number.
Type	Local: Local node DSIP: Remote DSIP node

Field	Description
Name	Each seat (node) has a name to easily identify it. There is only one master node and rest are slave nodes. The master node name is “IPC Master” and the slave node name is “Seat:Slave X", where “X” is the slot number of the node.
Last Sent/Last Heard	Each node maintains two sequence numbers for the last sent and last heard.
Last Sent	Whenever a message is sent out 'last sent' counter is updated.
Last Heard	Whenever a message is received from a remote node, 'last heard' is updated.

Related Commands

You can use the master indexes or search online to find documentation of related commands.

show dsip clients
show dsip ports
show dsip queue
show dsip tracing
show dsip transport
show dsip version
show version

show dsip ports

To display information about local and remote ports, use the **show dsip ports** EXEC command.

show dsip ports [**local | remote** [*slot*]]

Syntax Description

The DSIP communication going through the IPC stack uses ports. The creation of a port returns a 32-bit portid which is the end-point for communication between two IPC clients.

local	(Optional) Display information for local ports. The local port is the port created at a seat's local end.
remote [*slot*]	(Optional) Display information for remote ports. The remote port is the ports residing on a remote seat to which DSIP IPC based connection is open. (Optional) Specify a slot number to display information for a specific card on the dial shelf.

Default

If no options are specified, information is displayed for both local and remote ports.

Command Mode

EXEC

Usage Guidelines

This command first appeared in Cisco IOS Release 11.3(2)AA.

The **show dsip ports** command is used to check clients up and running:

- to see the local ports that are created and the activity on them
- to see the remote ports to which we are connected and to see the activity on them

Sample Display

The following is sample output from the **show dsip port** command:

```
router# show dsip ports

Dsip Local Ports:
----------------
Client:Portname             Portid    In-Msgs   Bytes     Last-i/p
Console:Master              10004     0         0         never
Clock:Master                10005     16        1800      00:00:05
Modem:Master                10006     90        70162     00:10:08
Logger:Master               10007     0         0         never
Trunk:Master                10008     792       62640     00:00:03
Async data:Master           10009     0         0         never
TDM:Master                  1000A     7         112       00:10:44
Dial shelf manager:Master   1000B     15        2256      00:00:27
DSIP Test:Master            1000C     1294      1294      00:00:00
```

```
Dsip Remote Ports:
------------------
Client:Portname              Portid    Out-Msgs  Bytes     Last-o/p  Last-act
Clock:Slave1                 101005F   1         24        00:10:46  00:10:46
Trunk:Slave1                 1010061   12        1776      00:10:46  00:10:46
Modem:Slave5                 1050050   96        2148      00:10:21  00:10:44
Modem:Slave6                 1060050   105       2040      00:10:25  00:10:48
Modem:Slave7                 1070050   106       2188      00:10:21  00:10:45
Modem:Slave8                 1080050   112       2212      00:10:25  00:10:47
Modem:Slave9                 1090050   115       2224      00:10:39  00:11:05
Modem:Slave11                10B0050   107       2192      00:10:39  00:11:02
Clock:Slave12                10C000D   1         24        00:11:07  00:11:07
Dial shelf manager:Slave12   10C000E   15        2256      00:00:45  00:11:05
DSIP Test:Slave12             10C000F   0         0         never  00:11:05
```

The following table describes the fields shown in the **show dsip ports** display.

Table 6 Show DSIP Ports Command Output

Field	Description
Client:Portname	Client name and port name. Port Name. The port names can be determined because they are based on a uniform naming convention that includes the following elements: • client name • master/slave status • slot number Any client can derive the portname of the other client it wants to talk to once it knows its physical location, using the following formula: **Master/Slave Status** — **Port Name Syntax** Master — *Client-Name***:Master**, for example, Console:Master Slave — *Client-Name***:Slave***Slot*, for example, Clock:Slave1
Portid	Port ID. The Portid is a 32-bit identifier comprised of **seatid** and the **port-number**. The IPC maintains a seat table which contains the seatids of all the seats in the system. A seat is where clients and ports reside. The seatid is a function of the slot number. Port-number is the sequential number of the port that is being created on a particular seat, for example: 0,1, 2, etc.
In-Msgs/	The total number of input messages that were received on a particular port.
Out-Msgs	The total number of output messages that were sent to a particular remote port.
Bytes(in/out)	The total number of bytes that were received on a particular port or sent to a remote port. The number of bytes on this port up to the time of the execution of the **show** command.
Last-i/p	Elapsed time since the last input was received on a local port.
Last-o/p	Elapsed time since the last message was sent to a particular remote port.
Last-act	Elapsed time since the connection to a remote port was opened.

Related Commands

You can use the master indexes or search online to find documentation of related commands.

show dsip clients
show dsip nodes
show dsip queue
show dsip tracing

show dsip transport
show dsip version
show version

show dsip queue

To display the number of messages in the retransmit queue waiting for acknowledgment, use the **show dsip queue** EXEC command.

show dsip queue

Syntax Description

This command has no arguments or keywords.

Command Mode

EXEC

Usage Guidelines

This command first appeared in Cisco IOS Release 11.3(2)AA.

Sample Display

The following is sample output from the **show dsip queue** command when the system is operating correctly:

```
router# show dsip queue

DSIP ipc queue:
---------------
There are 0 IPC messages waiting for acknowledgment in the transmit queue.
There are 0 messages currently in use by the system.
```

IPC is inter-process communication. Processes communicate by exchanging messages held in queue buffers.

Related Commands

You can use the master indexes or search online to find documentation of related commands.

show dsip clients
show dsip nodes
show dsip ports
show dsip tracing
show dsip transport
show dsip version
show version

show dsip tracing

To display Distributed System Interconnect Protocol (DSIP) tracing buffer information, use the **show dsip tracing** EXEC command.

show dsip tracing [**control** | **data** | **ipc**] [*slot* | **entries** *entry-number* [*slot*]]

Syntax Description

control	(Optional) Display the control tracing buffer.
data	(Optional) Display the data tracing buffer.
ipc	(Optional) Display the inter-process communication tracing buffer.
slot	(Optional) Specify a specific slot number on the dial shelf. Slot number can be 0 to 14.
entries *entry-number*	(Optional) Specify the number of entries to trace. Entries can be 1 to 500.

Command Mode

EXEC

Usage Guidelines

This command first appeared in Cisco IOS Release 11.3(2)AA.

This feature allows logging of DSIP media header information. Use the **show dsip tracing** command to obtain important information of the various classes of DSIP packets (Control/Data/IPC) coming in. You must first use the **debug dsip trace** command then use the **show dsip tracing** command to display the logged contents. To clear the information, use the **clear dsip tracing** EXEC command.

Sample Display

The following is sample output from the **show dsip tracing** command:

```
router# debug dsip tracing
DSIP tracing debugging is on
router#
router# show dsip tracing
Dsip Control Packet Trace:
------------------------------------------------------------------------------
Dest:00e0.b093.2238 Src:0007.5387.4808 Type:200B SrcShelf:1 SrcSlot:1 MsgType:0
MsgLen:82 Timestamp: 00:00:03
------------------------------------------------------------------------------
Dest:00e0.b093.2238 Src:0007.5387.4838 Type:200B SrcShelf:1 SrcSlot:7 MsgType:0
MsgLen:82 Timestamp: 00:00:03
------------------------------------------------------------------------------
Dest:00e0.b093.2238 Src:0007.4b67.8260 Type:200B SrcShelf:1 SrcSlot:12 MsgType:0
MsgLen:82 Timestamp: 00:00:03
------------------------------------------------------------------------------
Dest:00e0.b093.2238 Src:0007.5387.4858 Type:200B SrcShelf:1 SrcSlot:11 MsgType:0
MsgLen:82 Timestamp: 00:00:03
------------------------------------------------------------------------------
Dest:00e0.b093.2238 Src:0007.5387.4848 Type:200B SrcShelf:1 SrcSlot:9 MsgType:0
MsgLen:82 Timestamp: 00:00:03
```

The following table describes the fields shown in the s**how dsip tracing** output display:

Table 7 Show DSIP Tracing Command Output

Field	Description
Dest	The destination MAC address in the DSIP packet.
Src	The source MAC address in the DSIP packet.
Type	There are three types of DSIP packets: • Control—0x200B • IPC—0x200C • Data—0x200D
SrcShelf	The source shelfid of the DSIP packet.
SrcSlot	The source slot of the DSIP packet.
MsgType	Used to further demultiplex Data packets. Not used for Control and IPC type packets.
MsgLen	Length of the message excluding the DSIP header
Timestamp	Time elapsed since the packet was received.

Related Commands

You can use the master indexes or search online to find documentation of related commands.

show dsip clients
show dsip nodes
show dsip ports
show dsip queue
show dsip transport
show dsip version
show version

show dsip transport

To display information about the Distributed System Interconnect Protocol (DSIP) transport statistics for the control/data and IPC packets and registered addresses, use the **show dsip transport** EXEC command.

show dsip transport

Syntax Description

This command has no arguments or keywords.

Command Mode

EXEC

Usage Guidelines

This command first appeared in Cisco IOS Release 11.3(2)AA.

Sample Display

The following is sample output from the **show dsip transport** command:

```
router# show dsip transport
DSIP Transport Statistics:
 IPC : input msgs=4105, bytes=375628; output msgs=4105, bytes=248324
        total consumed ipc msgs=669;  total freed ipc msgs = 669
        transmit contexts in use = 11, free = 245, zombie = 0, invalid = 0
        ipc getmsg failures = 0, ipc timeouts=0
        core getbuffer failures=0, api getbuffer failures=0
      dsip test msgs rcvd = 1200, sent = 0
 CNTL: input msgs=488, bytes=40104; output msgs=68, bytes=4080
        getbuffer failures=0
 DATA: input msgs=0, bytes=0; output msgs=426, bytes=5112

DSIP Private  Buffer Pool Hits  = 0

DSIP Registered Addresses:
 Shelf0 : Master: 00e0.b093.2238, Status=local
 Shelf1 : Slot1 : 0007.5387.4808, Status=remote
 Shelf1 : Slot5 : 0007.5387.4828, Status=remote
 Shelf1 : Slot6 : 0007.5387.4830, Status=remote
 Shelf1 : Slot7 : 0007.5387.4838, Status=remote
 Shelf1 : Slot8 : 0007.5387.4840, Status=remote
 Shelf1 : Slot9 : 0007.5387.4848, Status=remote
 Shelf1 : Slot11: 0007.5387.4858, Status=remote
 Shelf1 : Slot12: 0007.4b67.8260, Status=remote
router#
```

The following table describes the fields shown in the s**how dsip transport** display:

Table 8 Show DSIP Transport Command Output

Field	Description
DSIP Transport Statistics:	There are basically three kinds of communication channels between the DSIP modules running on two processors: **1** IPC: DSIP IPC-based reliable/best-effort channel **2** CNTL: Control packet channel for DSIP modules to communicate between themselves. For example, keepalive messages and initial handshake messages between two DSIP modules are exchanged over this channel. **3** DATA: DSIP fast data packet channel.
input msgs/output msgs	The number of input/output packets on a particular channel
bytes	input bytes. The number of input bytes on a particular channel Number of bytes of messages received or sent.
total consumed ipc msgs	The total number of IPC messages consumed so far from the IPC buffer pool.
total freed ipc msgs	The total number of IPC messages returned to the IPC buffer pool so far.
transmit contexts in use	DSIP for each active reliable connection to a remote port keeps a transmit context. This context holds all the important information pertaining to the remote connection, such as, destination portid, port name, number of message and bytes sent to that port etc. This is created when first time a connection is opened to a remote port and is reused for all subsequent communication to that port.
free	Free transmit contexts in available
zombie	When DSIP tears down a connection to a remote slot, all the transmit contexts to that slot should return to the free pool. But instead of immediately returning to the free pool, all such contexts first end up on a zombie queue, spend their last few seconds here and then eventually return to the free queue.
invalid	Each transmit context has a magic number. While returning contexts to the free queue, if any transmit context is found to be corrupted, then it is marked as invalid and is not returned to the free queue.
ipc getmsg failures	Number of times we failed to get an ipc message.
ipc timeouts	The retry timeouts of the reliable DSIP transport stack.
core getbuffer failures	The number of times DSIP transport layer has failed to allocate buffers for the IPC transport.
aip getbuffer failures	The number of times DSIP transport has failed to allocate buffers while preparing to transmit data received from the clients.
dsip test msgs received/sent	The DSIP test messages received and sent by invoking received/sent the “DSIP Test” client.
DSIP Private Buffer Pool Hits	DSIP by default gets all its buffers from the public buffer pools. If for some reason, it runs out of those buffers, it falls back on a DSIP private pool. This number indicates the number of times DSIP has used this fallback pool.
DSIP Registered Addresses	The MAC addresses of nodes (slots) participating in DSIP communication including the local node. The master sees N slaves whereas slave sees only master (excluding themselves). The information is presented in the following form: Shelf*X*: Master | Slot*Y* : *MAC Address* : Status= local | remote

Related Commands

You can use the master indexes or search online to find documentation of related commands.

show dsip clients
show dsip nodes
show dsip ports
show dsip queue
show dsip tracing
show dsip version
show version

show dsip version

To display Distributed System Interconnect Protocol (DSIP) version information, use the **show dsip version** EXEC command.

show dsip version

Syntax Description

This command has no arguments or keywords.

Command Mode

EXEC

Usage Guidelines

This command first appeared in Cisco IOS Release 11.3(2)AA.

Sample Display

The following is sample output from the **show dsip version** command:

```
router# show dsip version

DSIP version information:
------------------------
Local DSIP major version = 5,    minor version = 2

All feature boards are running DSIP versions compatible with router shelf

Local Clients Registered Versions:
----------------------------------
Client Name      Major Version   Minor Version
Console          52
Clock            1               1
Modem            0               0
Logger           No version      No version
Trunk            No version      No version
Async data       No version      No version
TDM              No version      No version
DSIP Test        No version      No version

Mismatched  Remote Client Versions:
---------------------------------
```

DSIP is version-controlled software which should be identified and kept current.

Related Command

show dsip clients
show dsip nodes
show dsip ports
show dsip queue
show dsip tracing
show dsip transport
show version

show modem

To display a high-level performance report for all the modems or a single modem inside an access server or router, use the **show modem** EXEC command.

show modem [*shelf*/*slot*/*port* | **group** *number* | **summary status**] (Cisco AS5800)

show modem [*slot*/*port* | **group** *number*] (Cisco AS5200, Cisco AS5300)

Syntax Description

shelf/*slot*/*port*	(Optional) Specifies the unique numbered location of a dial shelf, slot, and modem port. If this number is not specified, statistics for all connected modems are displayed. (The Cisco AS5800 is a rack system that uses a shelf parameter in addition to the slot and port number of the Cisco AS5200 and Cisco AS5300.) You must type the forward slashes (/).
group *number*	(Optional) Specifies a modem group to which a specified modem belongs. The group number range is between 1 and 200. The number of the Group-Async to which the modem is assigned. 0 means the modem is not part of any group.
summary status	(Optional) This keyword shows summary information for each dial shelf, slot, and modem port, such as, modem type, activity status, duration, and signal status. (See the example under the subsection, "Sample Displays."

Command Mode

EXEC

Usage Guidelines

This command first appeared in Cisco IOS Release 11.2. This command has been updated to reflect some changes up to and including Cisco IOS release 11.3(7)AA.

Unmanaged modems do not report in certain fields. This is denoted by a dash (-) in the unreported cell of the report output matrix.

Sample Displays

The following is sample output from the **show modem** command on a Cisco AS5800 running Cisco IOS release 11.3(6)AA:

```
5800# show modem
             Inc calls      Out calls   Busied   Failed   No      Succ
  Mdm    Usage    Succ   Fail   Succ   Fail  Out    Dial     Answer   Pct.
  1/11/00   0%       1      0      0      0    0        0       0     100%
  1/11/01   0%       1      0      0      0    0        0       0     100%
  1/11/02   0%       1      0      0      0    0        0       0     100%
  1/11/03   0%       1      0      0      0    0        0       0     100%
  1/11/04   0%       1      0      0      0    0        0       0     100%
  1/11/05   0%       1      0      0      0    0        0       0     100%
  1/11/06   0%       1      0      0      0    0        0       0     100%
  1/11/07   0%       1      0      0      0    0        0       0     100%
  1/11/08   0%       1      0      0      0    0        0       0     100%
  1/11/09   0%       1      0      0      0    0        0       0     100%
  1/11/10   0%       1      0      0      0    0        0       0     100%
```

```
   1/11/11   0%       1      0      0      0      0       0      0     100%
   1/11/12   0%       1      0      0      0      0       0      0     100%
   1/11/13   0%       1      0      0      0      0       0      0     100%
   1/11/14   0%       1      0      0      0      0       0      0     100%
 * 1/11/15   0%       1      0      0      0      0       0      0     100%
 * 1/11/16   0%       1      0      0      0      0       0      0     100%
 * 1/11/17   0%       1      0      0      0      0       0      0     100%
 * 1/11/18   0%       1      0      0      0      0       0      0     100%
 * 1/11/19   0%       1      0      0      0      0       0      0     100%
 * 1/11/20   0%       1      0      0      0      0       0      0     100%
 * 1/11/21   0%       1      0      0      0      0       0      0     100%
 * 1/11/22   0%       1      0      0      0      0       0      0     100%
 * 1/11/23   0%       1      0      0      0      0       0      0     100%
 * 1/11/24   0%       1      0      0      0      0       0      0     100%
 * 1/11/25   0%       1      0      0      0      0       0      0     100%
 * 1/11/26   0%       1      0      0      0      0       0      0     100%
 * 1/11/27   0%       1      0      0      0      0       0      0     100%
 * 1/11/28   0%       1      0      0      0      0       0      0     100%
   1/11/29   0%       0      0      0      0      0       0      0       0%
   1/11/30   0%       0      0      0      0      0       0      0       0%
   1/11/31   0%       0      0      0      0      0       0      0       0%
   1/11/32   0%       0      0      0      0      0       0      0       0%
   1/11/33   0%       0      0      0      0      0       0      0       0%
   1/11/34   0%       0      0      0      0      0       0      0       0%
   1/11/35   0%       0      0      0      0      0       0      0       0%
   1/11/36   0%       0      0      0      0      0       0      0       0%
   1/11/37   0%       0      0      0      0      0       0      0       0%
   1/11/38   0%       0      0      0      0      0       0      0       0%
   1/11/39   0%       0      0      0      0      0       0      0       0%
   1/11/40   0%       0      0      0      0      0       0      0       0%
   1/11/41   0%       0      0      0      0      0       0      0       0%
   1/11/42   0%       0      0      0      0      0       0      0       0%
   1/11/43   0%       0      0      0      0      0       0      0       0%
   1/11/44   0%       0      0      0      0      0       0      0       0%
   1/11/45   0%       0      0      0      0      0       0      0       0%
   1/11/46   0%       0      0      0      0      0       0      0       0%
   1/11/47   0%       0      0      0      0      0       0      0       0%
   1/11/48   0%       0      0      0      0      0       0      0       0%
   1/11/49   0%       0      0      0      0      0       0      0       0%
   1/11/50   0%       0      0      0      0      0       0      0       0%
   1/11/51   0%       0      0      0      0      0       0      0       0%
   1/11/52   0%       0      0      0      0      0       0      0       0%
   1/11/53   0%       0      0      0      0      0       0      0       0%
   1/11/54   0%       0      0      0      0      0       0      0       0%
   1/11/55   0%       0      0      0      0      0       0      0       0%
   1/11/56   0%       0      0      0      0      0       0      0       0%
   1/11/57   0%       0      0      0      0      0       0      0       0%
   1/11/58   0%       0      0      0      0      0       0      0       0%
   1/11/59   0%       0      0      0      0      0       0      0       0%
   1/11/60   0%       0      0      0      0      0       0      0       0%
   1/11/61   0%       0      0      0      0      0       0      0       0%
   1/11/62   0%       0      0      0      0      0       0      0       0%
   1/11/63   0%       0      0      0      0      0       0      0       0%
   1/11/64   0%       0      0      0      0      0       0      0       0%
   1/11/65   0%       0      0      0      0      0       0      0       0%
   1/11/66   0%       0      0      0      0      0       0      0       0%
   1/11/67   0%       0      0      0      0      0       0      0       0%
   1/11/68   0%       0      0      0      0      0       0      0       0%
   1/11/69   0%       0      0      0      0      0       0      0       0%
   1/11/70   0%       0      0      0      0      0       0      0       0%
   1/11/71   0%       0      0      0      0      0       0      0       0%
```

The following is sample output from the **show modem** command specifying dial shelf, slot, and modem port on a Cisco AS5800 running Cisco IOS release 11.3(6)AA:

```
5800# show modem 1/11/15
     Mdm  Typ     Status     Tx/Rx     G  Duration  RTS   CTS   DCD   DTR
     ---  ---     ------     -----     -  --------  ---   ---   ---   ---
  1/11/15 V.34+   Conn    31200/33600  0  00:31:34  RTS   CTS   DCD   DTR

Modem 1/11/15, Cisco MICA modem (Managed), Async1/11/15, TTY1743
Firmware Rev: 2.3.1.0
Modem config: Incoming and Outgoing
Protocol: LAP-M, Compression: V.42bis both
Management config: Status polling
RX signals: -12 dBm

  Last clearing of "show modem" counters never
    1 incoming completes, 0 incoming failures
    0 outgoing completes, 0 outgoing failures
    0 failed dial attempts, 0 ring no answers, 0 busied outs
    0 no dial tones, 0 dial timeouts, 0 watchdog timeouts
    0 no carriers, 0 link failures, 0 resets, 0 recover oob
    0 protocol timeouts, 0 protocol errors, 0 lost events

Transmit Speed Counters:

Connection Speeds         75      300      600     1200     2400     4800
# of connections           0        0        0        0        0        0
Connection Speeds       7200     9600    12000    14400    16800    19200
# of connections           0        0        0        0        0        0
Connection Speeds      21600    24000    26400    28000    28800    29333
# of connections           0        0        0        0        0        0
Connection Speeds      30667    31200    32000    33333    33600    34000
# of connections           0        1        0        0        0        0
Connection Speeds      34667    36000    37333    38000    38667    40000
# of connections           0        0        0        0        0        0
Connection Speeds      41333    42000    42667    44000    45333    46000
# of connections           0        0        0        0        0        0
Connection Speeds      46667    48000    49333    50000    50667    52000
# of connections           0        0        0        0        0        0
Connection Speeds      53333    54000    54667    56000
# of connections           0        0        0        0

Receive Speed Counters:

Connection Speeds         75      300      600     1200     2400     4800
# of connections           0        0        0        0        0        0
Connection Speeds       7200     9600    12000    14400    16800    19200
# of connections           0        0        0        0        0        0
Connection Speeds      21600    24000    26400    28000    28800    29333
# of connections           0        0        0        0        0        0
Connection Speeds      30667    31200    32000    33333    33600    34000
# of connections           0        0        0        0        1        0
Connection Speeds      34667    36000    37333    38000    38667    40000
# of connections           0        0        0        0        0        0
Connection Speeds      41333    42000    42667    44000    45333    46000
# of connections           0        0        0        0        0        0
Connection Speeds      46667    48000    49333    50000    50667    52000
# of connections           0        0        0        0        0        0
Connection Speeds      53333    54000    54667    56000
# of connections           0        0        0        0
```

The following table describes the fields in the previous displays, which were created using the **show modem** *shelf/slot/port* command. This table applies to all modem module types.

Show Modem Slot/Port Field Descriptions

Field	Description
Mdm	Slot and modem number.
Typ	Modulation type, which can be any of the following values: Bel103, Bel212, V21, V22, V22bis, V23, V32, V32bis, VFC, V34, V.34+, V17, V27, V33, V.90 and K56Flx
Status	Current status of the modem. Possible values include: • Conn—Modem is connected to a remote host. • B—Inoperable state, which is configured by the **modem bad** command. • B*—Inoperable state, which is configured by the **modem startup-test** command during initial power-up testing. • b—Modem is busied out. This can be manually configured by the **modem busyout** line configuration command. • 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.
Tx/Rx	Transmission and receiving speed for the most recently connected call.
G	Modem group number assigned to the modem. The group number 0 means the modem is not part of any group.
Duration	Time duration of the current call or the last call.
Modem functions	The following modem functions are displayed on manageable modems. A field that is available and turned on is marked with an *x*. An unavailable field is marked with a dash (-). TX—Transmit Data. The DTE transmits data to the DCE. RX—Receive Data. The DCE receives data from the DTE. RTS—Request To Send. The DTE signals to the DCE that the DTE accepts data into its buffers. CTS—Clear To Send. The DCE signals to the DTE that the DCE accepts data into its buffers. DSR—Data Set Ready. The modem is ready to start communication. DCD—Data Carrier Detect. The DCE indicates to the DTE that a call is present and established with a remote modem. Dropping the DCD function terminates the session. DTR—Data Terminal Ready. The DTE indicates to the DCE that it accepts calls.
Firmware	Installed modem firmware.
Modem config	Current modem configuration, which includes the fields Incoming, Outgoing, Incoming and Outgoing, and Unknown.
Protocol	Protocol the modem is running such as Normal, Direct, reliable/MNP4, and reliable/LAPM (Link Access Procedure for Modems).
Compression	Compression algorithm running on the modem, such as None, V42bis, and MNP5.
Management config	Indicates if the modem is configured for out-of-band feature polling.
TX signals	Transmit signal levels. For modulations that do not support signal to noise calculations, the ratio is 0.
RX signals	Transmit signal levels.

Show Modem Slot/Port Field Descriptions (continued)

Field	Description
Last clearing of "show modem" counters	Last time the modem's counters were cleared using the **clear modem counters** command. A summary of modem events also appears. • Incoming completes and failures—Total number of incoming connection requests that the modem answered and successfully or unsuccessfully connected with the remote DCE. • Outgoing completes and failures—Total number of outgoing connection requests that the modem dialed and successfully or unsuccessfully connected with the remote DCE. • Failed dial attempts—Number of times the modem attempted to dial out but the call failed to leave the modem. • Ring no answers—Number of times the integrated modem detected ringing but did not answer the incoming call. • Busied outs—Number of times the integrated modem was intentionally taken out of service (for example, the **modem busyout** command was enabled on the modem). • No dial tones—Number of times the dial-out attempt failed because the modem failed to detect a dial tone. • Dial timeouts—Number of times the modem has timed out while attempting to dial. • Watchdog timeouts—Number of times the modem internal watchdog timer has expired. • No carriers—Number of times the modem disconnected because no carrier was present. • Link failures—Number of times the modem has detected a link failure. • Resets—Number of times the modem has been reset. • recover oob—Number of times the out-of-band feature has been cleared and re-initialized. • Protocol timeouts and errors—Number of times the modem protocol failed to make a call connection. • Lost events—Number of incomplete modem events performed by the modem.
Transmit Speed Counters:	List of connection speeds that were transmitted by the modem.
Receive Speed Counters:	List of connection speeds that were received by the modem.
Connection Speeds # of connections	A complete summary of possible connection speeds and the actual number of connections that occurred at those speeds. Depending on which modem port module and version of software you are running, possible connection speeds range from 75 to 56,000 bps. The number of successful connections are displayed directly beneath the connection speed identifier. For example, the following output shows that three connections were made at 56 kbps. Connection Speeds 56000 # of connections 3

The following is sample output from the **show modem summary status** command, which was introduced in Cisco IOS release 11.3(7)AA:

```
5800# show modem summary status
     Mdm  Typ     Status     Tx/Rx     G  Duration  RTS   CTS   DCD   DTR
     ---  ---     ------     -----     -  --------  ---   ---   ---   ---
   1/11/00 V.34+   Idle    31200/33600  0  00:19:11  RTS   CTS   noDCD DTR
   1/11/01 V.34+   Idle    28800/33600  0  00:00:22  RTS   CTS   noDCD DTR
```

```
1/11/02 V.34+   Idle    31200/33600  0  00:00:19  RTS   CTS   noDCD DTR
1/11/03 V.34+   Idle    31200/33600  0  00:00:19  RTS   CTS   noDCD DTR
1/11/04 V.34+   Idle    31200/33600  0  00:00:19  RTS   CTS   noDCD DTR
1/11/05 V.34+   Idle    31200/33600  0  00:00:19  RTS   CTS   noDCD DTR
1/11/06 V.34+   Idle    31200/33600  0  00:00:19  RTS   CTS   noDCD DTR
1/11/07 V.34+   Idle    31200/33600  0  00:00:19  RTS   CTS   noDCD DTR
1/11/08 V.34+   Idle    31200/33600  0  00:00:19  RTS   CTS   noDCD DTR
1/11/09 V.34+   Idle    31200/33600  0  00:00:19  RTS   CTS   noDCD DTR
1/11/10 V.34+   Idle    31200/33600  0  00:00:19  RTS   CTS   noDCD DTR
1/11/11 V.34+   Idle    31200/33600  0  00:00:19  RTS   CTS   noDCD DTR
1/11/12 V.34+   Idle    31200/33600  0  00:00:19  RTS   CTS   noDCD DTR
1/11/13 V.34+   Idle    31200/33600  0  00:00:19  RTS   CTS   noDCD DTR
1/11/14 V.34+   Idle    31200/33600  0  00:00:19  RTS   CTS   noDCD DTR
1/11/15 V.34+   Conn    31200/33600  0  00:31:22  RTS   CTS   DCD   DTR
1/11/16 V.34+   Conn    31200/33600  0  00:30:49  RTS   CTS   DCD   DTR
1/11/17 V.34+   Conn    31200/33600  0  00:30:30  RTS   CTS   DCD   DTR
1/11/18 V.34+   Conn    31200/33600  0  00:30:15  RTS   CTS   DCD   DTR
1/11/19 V.34+   Conn    31200/33600  0  00:30:00  RTS   CTS   DCD   DTR
1/11/20 V.34+   Conn    31200/33600  0  00:29:21  RTS   CTS   DCD   DTR
1/11/21 V.34+   Conn    31200/33600  0  00:29:16  RTS   CTS   DCD   DTR
1/11/22 V.34+   Conn    31200/33600  0  00:29:11  RTS   CTS   DCD   DTR
1/11/23 V.34+   Conn    31200/33600  0  00:29:06  RTS   CTS   DCD   DTR
1/11/24 V.34+   Conn    31200/33600  0  00:29:02  RTS   CTS   DCD   DTR
1/11/25 V.34+   Conn    31200/33600  0  00:28:57  RTS   CTS   DCD   DTR
1/11/26 V.34+   Conn    31200/33600  0  00:28:51  RTS   CTS   DCD   DTR
1/11/27 V.34+   Conn    31200/33600  0  00:28:46  RTS   CTS   DCD   DTR
1/11/28 V.34+   Conn    31200/33600  0  00:28:41  RTS   CTS   DCD   DTR
1/11/29 (n/a)   Idle        0/0     0  00:00:00  RTS   CTS   noDCD DTR
1/11/30 (n/a)   Idle        0/0     0  00:00:00  RTS   CTS   noDCD DTR
1/11/31 (n/a)   Idle        0/0     0  00:00:00  RTS   CTS   noDCD DTR
1/11/32 (n/a)   Idle        0/0     0  00:00:00  RTS   CTS   noDCD DTR
1/11/33 (n/a)   Idle        0/0     0  00:00:00  RTS   CTS   noDCD DTR
1/11/34 (n/a)   Idle        0/0     0  00:00:00  RTS   CTS   noDCD DTR
1/11/35 (n/a)   Idle        0/0     0  00:00:00  RTS   CTS   noDCD DTR
1/11/36 (n/a)   Idle        0/0     0  00:00:00  RTS   CTS   noDCD DTR
1/11/37 (n/a)   Idle        0/0     0  00:00:00  RTS   CTS   noDCD DTR
1/11/38 (n/a)   Idle        0/0     0  00:00:00  RTS   CTS   noDCD DTR
1/11/39 (n/a)   Idle        0/0     0  00:00:00  RTS   CTS   noDCD DTR
1/11/40 (n/a)   Idle        0/0     0  00:00:00  RTS   CTS   noDCD DTR
1/11/41 (n/a)   Idle        0/0     0  00:00:00  RTS   CTS   noDCD DTR
1/11/42 (n/a)   Idle        0/0     0  00:00:00  RTS   CTS   noDCD DTR
1/11/43 (n/a)   Idle        0/0     0  00:00:00  RTS   CTS   noDCD DTR
1/11/44 (n/a)   Idle        0/0     0  00:00:00  RTS   CTS   noDCD DTR
1/11/45 (n/a)   Idle        0/0     0  00:00:00  RTS   CTS   noDCD DTR
1/11/46 (n/a)   Idle        0/0     0  00:00:00  RTS   CTS   noDCD DTR
1/11/47 (n/a)   Idle        0/0     0  00:00:00  RTS   CTS   noDCD DTR
1/11/48 (n/a)   Idle        0/0     0  00:00:00  RTS   CTS   noDCD DTR
1/11/49 (n/a)   Idle        0/0     0  00:00:00  RTS   CTS   noDCD DTR
1/11/50 (n/a)   Idle        0/0     0  00:00:00  RTS   CTS   noDCD DTR
1/11/51 (n/a)   Idle        0/0     0  00:00:00  RTS   CTS   noDCD DTR
1/11/52 (n/a)   Idle        0/0     0  00:00:00  RTS   CTS   noDCD DTR
1/11/53 (n/a)   Idle        0/0     0  00:00:00  RTS   CTS   noDCD DTR
1/11/54 (n/a)   Idle        0/0     0  00:00:00  RTS   CTS   noDCD DTR
1/11/55 (n/a)   Idle        0/0     0  00:00:00  RTS   CTS   noDCD DTR
1/11/56 (n/a)   Idle        0/0     0  00:00:00  RTS   CTS   noDCD DTR
1/11/57 (n/a)   Idle        0/0     0  00:00:00  RTS   CTS   noDCD DTR
1/11/58 (n/a)   Idle        0/0     0  00:00:00  RTS   CTS   noDCD DTR
1/11/59 (n/a)   Idle        0/0     0  00:00:00  RTS   CTS   noDCD DTR
1/11/60 (n/a)   Idle        0/0     0  00:00:00  RTS   CTS   noDCD DTR
1/11/61 (n/a)   Idle        0/0     0  00:00:00  RTS   CTS   noDCD DTR
1/11/62 (n/a)   Idle        0/0     0  00:00:00  RTS   CTS   noDCD DTR
1/11/63 (n/a)   Idle        0/0     0  00:00:00  RTS   CTS   noDCD DTR
1/11/64 (n/a)   Idle        0/0     0  00:00:00  RTS   CTS   noDCD DTR
1/11/65 (n/a)   Idle        0/0     0  00:00:00  RTS   CTS   noDCD DTR
1/11/66 (n/a)   Idle        0/0     0  00:00:00  RTS   CTS   noDCD DTR
```

```
1/11/67 (n/a)   Idle        0/0      0  00:00:00  RTS   CTS   noDCD DTR
1/11/68 (n/a)   Idle        0/0      0  00:00:00  RTS   CTS   noDCD DTR
1/11/69 (n/a)   Idle        0/0      0  00:00:00  RTS   CTS   noDCD DTR
1/11/70 (n/a)   Idle        0/0      0  00:00:00  RTS   CTS   noDCD DTR
1/11/71 (n/a)   Idle        0/0      0  00:00:00  RTS   CTS   noDCD DTR
```

The following table describes the display output fields shown in the previous displays of the **show modem** command for the Cisco AS5800.

Table 9 Show Modem Field Descriptions

Field	Description
Mdm	Slot and modem port number. Also, the following modem states can appear to the left of a slot/modem port number: b—Modem was removed from service with the **modem shutdown** command or the **modem busyout** command. B—Modem is suspected to be inoperable or bad. No calls can be made with this modem. The letter B can also mean that a modem firmware download failed for the specified modem. In this case, try unmarking the modem as bad with the **no modem bad** command and upgrading the modem firmware again. d—The RAM-based DSP code, which supports K56flex, is not configured. The modem will revert to transmitting at 33.6 kbps. D—Modem is currently downloading firmware. p— Firmware download is pending. Typically because one or more modems is active. R—Modem is held and isolated in a suspended state by the **modem hold-reset** command. T—Modem is conducting a back-to-back test with another modem. *—Modem is connected or dialing.
Incoming completes	Number of incoming calls that successfully connected to a modem.
Outgoing completes	Number of outgoing calls that successfully dialed out from an available modem.
Busied Outs	Number of modems that have been manually removed from service.
Failed Dial attempts	Number of modems that attempted to dial into the network but failed to make a connection.
ring no answers	Number of modems that detected an incoming ring but failed to answer the call.

Related Commands

You can use the master indexes or search online to find documentation of related commands.

show busyout
show mica module
show modem-bundled firmware
show modem summary status
show modem version
show version

show modem bundled-firmware

To display a list of the firmware version numbers bundled with the software image on the modem cards, use the **show modem bundled-firmware** EXEC command.

show modem bundled-firmware

Syntax Description

This command has no arguments or keywords.

Command Mode

EXEC

Usage Guidelines

This command first appeared in Cisco IOS Release 11.3(2)AA.

To override the default firmware image loaded on the modem card, use the **firmware** modem pool configuration command.

Sample Display

The following is sample output from the **show modem bundled-firmware** command. In this example, the modem cards in slot 5 and 8 contain firmware versions 2.0.1.7 and 2.0.1.4.

```
router# show modem bundled-firmware
List of bundled modem firmware images by slot
  Slot 5
    2.0.1.7
    2.0.1.4
  Slot 8
    2.0.1.7
    2.0.1.4
```

Related Command

You can use the master indexes or search online to find documentation of related commands.

firmware

show version

To display the Cisco software release information, use the **show version** EXEC command.

show version

Syntax Description

This command has no arguments or keywords.

Command Mode

EXEC

Usage Guidelines

This command was modified in Cisco IOS Release 11.3(2)AA.

Sample Display

The following is partial sample output from the **show version** command.[1]

```
router-shelf# execute-on all show version
-------------- Slot 0, sh ver ---------------

DA-Slot0#
Cisco Internetwork Operating System Software
IOS (tm) 5800 Software (C5800-DAS-M), Experimental Version 11.3(19980125:151105)
[amcrae-_ios_nightly 1801]
Copyright (c) 1986-1998 by cisco Systems, Inc.
Compiled Tue 17-Feb-98 06:02 by
Image text-base: 0x600208D4, data-base: 0x601AE000

ROM: System Bootstrap, Version 11.2(19971125:003652) [tkam-6 554], INTERIM SOFTWARE
ROM: 5800 Software (C5800-NBOOT-M), Experimental Version 11.3(19980125:151105)
[amcrae-_ios_nightly 1798]

DA-Slot0 uptime is 5 minutes
System restarted by reload
Running default software

cisco c5800 (R4K) processor with 24576K/8192K bytes of memory.
R4700 processor, Implementation 33, Revision 1.0 (512KB Level 2 Cache)
Last reset from power-on
2 Dial Shelf Interconnect(DSI) FE interface(s)

Configuration register is 0x0

-------------- Slot 1, sh ver ---------------

Slot 1 unavailable
-------------- Slot 2, sh ver ---------------

Slot 2 unavailable
-------------- Slot 3, sh ver ---------------

Slot 3 unavailable
-------------- Slot 4, sh ver ---------------
```

1The term **nitro** is an internal code name for the AS5800. Its usage here is subject to change.

```
DA-Slot4#
Cisco Internetwork Operating System Software
IOS (tm) 5800 Software (C5800-DAS-M), Version 11.3(19980125:151105)
[amcrae-_ios_nightly 1801]
Copyright (c) 1986-1998 by cisco Systems, Inc.
Compiled Tue 17-Feb-98 06:02 by
Image text-base: 0x600208D4, data-base: 0x601AE000

ROM: System Bootstrap, Version 11.2(19971125:003652) [tkam-6 554], INTERIM SOFTWARE
ROM: 5800 Software (C5800-NBOOT-M), Experimental Version 11.3(19980125:151105)
[amcrae-_ios_nightly 1798]

DA-Slot4 uptime is 5 minutes
System restarted by reload
Running default software

cisco c5800 (R4K) processor with 10240K/6144K bytes of memory.
R4700 processor, Implementation 33, Revision 1.0 (512KB Level 2 Cache)
Last reset from power-on
72 terminal line(s)
2 Dial Shelf Interconnect(DSI) FE interface(s)

Configuration register is 0x0

-------------- Slot 5, sh ver ---------------

Slot 5 unavailable
-------------- Slot 6, sh ver ---------------

Slot 6 unavailable
-------------- Slot 7, sh ver ---------------

Slot 7 unavailable
-------------- Slot 8, sh ver ---------------

Slot 8 unavailable
-------------- Slot 9, sh ver ---------------

Slot 9 unavailable
-------------- Slot 10, sh ver ---------------

Slot 10 unavailable
-------------- Slot 11, sh ver ---------------

Slot 11 unavailable
-------------- Slot 12, sh ver ---------------

dial-shelf#
Cisco Internetwork Operating System Software
IOS (tm) 5800 Software (C5800-DSC-M), Experimental Version 11.3(19980125:151105)
[amcrae-_ios_nightly 1799]
Copyright (c) 1986-1998 by cisco Systems, Inc.
Compiled Tue 17-Feb-98 05:55 by
Image text-base: 0x600088D4, data-base: 0x603B6000

ROM: System Bootstrap, Version 11.2(19971125:003652) [tkam-6 554], INTERIM SOFTWARE
ROM: 5500 Software (AS5500-CICL-M), Experimental Version 11.3(19971208:181145)
[rramacha-_ios 316]

dial-shelf uptime is 1 hour, 47 minutes
System restarted by reload
System image file is
"tftp://223.255.254.254/muck/_release/daily/images/dsc-c5800-mz.Feb17"

cisco c5800 (R4K) processor with 24576K/8192K bytes of memory.
```

```
R4700 processor, Implementation 33, Revision 1.0 (512KB Level 2 Cache)
Last reset from power-on
1 Ethernet/IEEE 802.3 interface(s)
2 Dial Shelf Interconnect(DSI) FE interface(s)
123K bytes of non-volatile configuration memory.

20480K bytes of Flash PCMCIA card at slot 0 (Sector size 128K).
4096K bytes of Flash internal SIMM (Sector size 256K).
Configuration register is 0x100

-------------- Slot 13, sh ver ---------------

Slot 13 unavailable
```

Related Commands

(none specifically)

Debug Commands

This section describes the new or changed debug commands for the Cisco AS5800

- **debug csm**
- **debug dsc clock**
- **debug dsip**
- **debug modem dsip**
- **debug modem traffic**

debug csm

Use the **debug csm** Privileged EXEC command to debug the call state machine used to connect calls to the modem. To disable debugging output, use the **no** form of this command.

[**no**] **debug csm**

Syntax Description

There are no optional or required keywords or variables for this command.

Command Mode

Privileged EXEC

Usage Guidelines

This command first appeared in Cisco IOS Release 11.3(2)AA.

The **debug csm** command is used to troubleshoot call switching problems. With this command, you can trace the complete sequence of switched incoming and outgoing calls.

This command can potentially produce a large amount of debug information. Thus, using this command can swamp the console and seriously degrade the operation of Cisco A5800.

Sample Display

The following example shows how to access Privileged EXEC mode by using the **enable** command followed by the password (**letmein**). This command sequence lets you access debug mode. Next, you can verify that there are no optional or required keyword arguments by using the **?** command. Next, enter the **debug csm** command to enable debugging for the call state machine.

```
AS5800> enable
Password: letmein
AS5800# debug csm ?
  <cr>
AS5800# debug csm
```

The following example indicates the output when a call is dialed from the modem into the network (outgoing call):

```
AS5800# debug csm
00:04:09: ccpri_ratetoteup bear rate is 10
00:04:09: CSM_MODEM_ALOCATION: xxxxxxxxxxxxxxx is allocated
00:04:09: MODEM_REPORT(0001): DEV_INCALL at xxxxxxxxxxxxx
00:04:09: CSM_PROC_IDLE: CSM_EVENT_ISDN_CALL at xxxxxxxxxxxxx
00:04:09: CSM_RING_INDICATION_PROC: RI is on
00:04:09: CSM_RING_INDICATION_PROC: RI is off
00:04:09: CSM_PROC_IC1_RING: CSM_EVENT_MODEM_OFFHOOK at xxxxxxxxxxxxx
00:04:09: MODEM_REPORT(0001): DEV_CONNECTED at xxxxxxxxxxxxx
00:04:09: CSM_PROC_IC2_WAIT_FOR_CARRIER: CSM_EVENT_ISDN_CONNECTED at xxxxxxxxxxxxx
```

Related Commands

You can use the master indexes or search online to find documentation of related commands.

debug modem oob
debug modem trace
debug modem traffic

debug dsc clock

Use the **debug dsc clock** Privileged EXEC command to display debugging output for the time-division multiplexing (TDM) clock switching events on the dial shelf controller. To turn off debugging output, use the **no** form of this command.

[**no**] **debug dsc clock**

Syntax Description

There are no optional or required keywords or variables for this command. However, you should use this command from the router shelf console in conjunction with **execute-on**.

Command Mode

Privileged EXEC

Usage Guidelines

This command first appeared in Cisco IOS Release 11.3(2)AA.

The **debug dsc clock** command displays TDM clock switching events on the dial shelf controller. The information displayed includes the following:

- Clock configuration messages received from trunks via NBUS
- Dial shelf controller clock configuration messages from the router shelf over the dial shelf interface link
- Clock switchover algorithm events

Sample Display

The following example shows that the **debug dsc clock** command has been enabled, and that trunk messages are received, and that the configuration message has been received:

```
AS5800# debug dsc clock
Dial Shelf Controller Clock debugging is on
AS5800#
00:02:55: Clock Addition msg of len 12 priority 8 from slot 1 port 1 on line 0
00:02:55: Trunk 1 has reloaded
```

Related Commands

You can use the master indexes or search online to find documentation of related commands.

show dsc clock

debug dsip

Use the **debug dsip** Privileged EXEC command to display debugging output for distributed system interconnect protocol (DSIP) used between the router shelf and the dial shelf. To disable debugging output, use the **no** form of this command.

[**no**] **debug dsip** {**all** | **api** | **boot** | **console** | **trace** | **transport**}

Syntax Description

all	View all DSIP debugging messages.
api	View DSIP client interface (API) debugging messages.
boot	View DSIP booting messages that are generated when a download of the feature board image is occurring properly.
console	View DSIP console operation while debugging.
trace	Enable logging of header information concerning DSIP packets entering the system into a trace buffer.
transport	Debug the DSIP transport layer, the module that interacts with the underlying physical media driver.

Command Mode

Privileged EXEC

Usage Guidelines

This command first appeared in Cisco IOS Release 11.3(2)AA.

The **debug dsip** command is used to enable the display of debugging messages for DSIP between the router shelf and the dial shelf. Using this command, you can display booting messages generated when the download of an image occurs, view console operation, trace logging of MAC header information, and DSIP transport layer information as modules interact with the underlying physical media driver. This command can be applied to a single modem or a group of modems.

Once the **debug dsip trace** command has been enabled, you can read the information captured in the trace buffer using the **show dsip tracing** command.

Sample Displays

The following example shows the available **debug dsip** command options:

```
AS5800> enable
Password: letmein
AS5800# debug dsip ?
  all        All DSIP debugging messages
  api        DSIP API debugging
  boot       DSIP booting
  console    DSIP console
  trace      DSIP tracing
  transport  DSIP transport
```

The following example indicates the **debug dsip trace** command logs MAC headers of the various classes of DSIP packets. View the logged information using the **show dsip tracing** command:

```
AS5800# debug dsip trace
NIP tracing debugging is on
AS5800# show dsip tracing
NIP Control Packet Trace
------------------------------------------------------------
Dest:00e0.b093.2238 Src:0007.4c72.0058 Type:200B SrcShelf:1 SrcSlot:11
MsgType:0 MsgLen:82 Timestamp: 00:49:14
------------------------------------------------------------
Dest:00e0.b093.2238 Src:0007.4c72.0028 Type:200B SrcShelf:1 SrcSlot:5
MsgType:0 MsgLen:82 Timestamp: 00:49:14
------------------------------------------------------------
```

Related Command

debug modem dsip

debug modem dsip

Use the **debug modem dsip** Privileged EXEC command to display debugging output for modem control messages that are received or sent to the router. To disable debugging output, use the **no** form of this command.

[**no**] **debug modem dsip** {*tty-range* | **group** | *shelf/slot/port*}

Syntax Description

tty-range	Modem TTY number or range. You can specify a single TTY line number or a range from 0 through the number of modems you have in your Cisco AS5800. Be sure to include a dash (-) between the range values you specify.
group	Modem group information.
shelf/slot/port	Location of the modem by Shelf/Slot/Port numbers for Internal Modems.

Command Mode

Privileged EXEC

Usage Guidelines

This command first appeared in Cisco IOS Release 11.3(2)AA.

The **debug modem dsip** command enables the display of each DSIP message that relates to a modem and is transmitted from or received at the router shelf. This command can be applied to a single modem or a group of modems.

Sample Display

The following examples show a display of the available **debug modem** options, followed by the display of the **debug modem dsip** options:

```
AS5800# debug modem ?
  dsip         Modem DSIP activity
  maintenance  Modem maintenance activity
  oob          Modem out of band activity
  trace        Call Trace Upload
  traffic      Modem data traffic
  <cr>

AS5800# debug modem dsip ?
  <0-935>  First Modem TTY Number
  group    Modem group information
  x/y/z    Shelf/Slot/Port for Internal Modems
  <cr>
```

The following example indicates that an RTS status message was received from the router shelf, and an ACK was sent back by the modem card:

```
AS5800# debug modem dsip
00:11:02: RSMODEM_SEND-1/2/06: MODEM_RING_INDICATION_MSG cci1 si0 ms0 mm65535,0 dc0
00:11:02: RSMODEM_sRCV-1/2/06:l12,MODEM_CALL_ACK_MSG:
00:11:02: RSMODEM_SEND-1/2/06: MODEM_CALL_ACCEPT_MSG
00:11:11: RSMODEM_sRCV-2:l0,MODEM_POLL_MSG: 0 16 0 7 0 146 0 36 21
00:11:18: RSMODEM_sRCV-1/2/06:l12,MODEM_SET_DCD_STATE_MSG: 1
00:11:19: RSMODEM_SEND-1/2/06: MODEM_RTS_STATUS_MSG 1
00:11:19: RSMODEM_dRCV-2:l1258607996,MODEM_RTS_STATUS_MSG: 0 6 0 23 0 0 0 0 0
00:11:23: RSMODEM_sRCV-2:l0,MODEM_POLL_MSG: 0 16 0 7 0 146 0 150 21
00:12:31: RSMODEM_sRCV-1/2/06:l12,MODEM_SET_DCD_STATE_MSG: 0
00:12:31: RSMODEM_SEND-1/2/06: MODEM_CALL_HANGUP_MSG
00:12:31: RSMODEM_sRCV-1/2/06:l12,MODEM_ONHOOK_MSG:
00:12:32: RSMODEM_SEND-1/2/06: MODEM_RTS_STATUS_MSG 1
00:12:32: RSMODEM_SEND-1/2/06: MODEM_SET_DTR_STATE_MSG 0
00:12:32: RSMODEM_dRCV-2:l1258659676,MODEM_RTS_STATUS_MSG: 0 6 0 16 0 0 0 0 0
00:12:32: RSMODEM_SEND-1/2/06: MODEM_RTS_STATUS_MSG 1
00:12:32: RSMODEM_dRCV-2:l1258600700,MODEM_RTS_STATUS_MSG: 0 6 0 13 0 0 0 0 0
00:12:33: RSMODEM_SEND-1/2/06: MODEM_SET_DTR_STATE_MSG 0
00:12:33: RSMODEM_SEND-1/2/06: MODEM_RTS_STATUS_MSG 1
00:12:33: RSMODEM_dRCV-2:l1258662108,MODEM_RTS_STATUS_MSG: 0 6 0 16 0 0 0 0 0
00:12:35: RSMODEM_sRCV-2:l0,MODEM_POLL_MSG: 0 16 0 7 0 146 1 34 22
00:12:38: RSMODEM_SEND-1/2/06: MODEM_SET_DTR_STATE_MSG 1
00:12:47: RSMODEM_sRCV-2:l0,MODEM_POLL_MSG: 0 16 0 7 0 146 0 12 22
```

Table 10 Debug Modem DSIP Field Descriptions

Field	Description
RSMODEM_SEND-1/2/06	Router shelf modem shelf sends a MODEM_RING_INDICATION_MSG message.
RSMODEM_sRCV-1/2/06	Router shelf modem received a MODEM_CALL_ACK_MSG message.
MODEM_CALL_ACCEPT_MSG	Router shelf accepts the call.
MODEM_CALL_HANGUP_MSG	Router shelf sends a hangup message.
MODEM_RTS_STATUS_MSG	The request to send message status.

Related Commands

You can use the master indexes or search online to find documentation of related commands.

debug modem traffic
debug dsip

debug modem traffic

Use the **debug modem traffic** Privileged EXEC command to display debugging output for framed, unframed, and asynchronous data transmission as received from the modem cards. To disable debugging output, use the **no** form of this command.

[**no**] **debug modem traffic**

Syntax Description

There are no optional or required keywords or variables for this command.

Command Mode

Privileged EXEC

Usage Guidelines

This command first appeared in Cisco IOS Release 11.3(2)AA.

The **debug modem traffic** command displays debugging output for framed, unframed, and asynchronous data transmitted or received by the modem cards.

Sample Displays

The following example displays information about each unframed or framed data frames transmitted to or received from the modem cards

```
AS5800# debug modem traffic
MODEM-RAW-TX:modem = 6/5/00, length = 1, data = 0x61, 0xFF, 0x7D, 0x23
MODEM-RAW-RX:modem = 6/5/00, length = 1, data = 0x61, 0x0, 0x0, 0x0
```

Displayed is information that indicates unframed asynchronous data transmission and reception involving the modem on shelf 6, slot 5, port 00.

Following is framed asynchronous data transmission and reception involving the modem on shelf 6, slot 5, port 00.

```
AS5800# debug modem traffic
MODEM-FRAMED-TX:modem = 6/5/00, length = 8, data = 0xFF, 0x3, 0x82
MODEM-FRAMED-RX:modem = 6/5/00, length = 14, data = 0xFF, 0x3, 0x80
```

Related Command

debug modem dsip

What to Do Next

For more information, see the following online documents:

- 11.3 Dial Solutions Command Reference
- 11.3 Security Command Reference

11.3 Configuration Fundamentals Command Reference