

show dial-shelf split

To display information about the types of cards in nonowned dial shelf slots, use the **show dial-shelf split** command in privileged EXEC mode.

show dial-shelf split

Syntax Description This command has no arguments or keywords.

Command Modes Privileged EXEC

Command History	Release	Modification
	11.3(2)AA	This command was introduced.

Examples The following is sample output from the **show dial-shelf split** command:

```
Router# show dial-shelf split

System is in split dial shelf mode, connected to DSC in slot 13.
Slots owned: 0 2 3 4 5 6
Non owned slots:
Slot      Board Type
 1         CE1
 7         Modem (DMM)
 8         Modem (DMM)
 9         Modem (DMM)
10         Slot Empty
11         Slot Empty
12         DSC
```

The report is self-explanatory.

Related Commands	Command	Description
	show dial-shelf	Displays information about the types of cards in nonowned dial shelf slots.

show dsc clock

To display information about the dial shelf controller clock, use the **show dsc clock** command in privileged EXEC mode with the line card execute (**execute-on**) command.

execute-on {*slot slot-number* | **all**} **show dsc clock**

Syntax Description	execute-on	Executes commands remotely on a line card.
	slot <i>slot-number</i>	Displays information for a specific slot. Slot number (12 or 13) must be occupied by a DSC card.
	all	Executes the command on all line cards.

Command Modes EXEC

Command History	Release	Modification
	11.3(2)AA	This command was introduced.
	12.2(33)SRA	This command was integrated into Cisco IOS Release 12.2(33)SRA.
	12.2SX	This command is supported in the Cisco IOS Release 12.2SX train. Support in a specific 12.2SX release of this train depends on your feature set, platform, and platform hardware.

Usage Guidelines You must use the **show dsc clock** command from the router using the **execute-on** command.

Examples The following is sample output from the **show dsc clock** command:

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

Router#
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
```

Table 1 describes the significant fields shown in the display.

Table 1 show dcs clock Field Descriptions

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.

Related Commands

Command	Description
execute-on	Executes commands remotely on a line card.

show dsi

To display information about the dial shelf interconnect (DSI) port adapter parameters, use the **show dsi** command in privileged EXEC mode with the line card execute (**execute-on**) command.

execute-on {*slot slot-number* | **all**} **show dsi**

Syntax Description

execute-on	Executes commands remotely on a line card.
slot <i>slot-number</i>	Displays information for a specific slot. Slot number (12 or 13) must be occupied by a DSC card.
all	Executes the command on all line cards.

Command Modes

Privileged EXEC

Command History

Release	Modification
11.3(2)AA	This command was introduced.
12.2(33)SRA	This command was integrated into Cisco IOS Release 12.2(33)SRA.
12.2SX	This command is supported in the Cisco IOS Release 12.2SX train. Support in a specific 12.2SX release of this train depends on your feature set, platform, and platform hardware.

Usage Guidelines

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.

Examples

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

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

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=0xFFFFFA261, CSR8=0xE0000000, CSR9=0xFFFFDC3FF
CSR11=0xFFFFE0000, CSR12=0xFFFFFFF09, 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=0xFFDC3FF
CSR11=0xFFFE0000, CSR12=0xFFFFFFFF09, 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 2 describes the significant fields shown in the display.

Table 2 *show dsi Field Descriptions*

Field	Description
FastEthernet0 ... 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.

Table 2 *show dsi Field Descriptions (continued)*

Field	Description
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.
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.

Table 2 *show dsi Field Descriptions (continued)*

Field	Description
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 1518 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.
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.

Table 2 *show dsi Field Descriptions (continued)*

Field	Description
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.
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.

Table 2 *show dsi Field Descriptions (continued)*

Field	Description
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. SCI = Single Cell Input
2. CBus = Command Bus

Related Commands

Command	Description
execute-on	Executes commands on a line card.
show dsip	Displays all information about the DSIP.
show version	Displays the configuration of the system hardware, the software version, the names and sources of configuration files, and the boot images.

show dsip

To display all information about the Distributed System Interconnect Protocol (DSIP) on a Cisco AS5800, use the **show dsip** command in EXEC mode.

show dsip

Syntax Description This command has no arguments or keywords.

Command Modes EXEC

Command History	Release	Modification
	11.3(2)AA	This command was introduced.
	12.2(33)SRA	This command was integrated into Cisco IOS Release 12.2(33)SRA.
	12.2SX	This command is supported in the Cisco IOS Release 12.2SX train. Support in a specific 12.2SX release of this train depends on your feature set, platform, and platform hardware.

Usage Guidelines 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 clients**, **show dsip nodes**, **show dsip ports**, **show dsip queue**, **show dsip tracing**, **show dsip transport**, and **show dsip version** commands.

Examples 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
```

show dsip

```
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 Sent	Last 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

Command	Description
show dsip clients	Lists the clients registered with DSIP on a system.
show dsip nodes	Displays information about the processors running the DSIP.
show dsip ports	Displays information about local and remote ports.
show dsip queue	Displays the number of messages in the retransmit queue waiting for acknowledgment.
show dsip tracing	Displays DSIP tracing buffer information.
show dsip transport	Displays information about the DSIP transport statistics for the control/data and IPC packets and registered addresses.
show dsip version	Displays DSIP version information.
show version	Displays the configuration of the system hardware, the software version, the names and sources of configuration files, and the boot images.

show dsip clients

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

show dsip clients

Syntax Description This command has no arguments or keywords.

Command Modes EXEC

Command History	Release	Modification
	11.3(2)AA	This command was introduced.
	12.2(33)SRA	This command was integrated into Cisco IOS Release 12.2(33)SRA.
	12.2SX	This command is supported in the Cisco IOS Release 12.2SX train. Support in a specific 12.2SX release of this train depends on your feature set, platform, and platform hardware.

Usage Guidelines Use this command to see whether a client is actually registered with DSIP and using its services.

Consider the following example: a client “Trunk” seems to be defunct on a particular node with absolutely no input/output activity. The command **show dsip ports** does not show any Trunk port among its local ports though all other client ports show up. The problem might be that the Trunk client did not even register with DSIP. To confirm this, use the **show dsip clients** command.

Examples 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	Command	Description
	show dsip nodes	Displays information about the processors running the DSIP.
	show dsip ports	Displays information about local and remote ports
	show dsip queue	Displays the number of messages in the retransmit queue waiting for acknowledgment.
	show dsip tracing	Displays DSIP tracing buffer information.
	show dsip transport	Displays information about the DSIP transport statistics for the control/data and IPC packets and registered addresses.
	show dsip version	Displays DSIP version information.

show dsip nodes

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

show dsip nodes

Syntax Description This command has no arguments or keywords.

Command Modes EXEC

Command History	Release	Modification
	11.3(2)AA	This command was introduced.
	12.2(33)SRA	This command was integrated into Cisco IOS Release 12.2(33)SRA.
	12.2SX	This command is supported in the Cisco IOS Release 12.2SX train. Support in a specific 12.2SX release of this train depends on your feature set, platform, and platform hardware.

Usage Guidelines 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.

Examples 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 Sent  Last 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
```

Table 3 describes the significant fields shown in the display.

Table 3 *show dsip nodes Field Descriptions*

Field	Description
ID	DSIP uses Cisco's IPC (Inter Process Communication) module for nondata 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.
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, the "last sent" counter is updated.
Last Heard	Whenever a message is received from a remote node, "last heard" is updated.

Related Commands

Command	Description
show dsip clients	Lists the clients registered with DSIP on a system.
show dsip ports	Displays information about local and remote ports
show dsip queue	Displays the number of messages in the retransmit queue waiting for acknowledgment.
show dsip tracing	Displays DSIP tracing buffer information.
show dsip transport	Displays information about the DSIP transport statistics for the control/data and IPC packets and registered addresses.
show dsip version	Displays DSIP version information.

show dsip ports

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

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

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

Command Modes EXEC

Command History	Release	Modification
	11.3(2)AA	This command was introduced.
	12.2(33)SRA	This command was integrated into Cisco IOS Release 12.2(33)SRA.
	12.2SX	This command is supported in the Cisco IOS Release 12.2SX train. Support in a specific 12.2SX release of this train depends on your feature set, platform, and platform hardware.

Usage Guidelines The DSIP communication going through the IPC stack uses ports. The creation of a port returns a 32-bit port ID which is the endpoint for communication between two IPC clients.

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

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

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

Examples The following is sample output from the **show dsip ports** 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

```

Table 4 describes the significant fields shown in the display.

Table 4 *show dsip ports Field Descriptions*

Field	Description
Client:Portname	<p>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:</p> <ul style="list-style-type: none"> • Client name • Master/slave status • Slot number <p>Any client can derive the port name of the other client it wants to talk to once it knows its physical location, using the following formula:</p> <p>Master/Slave Status Port Name Syntax</p> <p>Master <i>Client-Name:Master</i>, for example, Console:Master</p> <p>Slave <i>Client-Name:SlaveSlot</i>, for example, Clock:Slave1</p>
Portid	<p>Port ID. The Port ID 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.</p> <p>The seat ID 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.</p>
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	Command	Description
	show dsip clients	Lists the clients registered with DSIP on a system.
	show dsip nodes	Displays information about the nodes (slots) connected by DSIP on a system.
	show dsip queue	Displays the number of messages in the retransmit queue waiting for acknowledgment.
	show dsip tracing	Displays DSIP tracing buffer information.
	show dsip transport	Displays information about the DSIP transport statistics for the control/data and IPC packets and registered addresses.
	show dsip version	Displays DSIP version information.
	show version	Displays the configuration of the system hardware, the software version, the names and sources of configuration files, and the boot images.

show dsip queue

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

show dsip queue

Syntax Description This command has no arguments or keywords.

Command Modes EXEC

Command History	Release	Modification
	11.3(2)AA	This command was introduced.
	12.2(33)SRA	This command was integrated into Cisco IOS Release 12.2(33)SRA.
	12.2SX	This command is supported in the Cisco IOS Release 12.2SX train. Support in a specific 12.2SX release of this train depends on your feature set, platform, and platform hardware.

Usage Guidelines IPC is inter-process communication. Processes communicate by exchanging messages held in queue buffers. Use the **show dsip queue** to display the status of these queue buffers.

Examples 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.
```

Related Commands	Command	Description
	show dsip clients	Lists the clients registered with DSIP on a system.
	show dsip nodes	Displays information about the nodes (slots) connected by DSIP on a system.
	show dsip ports	Displays information about local and remote ports.
	show dsip tracing	Displays DSIP tracing buffer information.
	show dsip transport	Displays information about the DSIP transport statistics for the control/data and IPC packets and registered addresses.
	show dsip version	Displays DSIP version information.
	show version	Displays the configuration of the system hardware, the software version, the names and sources of configuration files, and the boot images.

show dsip tracing

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

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

Syntax Description

control	(Optional) Displays the control tracing buffer.
data	(Optional) Displays the data tracing buffer.
ipc	(Optional) Displays the inter-process communication tracing buffer.
<i>slot</i>	(Optional) Specifies a specific slot number on the dial shelf. Slot number can range from 0 to 14.
entries entry-number	(Optional) Specifies the number of entries to trace. Entries can be 1 to 500.

Command Modes

EXEC

Command History

Release	Modification
11.3(2)AA	This command was introduced.
12.2(33)SRA	This command was integrated into Cisco IOS Release 12.2(33)SRA.
12.2SX	This command is supported in the Cisco IOS Release 12.2SX train. Support in a specific 12.2SX release of this train depends on your feature set, platform, and platform hardware.

Usage Guidelines

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 tracing** command then use the **show dsip tracing** command to display the logged contents. To clear the information, use the **clear dsip tracing** command.

Examples

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

```

Table 5 describes the significant fields shown in the display.

Table 5 *show dsip tracing Field Descriptions*

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: <ul style="list-style-type: none"> Control—0x200B IPC—0x200C Data—0x200D
SrcShelf	The source shelf ID 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

Command	Description
clear dsip tracing	Clears DSIP tracing logs.
debug dsip tracing	Enables DSIP trace logging for use with the show dsip tracing commands.
show dsip clients	Lists the clients registered with DSIP on a system.
show dsip nodes	Displays information about the nodes (slots) connected by DSIP on a system.
show dsip ports	Displays information about local and remote ports.
show dsip queue	Displays the number of messages in the retransmit queue waiting for acknowledgment.
show dsip transport	Displays information about the DSIP transport statistics for the control/data and IPC packets and registered addresses.
show dsip version	Displays DSIP version information.

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** command in EXEC mode.

show dsip transport

Syntax Description This command has no arguments or keywords.

Command Modes EXEC

Command History	Release	Modification
	11.3(2)AA	This command was introduced.
	12.2(33)SRA	This command was integrated into Cisco IOS Release 12.2(33)SRA.
	12.2SX	This command is supported in the Cisco IOS Release 12.2SX train. Support in a specific 12.2SX release of this train depends on your feature set, platform, and platform hardware.

Examples

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#
```

Table 6 describes the significant fields shown in the display:

Table 6 *show dsip transport Field Descriptions*

Field	Description
DSIP Transport Statistics:	There are basically three kinds of communication channels between the DSIP modules running on two processors: <ol style="list-style-type: none"> 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	The number of input bytes received or sent on a particular channel.
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 context is 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, 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.

Table 6 *show dsip transport Field Descriptions (continued)*

Field	Description
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: ShelfX: Master SlotY : <i>MAC Address</i> : Status= local remote

Related Commands

Command	Description
show dsip clients	Lists the clients registered with DSIP on a system.
show dsip nodes	Displays information about the nodes (slots) connected by DSIP on a system.
show dsip ports	Displays information about local and remote DSIP ports.
show dsip queue	Displays the number of messages in the retransmit queue waiting for acknowledgment.
show dsip tracing	Displays DSIP tracing buffer information.
show dsip version	Displays DSIP version information.
show version	Displays the configuration of the system hardware, the software version, the names and sources of configuration files, and the boot images.

show dsip version

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

show dsip version

Syntax Description This command has no arguments or keywords.

Command Modes EXEC

Command History	Release	Modification
	11.3(2)AA	This command was introduced.
	12.2(33)SRA	This command was integrated into Cisco IOS Release 12.2(33)SRA.
	12.2SX	This command is supported in the Cisco IOS Release 12.2SX train. Support in a specific 12.2SX release of this train depends on your feature set, platform, and platform hardware.

Examples

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 that should be identified and kept current.

Related Commands	Command	Description
	show dsip clients	Lists the clients registered with DSIP on a system.
	show dsip nodes	Displays information about the nodes (slots) connected by DSIP on a system.
	show dsip ports	Displays information about local and remote DSIP ports.
	show dsip queue	Displays the number of messages in the retransmit queue waiting for acknowledgment.
	show dsip tracing	Displays DSIP tracing buffer information.
	show dsip transport	Displays information about the DSIP transport statistics for the control/data and IPC packets and registered addresses.
	show version	Displays the configuration of the system hardware, the software version, the names and sources of configuration files, and the boot images.

show interfaces bri

To display information about the BRI D channel or about one or more B channels, use the **show interfaces bri** command in privileged EXEC mode.

```
show interfaces bri number[:bchannel] | [first] [last] [accounting]
```

Cisco 7200 Series Router

```
show interfaces bri slot/port
```

Syntax Description

<i>number</i>	Interface number. The value ranges from 0 to 7 if the router has one 8-port BRI NIM or from 0 to 15 if the router has two 8-port BRI NIMs. Interface number values will vary, depending on the hardware platform used. The Cisco 3600 series router, for example, can have up to 48 interfaces. Specifying just the number will display the D channel for that BRI interface.
<i>slot/port</i>	On the Cisco 7200 series, slot location and port number of the interface. The slash mark is required.
<i>:bchannel</i>	(Optional) Colon (:) followed by a specific B channel number.
<i>first</i>	(Optional) Specifies the first of the B channels; the value can be either 1 or 2.
<i>last</i>	(Optional) Specifies the last of the B channels; the value can only be 2, indicating B channels 1 and 2.
accounting	(Optional) Displays the number of packets of each protocol type that have been sent through the interface.

Command Modes

Privileged EXEC

Command History

Release	Modification
10.3	This command was introduced.
11.2P	This command was enhanced to support the slot/port syntax for the PA-8B-ST and PA-4B-U port adapters on the Cisco 7200 series.

Usage Guidelines

Use either the *:bchannel* argument or the *first* or *last* arguments to display information about specified B channels.

Use the **show interfaces bri number** form of the command (without the optional *:bchannel*, or *first* and *last* arguments) to obtain D channel information.

Use the command syntax sample combinations in [Table 7](#) to display the associated output.

Table 7 *Sample show interfaces bri Command Step Combinations*

Command Syntax	Displays
show interfaces	All interfaces in the router
show interfaces bri 2	Channel D for BRI interface 2
show interfaces bri 2:1	Channel B1 on BRI interface 2
show interfaces bri 2:2	Channel B2 on BRI interface 2
show interfaces bri 4 1	Channel B1 on BRI interface 4
show interfaces bri 4 2	Channel B2 on BRI interface 4
show interfaces bri 4 1 2	Channels B1 and B2 on BRI interface 4
show interfaces bri	Error message: "% Incomplete command."

Examples

The following is sample output from the **show interfaces bri** command:

```
Router# show interfaces bri 0:1

BRI0:1 is down, line protocol is down
  Hardware is BRI
  MTU 1500 bytes, BW 64 Kbit, DLY 20000 usec, rely 255/255, load 1/255
  Encapsulation PPP, loopback not set, keepalive not set
  LCP Closed
  Closed: IPCP
  Last input never, 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
    0 packets input, 0 bytes, 0 no buffer
  Received 0 broadcasts, 0 runts, 0 giants
    0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
    0 packets output, 0 bytes, 0 underruns
    0 output errors, 0 collisions, 7 interface resets
    0 output buffer failures, 0 output buffers swapped out
    0 carrier transitions
```

The following is sample output from the **show interfaces bri** command on a Cisco 7200 series router:

```
Router# show interfaces bri 2/0

BRI2/0 is up, line protocol is up (spoofing)
  Hardware is BRI
  Internet address is 10.1.1.3/27
  MTU 1500 bytes, BW 64 Kbit, DLY 20000 usec, rely 255/255, load 1/255
  Encapsulation PPP, loopback not set
  Last input 00:00:01, output 00:00:01, output hang never
  Last clearing of "show interface" counters never
  Input queue: 0/75/0 (size/max/drops); Total output drops: 0
  Queueing strategy: weighted fair
  Output queue: 0/64/0 (size/threshold/drops)
    Conversations 0/1 (active/max active)
    Reserved Conversations 0/0 (allocated/max allocated)
  5 minute input rate 0 bits/sec, 0 packets/sec
  5 minute output rate 0 bits/sec, 0 packets/sec
```

```

609 packets input, 2526 bytes, 0 no buffer
Received 0 broadcasts, 0 runts, 0 giants
0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
615 packets output, 2596 bytes, 0 underruns
0 output errors, 0 collisions, 5 interface resets
0 output buffer failures, 0 output buffers swapped out
3 carrier transitions

```

Table 8 describes the significant fields shown in the display.

Table 8 *show interfaces bri Field Descriptions*

Field	Description
BRI... is {up down administratively down}	Indicates whether the interface hardware is currently active (whether line signal is present) and whether it has been taken down by an administrator.
line protocol is {up down administratively down}	Indicates whether the software processes that handle the line protocol consider the line usable (that is, whether keepalives are successful).
Hardware is	Hardware type.
Internet address is	IP address and subnet mask, followed by packet size.
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 percent 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.
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 nonfunctioning interface failed.
output	Number of hours, minutes, and seconds since the last packet was successfully transmitted by an interface.
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.
Output queue, drops 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.
Five minute input rate Five minute output rate	Average number of bits and packets transmitted per second in the last 5 minutes.
packets input	Total number of error-free packets received by the system.

Table 8 *show interfaces bri Field Descriptions (continued)*

Field	Description
bytes	Total number of bytes, including data and media access control (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.
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.
giants	Number of packets that are discarded because they exceed the medium's maximum packet size.
input errors	Total number of no buffer, runts, giants, CRCs, frame, overrun, ignored, and abort counts. Other input-related errors can also increment the count, so this sum may not balance with the other counts.
CRC	Cyclic redundancy checksum generated by the originating station or far-end device does not match the checksum calculated from the data received. On a serial link, CRCs usually indicate noise, gain hits, or other transmission problems on the data link.
frame	Number of packets received incorrectly having a CRC error and a noninteger number of octets. On a serial line, this is usually the result of noise or other transmission problems.
overrun	Number of times the serial 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. Broadcast storms and bursts of noise can increase the ignored count.
abort	Illegal sequence of one bits on a serial interface. This usually indicates a clocking problem between the serial interface and the data link equipment.
packets output	Total number of messages sent by the system.
bytes	Total number of bytes, including data and MAC encapsulation, sent 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, because 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 collisions. These can occur when you have several devices connected on a multiport line.

Table 8 *show interfaces bri Field Descriptions (continued)*

Field	Description
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 recognizes 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 the controller was restarted because of errors.
carrier transitions	Number of times the carrier detect signal of a serial interface has changed state. Check for modem or line problems if the carrier detect line is changing state often.

show interfaces serial bchannel

To display information about the physical attributes of the ISDN PRI over channelized E1 or channelized T1 B and D channels, use the **show interfaces serial bchannel** command in EXEC mode.

show interfaces serial *slot/port* **bchannel** *channel-number*

show interfaces serial *number* **bchannel** *channel-number*

Syntax Description		
	<i>slot/port</i>	Backplane slot number and port number on the interface. See your hardware installation manual for the specific slot and port numbers.
	<i>number</i>	Network processor module (NPM) number, in the range from 0 to 2.
	<i>channel-number</i>	E1 channel number ranging from 1 to 31 or T1 channel number ranging from 1 to 23; 1 to 24 if using NFAS.

Command Modes	
	EXEC

Command History	Release	Modification
	11.2F	This command was introduced.

show interfaces virtual-access

To display status, traffic data, and configuration information about a specified virtual access interface, use the **show interfaces virtual-access** command in privileged EXEC mode.

show interfaces virtual-access *number* [**configuration**]

Syntax Description

<i>number</i>	Number of the virtual access interface.
configuration	(Optional) Restricts output to configuration information.

Command Modes

Privileged EXEC (#)

Command History

Release	Modification
11.2F	This command was introduced.
11.3	The configuration keyword was added.
12.3(7)T	The output for this command was modified to indicate if the interface is a member of a multilink PPP bundle.
12.2(33)SB	This command was integrated into Cisco IOS Release 12.2(33)SB. This command was implemented on the Cisco 10000 series router for the PRE3 and PRE4.
12.2(33)SRE	This command was integrated into Cisco IOS Release 12.3(33)SRE.
15.0(1)M	This command was integrated into Cisco IOS Release 15.0(1)M.

Usage Guidelines

To identify the number of the vty on which the virtual access interface was created, enter the **show users** command.

The counts of output packet bytes as reported by the L2TP access server (LAC) to the RADIUS server in the accounting record do not match those of a client. The following paragraphs describe how the accounting is done and how you can determine the correct packet byte counts.

Packet counts for client packets in the input path are as follows:

- For packets that are process-switched, virtual access input counters are incremented by the coalescing function by the PPP over Ethernet (PPPoE) payload length.
- For packets that are fast-switched, virtual access input counters are incremented by the fast-switching function by the formula:

$$\text{PPPoE payload length} + \text{PPP address\&control bytes} = \text{PPPoE payload length} + 2$$

- For packets that are Cisco Express Forwarding switched, virtual access input counters are incremented by the Cisco Express Forwarding switching function by the formula:

$$\text{IP length} + \text{PPP encapbytes (4)} = \text{PPPoE payload length} + 2$$

Packet counts for client packets in the output path are as follows:

- For packets that are process-switched by protocols other than PPP, virtual access output counters are incremented in the upper layer protocol by the entire datagram, as follows:

$$\text{Size} = \text{PPPoE payload} + \text{PPPoE hdr (6)} + \text{Eth hdr (14)} + \text{SNAP hdr (10)} + \text{media hdr (4 for ATM)}$$

- For packets process-switched by PPP Link Control Protocol (LCP) and Network Control Protocol (NCP), virtual access output counters are incremented by PPP, as follows:
PPP payload size + 4 bytes of PPP hdr
- For packets that are Cisco Express Forwarding fast-switched, virtual access counters are incremented by the PPPoE payload size.

Accounting is done for PPPoE, PPPoA PPP Termination Aggregation (PTA), and L2X as follows:

- For PPPoE PTA, the PPPoE payload length is counted for all input and output packets.
- For PPPoE L2X on a LAC, the PPPoE payload length is counted for all input packets. On an L2TP Network Server (LNS), the payload plus the PPP header (address + control + type) are counted.
- For PPP over ATM (PPPoA) PTA i/p packets, the payload plus the PPP address plus control bytes are counted. For PPPoA PTA o/p packets, the payload plus PPP address plus control plus ATM header are counted.
- For PPPoA L2X on a LAC for i/p packets, the payload plus PPP addr plus cntl bytes are counted. For PPPoA L2X on a LNS, the payload plus PPP header (address + control + type) are counted.

In Cisco IOS Release 12.2(33)SB and later releases, the router no longer allows you to specify a virtual access interface (VAI) as **vir.y** in the **show pxf cpu queue** and **show interfaces** commands. Instead, you must spell out the VAI as **virtual-access**.

For example, when you enter the following commands, the router accepts the command:

```
Router# show interfaces virtual-access 2.1
```

In releases prior to Cisco IOS Release 12.2(33)SB, the router accepts the abbreviated form of the VAI. For example, the router accepts the following commands:

```
Router# show interfaces vi2.1
```

Examples

The following is sample output from the **show interfaces virtual-access** command:

```
Router# show interfaces virtual-access 3
```

```
Virtual-Access3 is up, line protocol is up
Hardware is Virtual Access interface
MTU 1500 bytes, BW 149760 Kbit, DLY 100000 usec,
    reliability 255/255, txload 1/255, rxload 1/255
Encapsulation PPP, LCP Open, multilink Open
Link is a member of Multilink bundle Virtual-Access4
PPPoATM vaccess, cloned from Virtual-Template1
Vaccess status 0x44
Bound to ATM4/0.10000 VCD:16, VPI:15, VCI:200, loopback not set
DTR is pulsed for 5 seconds on reset
Last input never, output never, output hang never
Last clearing of "show interfaces" counters 00:57:37
Input queue:0/75/0/0 (size/max/drops/flushes); Total output drops:0
Queueing strategy:fifo
Output queue:0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
 676 packets input, 12168 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
 676 packets output, 10140 bytes, 0 underruns
  0 output errors, 0 collisions, 0 interface resets
  0 output buffer failures, 0 output buffers swapped out
  0 carrier transitions
```

Table 9 describes the significant fields shown in the display.

Table 9 *show interfaces virtual-access Field Descriptions*

Field	Description
Virtual-Access ... is {up down administratively down}	Indicates whether the interface is currently active (whether carrier detect is present), is inactive, or has been taken down by an administrator.
line protocol is {up down administratively down}	Indicates whether the software processes that handle the line protocol consider the line to be usable (that is, whether keepalives are successful).
Hardware is	Type of interface. In this case, the interface is a dynamically created virtual access interface that exists on a vty line.
MTU	Maximum transmission unit for packets on the virtual access interface.
BW	Bandwidth of the virtual access interface, in kbps.
DLY	Delay of the virtual access interface, in microseconds.
reliability	Reliability of the virtual access interface as a fraction of 255 (255/255 is 100 percent reliability), calculated as an exponential average over five minutes.
txload, rxload	Load on the virtual access interface as a fraction of 255 (255/255 is completely saturated), calculated as an exponential average over 5 minutes. The calculation uses the value from the bandwidth interface configuration command. <ul style="list-style-type: none"> txload— Transmit load on the virtual access interface as a value of 1/255 calculated as an exponential average over 5 minutes. rxload— Receive load on the virtual access interface as a value of 1/255 calculated as an exponential average over 5 minutes.
Encapsulation	Encapsulation method assigned to the virtual access interface.
loopback	Test in which signals are sent and then directed back toward the source at some point along the communication path. Used to test network interface usability.
DTR	Data terminal ready. An RS232-C circuit that is activated to let the DCE know when the DTE is ready to send and receive data.
LCP open closed req sent	Link Control Protocol (for PPP only; not for Serial Line Internet Protocol (SLIP)). LCP must come to the open state before any useful traffic can cross the link.
Last input	Number of hours, minutes, and seconds since the last packet was successfully received by a virtual access interface. This value indicates when a dead interface failed.
output	Number of hours, minutes, and seconds since the last packet was successfully transmitted by a virtual access interface.

Table 9 *show interfaces virtual-access Field Descriptions (continued)*

Field	Description
output hang	Number of hours, minutes, and seconds (or never) since the virtual access 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 displayed. If that field overflows, asterisks are displayed.
Last clearing	Time at which the counters that measure cumulative statistics (such as number of bytes transmitted and received) 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. Asterisks (***) indicate that the elapsed time is too lengthy to be displayed. Zeros (0:00:00) indicate that the counters were cleared more than 2^{31} milliseconds (ms) and less than 2^{32} ms ago.
Input queue, drops	Number of packets in input queues. Each number is followed by a slash, the maximum size of the queue, and the number of packets dropped because of a full queue.
Queueing strategy	Type of queueing selected to prioritize network traffic. The options are first-come-first-served (FCFS) queueing, first-in-first-out queueing (FIFO), weighted fair queueing, priority queueing, and custom queueing.
Output queue	Packets in output queues. Represented by the maximum size of the queue followed by a slash and the number of packets dropped because of a full queue. For example, if the output queue is 45/15, 45 is the maximum size of the queue and 15 is the number of packets dropped.
5 minute input rate, 5 minute output rate	Average number of bits and packets transmitted per second in the last five minutes.
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.
broadcasts	Total number of broadcast or multicast packets received by the virtual access interface.
runts	Number of packets that are discarded because they are smaller than the medium’s minimum packet size.
giants	Number of packets that are discarded because they exceed the medium’s maximum packet size.
input errors	Total number of no-buffer, runts, giants, cyclic redundancy checks (CRCs), frame, overrun, ignored, and abort counts. Other input-related errors can also increment the count, so that this sum might not balance with the other counts.

Table 9 *show interfaces virtual-access Field Descriptions (continued)*

Field	Description
CRC	Counter that reflects when the cyclic redundancy checksum generated by the originating LAN station or far-end device does not match the checksum calculated from data received. On a LAN, this often indicates noise or transmission problems on the LAN interface or the LAN bus. A high number of CRCs is usually the result of collisions or a station transmitting bad data. On a serial link, CRCs often indicate noise, gain hits, or other transmission problems on the data link.
frame	Number of packets received incorrectly having a CRC error and a noninteger number of octets. On a serial line, this is usually the result of noise or other transmission problems.
overrun	Number of times the serial receiver hardware was unable to send 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 virtual access interface because the interface hardware ran low on internal buffers. These buffers are different from the system buffers mentioned in the description of the no buffer field. Broadcast storms and bursts of noise can cause the "ignored" count to be incremented.
abort	Illegal sequence of one bits on a virtual access interface. This usually indicates a clocking problem between the virtual access interface and the data link equipment.
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 the far-end transmitter has been running faster than the near-end communication server's receiver can handle. Underruns may never be reported on some virtual access interfaces.
output errors	Sum of all errors that prevented the final transmission of datagrams out of the virtual access interface being examined. Note that this might not balance with the sum of the enumerated output errors, because some datagrams might have more than one error, and others might have errors that do not fall into any of the tabulated categories.
collisions	Number of packets colliding.
interface resets	Number of times a virtual access interface has been completely reset. A reset can happen if packets queued for transmission were not sent within several seconds. Resetting 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 virtual access 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 a virtual access interface is looped back or shut down.
output buffer failures	Number of outgoing packets dropped from the output buffer.

Table 9 *show interfaces virtual-access Field Descriptions (continued)*

Field	Description
output buffers swapped out	Number of times the output buffer was swapped out.
carrier transitions	Number of times the carrier detect (CD) signal of a virtual access interface has changed state. Indicates modem or line problems if the CD line changes state often. If data carrier detect (DCD) goes down and comes up, the carrier transition counter increments two times.

Related Commands

Command	Description
clear interface virtual-access	Tears down the virtual access interface and frees the memory for other dial-in uses.
interface virtual-template	Creates a virtual template interface that can be configured and applied dynamically in creating virtual access interfaces.
show pxf cpu queue	Displays PXF queueing statistics.
show users	Displays information about the active lines on the router or information about lawful-intercept users.

show ip interface virtual-access

To display network layer IP information about a specified virtual access interface, use the **show ip interface virtual-access** command in EXEC mode.

show ip interface virtual-access *number*

Syntax Description	<i>number</i>	Number of the virtual access interface.
Command Modes	EXEC	
Command History	Release	Modification
	11.2F	This command was introduced.

Examples

The following is sample output from the **show ip interface virtual-access** command. This virtual access interface has been configured with a virtual template interface that applies the **ip unnumbered ethernet 0** command.

```
Router# show ip interface virtual-access 1

Virtual-Access1 is up, line protocol is up
  Interface is unnumbered. Using address of Ethernet0 (172.21.114.132)
  Broadcast address is 255.255.255.255
  Peer address is 20.0.0.1
  MTU is 1500 bytes
  Helper address is not set
  Directed broadcast forwarding is enabled
  Outgoing access list is not set
  Inbound access list is Virtual-Access1#0
  Proxy ARP is enabled
  Security level is default
  Split horizon is enabled
  ICMP redirects are always sent
  ICMP unreachables are always sent
  ICMP mask replies are never sent
  IP fast switching is disabled
```

Table 10 describes only the output fields that are significant to virtual access interfaces and that are not described in other IP commands.

Table 10 *show ip interface virtual-access Field Descriptions*

Field	Description
Virtual-Access1 is up, line protocol is up	Virtual access interface is up and the upper layers consider the line usable.
Interface is unnumbered. Using the address of Ethernet0 (172.21.114.132)	The ip unnumbered ethernet 0 command was included in the virtual template interface cloned on this interface.

■ show ip interface virtual-access

Related Commands	Command	Description
	ip unnumbered	Enables IP processing on a serial interface without assigning an explicit IP address to the interface.

show ip local pool

To display statistics for any defined IP address pools, use the **show ip local pool** command in privileged EXEC mode.

```
show ip local pool [poolname | group [group-name]]
```

Syntax Description	
<i>poolname</i>	(Optional) Named IP address pool.
group	(Optional) Displays statistics of all pools in the base system group.
group [<i>group-name</i>]	(Optional) Displays statistics of all pools in the named group.

Command Modes Privileged EXEC

Command History	Release	Modification
	11.1	This command was introduced.
	12.1(5)DC	This command was enhanced to allow pool group statistics to be displayed.
	12.2(13)T	This command was integrated into Cisco IOS Release 12.2(13)T and support was added for the Cisco 6400 node route processor 25v (NRP-25v) Cisco 7400 platforms.

Usage Guidelines If you omit the *poolname* argument, the command displays a generic list of all defined address pools and the IP addresses that belong to them. If you specify the *poolname* argument, the command displays detailed information about that pool.

When you supply the **group** keyword without the associated group name, the command displays all pools in the base system group. When you supply the **group** keyword with the associated group name, the command displays all pools in that group.

Examples The following is sample output from the **show ip local pool** command when pool groups have not been created:

```
Router# show ip local pool

Scope   Begin           End             Free InUse
Dialin  172.30.228.11  172.30.228.26  16    0
Available addresses:
 172.30.228.12
 172.30.228.13
 172.30.228.14
 172.30.228.15
 172.30.228.16
 172.30.228.17
 172.30.228.18
 172.30.228.19
 172.30.228.20
 172.30.228.21
 172.30.228.22
```

show ip local pool

```

172.30.228.23
172.30.228.24
172.30.228.25
172.30.228.26
172.30.228.11      Async5

```

Inuse addresses:

None

The following is sample output from the **show ip local pool** command when pool groups have been created:

Router# **show ip local pool**

Pool	Begin	End	Free	In use
** pool <p1> is in group <g1>				
p1	10.1.1.1	10.1.1.10	10	0
	10.1.1.21	10.1.1.30	10	0
** pool <p2> is in group <g2>				
p2	10.1.1.1	10.1.1.10	10	0
lcl1	10.2.2.1	10.2.2.10	10	0
	10.2.2.21	10.2.2.30	10	0
	10.2.2.41	10.2.2.50	10	0
** pool <mypool> is in group <mygroup>				
mypool	172.18.184.223	172.18.184.224	2	0
	172.18.184.218	172.18.184.222	5	0
** pool <ccc> is in group <grp-c>				
ccc	172.18.184.218	172.18.184.220	3	0
** pool <bbb> is in group <grp-b>				
bbb	172.18.184.218	172.18.184.220	3	0
** pool <ddd> is in group <grp-d>				
ddd	172.18.184.218	172.18.184.220	3	0
** pool <pp1> is in group <grp-pp>				
pp1	172.18.184.218	172.18.184.220	2	1

The following is sample output from the **show ip local pool** command for the pool group named mygroup:

Router# **show ip local pool mygroup**

Pool	Begin	End	Free	In use
** pool <mypool> is in group <mygroup>				
mypool	172.18.184.223	172.18.184.224	2	0
	172.18.184.218	172.18.184.222	5	0

The following sample output from the **show ip local pool group** command shows the base system group (lcl1):

Router# **show ip local pool group**

Pool	Begin	End	Free	In use
lcl1	10.2.2.1	10.2.2.10	10	0
	10.2.2.21	10.2.2.30	10	0
	10.2.2.41	10.2.2.50	10	0

Table 11 describes the significant fields shown in the displays.

Table 11 show ip local pool Field Descriptions

Field	Description
Scope	The type of access.
Begin	The first IP address in the defined range of addresses in this pool.
End	The last IP address in the defined range of addresses in this pool.
Free	The number of addresses available.
InUse	The number of addresses in use.
Pool	Pool and group names and associations, if created.

Related Commands

Command	Description
ip address-pool	Enables an address pooling mechanism used to supply IP addresses to dial asynchronous, synchronous, or ISDN point-to-point interfaces.
ip local pool	Configures a local pool of IP addresses to be used when a remote peer connects to a point-to-point interface.

show ipx compression

To show the current status and statistics of Internetwork Packet Exchange (IPX) header compression during PPP sessions, use the **show ipx compression** command in EXEC mode.

show ipx compression [*interface-type*]

Syntax Description *interface-type* (Optional) Interface type, as listed in [Table 12](#).

Command Modes EXEC

Command History	Release	Modification
	11.1	This command was introduced.
	12.2(13)T	The detail argument was removed because the NetWare Link Services Protocol (NLSP) is no longer available in Cisco IOS software.

Usage Guidelines [Table 12](#) lists the supported interface types.

Table 12 Interface Types

Keyword	Description
async	Asynchronous interface.
ethernet	Ethernet IEEE 802.3 interface.
null	Null interface.
serial	WAN serial interface.

Related Commands	Command	Description
	ipx compression cipx	Enables compression of IPX packet headers in a PPP session.
	show ipx interface	Displays the status of the IPX interfaces configured in the Cisco IOS software and the parameters configured on each interface.

show ipx spx-protocol

To view the status of the Sequenced Packet Exchange (SPX) protocol stack and related counters, use the **show ipx spx-protocol** command in EXEC mode.

show ipx spx-protocol

Syntax Description This command has no arguments or keywords.

Command Modes EXEC

Command History	Release	Modification
	11.1	This command was introduced.

Examples The following is sample output from the **show ipx spx-protocol** command:

```
Router> show ipx spx-protocol

Next wake time:

SPX socket: 1D90
state: 0 Connections: 2

    SPX Remote: A001500::0000.c047.ed5a:3A80   Local: ACBB::0000.0000.0001:2010
state 1 flags 1
Queue counts:  inq 0,  outQ 0,  unackedQ 0
Sequence: 34,  Ack: 34,  local-alloc: 39,  remote-alloc: 35
Abort Timer fires in 24 secs
Verify Watchdog Timer fires in 3 secs

    SPX Remote: A001500::0000.c047.ed5a:C980   Local: ACBB::0000.0000.0001:2900
state 1 flags 1
Queue counts:  inq 0,  outQ 0,  unackedQ 0
Sequence: 111,  Ack: 55,  local-alloc: 60,  remote-alloc: 112
Abort Timer fires in 27 secs
Verify Watchdog Timer fires in 0 secs
```

[Table 13](#) describes significant fields shown in the display.

Table 13 *show ipx spx-protocol Field Descriptions*

Field	Description
SPX socket:	IPX/SPX socket number.
state	Internal state.
connections:	Number of open connections for this IPX/SPX socket.
SPX Remote: xxxxxxx::yyyy:zzzz	The SPX client address for each SPX connection on this IPX/SPX socket, where xxxx is the client IPX network number, yyyy is the client IPX MAC address, and zzzz is the client SPX connection number.

Table 13 *show ipx spx-protocol Field Descriptions (continued)*

Field	Description
SPX Local xxxxxxx::yyyy:zzzz	The local SPX address, where <i>xxxx</i> is local IPX network number, <i>yyyy</i> is the local IPX MAC address, and <i>zzzz</i> is the local SPX connection number.
state	Internal state.
flags	A status bit that is used internally to allow and close connections.
Queue counts	inQ, outQ, and unackedQ, as specified in the following three rows.
inq	Number of SPX packets available for the SPX application to read.
outQ	Number of SPX packets that must be sent to the remote client.
unackedQ	Number of SPX packets sent, but no packet was received by the client, so far.
Sequence:	SPX sequence number. Represents the sequence number of next packet of data to be sent by the router.
Ack:	SPX acknowledgment number. Represents the sequence number of the client's packet that the router has received, so far.
local-alloc:	Maximum packet sequence number that is acceptable from the client. This is a method of imposing flow control on the NASI client.
remote-alloc:	Maximum packet sequence number that the NASI client can accept from the router. This is the NASI client's way of imposing flow control on the router.
Abort Timer	Time in seconds until this SPX connection is closed and deleted if a watchdog packet is not received.
Verify Watchdog Timer fires in X secs	Indicates the time when you last sent a watchdog packet to the client.

Related Commands

Command	Description
aaa authentication nasi	Specifies AAA authentication for NASI clients connecting through the access server.
ipx nasi-server enable	Enables NASI clients to connect to asynchronous devices attached to a router.
nasi authentication	Enables AAA authentication for NASI clients connecting to a router.
show ipx nasi connections	Displays the status of NASI connections.

show isdn

To display the information about memory, Layer 2 and Layer 3 timers, and the status of PRI channels, use the **show isdn** command in user EXEC or privileged EXEC mode.

```
show isdn { active [detail] [dsl | serial-number] | call rate [table] | answer [dsl | serial-number] |
  history [detail] [dsl | serial-number] | memory | service [dsl | serial-number] | status [dsl |
  serial-number] | timers [dsl | serial-number]}
```

Syntax Description

active [detail] [dsl serial-number]	Displays current call information of all ISDN interfaces or, optionally, a specific digital subscriber line (DSL) (created and configured as a serial interface) or a specific ISDN PRI interface. Values of <i>dsl</i> range from 0 to 15. Information includes the called number, the remote node name, the seconds of connect time, the seconds of connect time remaining, the seconds idle, and Advice of Charge (AOC) charging time units used during the call. The detail keyword provides additional information about active calls.
call rate [table]	Displays incoming and outgoing ISDN call switching rate. The optional table keyword presents the data in a tabular format.
answer [dsl serial-number]	Displays whether a called-party or subaddress number has been configured in the incoming setup message for ISDN BRI calls.
history [detail] [dsl serial-number]	Displays historic and current call information for all ISDN interfaces or, optionally, a specific DSL (created and configured as a serial interface) or a specific ISDN PRI interface. Values of <i>dsl</i> range from 0 to 15. Information displayed includes the called number, the remote node name, the seconds of connect time, the seconds of connect time remaining, the seconds idle, and AOC charging time units used during the call. The detail keyword provides additional information about historical calls.
memory	Displays ISDN memory pool statistics. This keyword is for use by technical development personnel only.
service [dsl serial-number]	Displays the service status of all ISDN interfaces or, optionally, a specific DSL or a specific ISDN PRI interface (created and configured as a serial interface). Values of <i>dsl</i> range from 0 to 15.
status [dsl serial-number]	Displays the status of all ISDN interfaces or, optionally, a specific DSL or a specific ISDN PRI interface (created and configured as a serial interface). Values of <i>dsl</i> range from 0 to 15.
timers [dsl serial-number]	Displays the values of Layer 2 and Layer 3 timers for all ISDN interfaces or, optionally, a specific DSL or a specific ISDN PRI interface (created and configured as a serial interface). Values of <i>dsl</i> range from 0 to 15.

Command Modes

User EXEC (>)
Privileged EXEC (#)

Command History

Release	Modification
11.1	This command was introduced.
12.2(8)B	This command was enhanced to display a report about D-channel and Redundant Link Manager (RLM) group status.
12.2(15)T	This command was integrated into Cisco IOS Release 12.2(15)T, and implemented on the Cisco 2420, Cisco 2600 series, Cisco 3600 series, and Cisco 3700 series routers, and Cisco AS5300, Cisco AS5350, Cisco AS5400, and Cisco AS5850 network access server (NAS) platforms.
12.3	This command was enhanced to display the message “%Q.931 is backhauled to BACKHAUL on DSL 0. Layer 3 output may not apply”.
12.4	The show isdn memory output was modified to display information about Call Tables.
12.4	The detail keyword was added.
12.4(24)T	This command was modified in a release earlier than Cisco IOS Release 12.4(24)T. The call rate and table keywords were added.

Usage Guidelines

Native ISDN stacks do not know Layer 3 details because Layer 3 is backhauled to an external application. So informational message “%Q.931 is backhauled to BACKHAUL on DSL 0. Layer 3 output may not apply” is displayed for those users that expect ISDN commands to show the required output.

The following sections in the “Examples” section show how to display and interpret reports from the **show isdn** command options:

- [show isdn active and show isdn history Command Examples, page 50](#)
- [show isdn answer Command Example, page 53](#)
- [show isdn memory Command Example, page 53](#)
- [show isdn service Command Examples, page 54](#)
- [show isdn status Command Examples, page 55](#)
- [show isdn timers Command Examples, page 59](#)

Examples**show isdn active and show isdn history Command Examples**

This section shows example output from the **show isdn active** and **show isdn history** commands on different Cisco routers. The commands report similar information about call activity, which is described in [Table 14](#).

```
Router# show isdn active
```

```
%Q.931 is backhauled to BACKHAUL on DSL 0. Layer 3 output may not apply
```

```
-----
                                ISDN ACTIVE CALLS
-----
History Table MaxLength = 100 entries
History Retain Timer = 15 Minutes
-----
Call Calling and Called  Remote Node  Seconds  Seconds  Seconds  Recorded
Type Phone Number      Name      Used     Left     Idle     Charges
-----
                                Name      Used     Left     Idle     Units/Currency
-----
```

```

In ----Not Available----      Node1  684802  +499598   401
In ----Not Available----      Node2  363578  +499503   496
In ----Not Available----      Node3  253232  +499325   674
In ----Not Available----      194047  +499965    34
In ----Not Available----      Node4  189165  +499841   158
In ----Not Available----      Node5  110342           0
In ----Not Available----      2603  +499997    2
In ----Not Available----      1310  +499798   201

```

```
Router# show isdn active ser3:23
```

```
%Q.931 is backhauled to IUA BACKHAUL on DSL 3. L3 output may not apply
```

```
-----
ISDN ACTIVE CALLS
-----
```

Call Type	Calling Number	Called Number	Remote Name	Seconds Used	Seconds Left	Seconds Idle	Charges Units/Currency
-----------	----------------	---------------	-------------	--------------	--------------	--------------	------------------------

The following example shows the output from the **show isdn history** command:

```
Router# show isdn history
```

```
-----
ISDN CALL HISTORY
-----
```

```
History Table MaxLength = 100 entries
```

```
History Retain Timer = 15 Minutes
```

Call Type	Calling and Called Phone Number	Remote Name	Node	Seconds Used	Seconds Left	Seconds Idle	Recorded Charges Units/Currency
-----------	---------------------------------	-------------	------	--------------	--------------	--------------	---------------------------------

```

In ----Not Available----      Node1  684818  +499583   416
In ----Not Available----      Node2  363593  +499488   511
In ----Not Available----      Node3  253248  +499310   689
In ----Not Available----      194062  +499950    49
In ----Not Available----      Node4  189180  +499826   173
In ----Not Available----      Node5  110357           0
In ----Not Available      Node6  5244           0
In ----Not Available----      2619  +499997    0
In ----Not Available----      Node7  1432           0
In ----Not Available----      1325  +499783   216
In ----Not Available----      Node8  161           0

```

```
Router# show isdn history ser2:23
```

```
%Q.931 is backhauled to IUA BACKHAUL on DSL 2. L3 output may not apply
```

```
-----
ISDN CALL HISTORY
-----
```

```
Call History contains all active calls, and a maximum of 100 inactive calls.
```

```
Inactive call data will be retained for a maximum of 15 minutes.
```

Call Type	Calling Number	Called Number	Remote Name	Seconds Used	Seconds Left	Seconds Idle	Charges Units/Currency
-----------	----------------	---------------	-------------	--------------	--------------	--------------	------------------------

Table 14 show isdn active and show isdn history Field Descriptions

Field	Description
History Table MaxLength	Maximum number of entries that can be retained in the Call History table.
History Retain Timer	Maximum amount of time any entry can be retained in the Call History table.
Call Type	Type of call: In for incoming, Out for outgoing, or -- when direction of call cannot be determined.
Calling Number	For incoming calls, the number from which the call was received.
Called Number	For outgoing calls, the number to which the call was placed.
Duration Seconds	Number of seconds the call lasted. Indicates whether the call is still active, and how many seconds it has lasted so far.
Calling and Called Phone Number	For incoming calls, the number from which the call was received. For outgoing calls, the number to which the call was placed, or +---Not Available--- when a phone number is not available. The phone number display is limited to 20 digits. (+---Not Available--- is the truncated version of ---Not Available---. The + in the field means more data is available than can be displayed. The low-order data is displayed and the overflowing data is replaced by a +.)
Remote Node Name	Name of the host placing the call or the host called. The name display is limited to ten characters.
Seconds Used	Up to six digits of seconds (up to 999999) showing connect time used, or Failed when the connection attempt fails.
Seconds Left	Up to six digits of seconds (up to 999999) of connect time remaining when the dialer idle-timeout command is configured. The + in the field means more data is available than can be displayed. The low-order data is displayed and the overflowing data is replaced by a +.
Seconds Idle	Six digits of seconds (up to 999999) since the last interesting packet.
Time until Disconnect	Number of configured seconds before the call is disconnected because of the static idle timer for the map class or the interface.
Recorded Charges Units/Currency	For outgoing calls, number of ISDN Advice of Charge (AOC) charging units used or the currency cost of the call. Currency information display is limited to ten characters.
D-DSL	Digital subscriber line (DSL) number that received or sent the setup message.
DSL	DSL number on which the call completed.
Int-id	Non-Facility Associated Signalling (NFAS) interface number on which the call was completed.
B-chan	B-channel on the DSL used for the call.
Callid	Call-id value for the call.
Conn	Current connected state.
Disc Updated	Current state of the Disconnect updated indicator.
Call Type	Generic call type (for example, DATA, VOICE, or V110).

show isdn answer Command Example

The following report by the **show isdn answer** command indicates that no called-party or subaddress number has been configured:

```
Router# show isdn answer ser0:23 1234

%Q.931 is backhauled to IUA BACKHAUL on DSL 0. Layer 3 output may not apply

no isdn answer1 configured
no isdn answer2 configured
```

See the description for the **isdn answer1** command for more information about this report.

show isdn memory Command Example

The following is sample output from the **show isdn memory** command providing statistical information about memory resources:

```
Router# show isdn memory

MEMORY POOL STATISTICS
  BlockType      in use  limit  max used
mail descriptors      0    6720     32
exec timer blocks    0    6720     0
Modem_msg            0    1960     0
LIF timers          1256     -    1256
L2IF timers         42     -     42
PRIM_BTYPE          1298     -    1313
PKT_BTYPE           0     -     87
HEADER_BTYPE        0     -     87
SML_INFO_BTYPE      0     -     6
LRG_INFO_BTYPE      0     -    20
PKG_BTYPE           0     -    20
Router_msg          0     -    20
X25_msg             0     -     0
Tdial_msg           0     -     0
Socket_msg          0     -     0
Call Tables         0     -    21
CCBs                0     -    42
DLCBs              14     -    14
NLCBs               62     -    62
```

[Table 15](#) describes the significant fields shown in the display.

Table 15 *show isdn memory Field Descriptions*

Field	Description
BlockType	The type of block for this line of information.
in use	The number of BlockType blocks that are current.
limit	The maximum number of BlockType blocks that can be allocated. A dash (-) indicates no limit.
max used	The maximum number of BlockType blocks that are allocated at one time.
mail descriptors	Intertask dispatch queue elements.
exec timer blocks	Intertask delay timer structures.
Modem_msg	Memory allocated to modem messages.
LIF timers	Layer-3 timer blocks (call related).

Table 15 *show isdn memory Field Descriptions (continued)*

Field	Description
L2IF timers	Layer-2 timer blocks (per message).
PRIM_BTTYPE	Primitive block–ISDN internal (layer to layer) communication structure.
PKT_BTTYPE	Packet block: ISDN internal (layer to layer) communication data structure.
HEADER_BTTYPE	Header block: ISDN internal (layer to layer) communication structure.
SML_INFO_BTTYPE	Small buffer: ISDN message block (up to 28 bytes).
LRG_INFO_BTTYPE	Large buffer: ISDN message block (up to 1024 bytes).
PKG_BTTYPE	Package block: ISDN internal (layer to layer) communication structure.
Router_msg	Queue of messages from another task in a router for ISDN.
X25_msg	Queue of messages for the X.25 internal interface for ISDN.
Tdial_msg	Queue of messages for Thunder dial/Thunder voice interface.
Socket_msg	Queue of messages used for socket interface.
Call Tables	Call redial block: ISDN redial structure.
CCBs	Call Control Blocks (CCB). Structures used by the Call Control layer.
DLCBs	Data Link Control Block (DLCB). Structures used by the Data Link layer (Q.921).
NLCBs	Network Layer Control Block (NLCB). Structures used by the Network layer (Q.931).

show isdn service Command Examples

The following example of the **show isdn service** command shows channel states when a PRI is configured on a T1 controller. [Table 16](#) describes the significant fields shown in the display.

**Note**

By default, the MGCP ISDN endpoints do not reflect the status of individual channels for the **show isdn service** command. Alternatively, use Real Time Monitoring Tool (RTMT) to view the channels on an MGCP T1/E1 PRI.

```
Router# show isdn service

%Q.931 is backhauled to IUA BACKHAUL on DSL 2. L3 output may not apply

PRI Channel Statistics:
ISDN Dc0 SC, Channel [1-31]
  Configured Isdn Interface (dsl) 0
  Channel State (0=Idle 1=Proposed 2=Busy 3=Reserved 4=Restart 5=Maint_Pend)
  Channel : 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4
  State   : 2 2 2 2 2 2 2 2 2 0 0 0 0 2 2 2 2 2 2 2 2 0 0
  Service State (0=Inservice 1=Maint 2=Outofservice)
  Channel : 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4
  State   : 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
  Channel blocked? (0=No 1=Yes)
```

```
Channel : 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4
          0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
```

Table 16 *show isdn service Field Descriptions*

Field	Description
ISDN Se1/0:23 ISDN Dc0 SC Channel [1-31]	ISDN interface type followed by the channel range. A range from 1 to 31 is a standard format for both T1 and E1 outputs, but the state value shown identifies whether the channel is used.
Configured Isdn Interface (dsl) 0	DSL value is 0.
Channel State (0=Idle 1=Propose 2=Busy 3=Reserved 4=Restart 5=Maint_Pend)	Current state of each channel. Channels 24 through 31 are marked as reserved when the output is from T1.
Service State (0=Inservice 1=Maint 2=Outofservice)	Service state assigned to each channel. Channel 24 is marked as out of service. ¹

1. If channel 24 (marked as out of service) is configured as the Non-Facility Associated Signaling (NFAS) primary D channel, NFAS will roll over to the backup D channel if one is configured. If channel 24 is a B channel, it will not accept calls.

show isdn status Command Examples

Table 17 describes the significant fields shown in the output of the following **show isdn status** command examples.

The following sample output from the **show isdn status** command shows a report about D-channel and Redundant Link Manager (RLM) group status for RLM configurations, and applications like Signaling System 7 (SS7) in integrated Signaling Link Terminal (SLT) configurations:

```
Router# show isdn status

%Q.931 is backhauled to BACKHAUL on DSL 0. L3 output may not apply

Global ISDN Switchtype = primary-ni
ISDN Dchannel0 interface  rlm-group = 1
  Transport Link Status:
  ACTIVE
  dsl 0, interface ISDN Switchtype = primary-ni : Primary D channel of nfas group 0
  Layer 1 Status:
  DEACTIVATED
  Layer 2 Status:
  TEI = 0, Ces = 1, SAPI = 0, State = MULTIPLE_FRAME_ESTABLISHED
  Layer 3 Status:
  0 Active Layer 3 Call(s)
  Active dsl 0 CCBs = 0
  The Free Channel Mask: 0x80000000
  Number of L2 Discards = 0, L2 Session ID = 43
ISDN Dchannel1 interface
  Transport Link Status : Not Applicable
  dsl 1, interface ISDN Switchtype = primary-ni : Group member of nfas group 0
  Layer 1 Status:
  DEACTIVATED
  Layer 2 Status: Not Applicable
  Layer 3 Status:
  0 Active Layer 3 Call(s)
  Active dsl 1 CCBs = 0
  The Free Channel Mask: 0x80000000
  Number of L2 Discards = 0, L2 Session ID = 0
ISDN Serial2:15 interface
  dsl 2, interface ISDN Switchtype = primary-ni : Primary D channel of nfas group 1
```

```

Layer 1 Status:
DEACTIVATED
Layer 2 Status:
TEI = 0, Ces = 1, SAPI = 0, State = TEI_ASSIGNED
Layer 3 Status:
0 Active Layer 3 Call(s)
Active dsl 2 CCBs = 0
The Free Channel Mask: 0x0
Number of L2 Discards = 0, L2 Session ID = 0
ISDN Serial3:15 interface
dsl 3, interface ISDN Switchtype = primary-ni : Group member of nfas group 1
Layer 1 Status:
ACTIVATING
Layer 2 Status: Not Applicable
Layer 3 Status:
0 Active Layer 3 Call(s)
Active dsl 3 CCBs = 0
The Free Channel Mask: 0x0
Number of L2 Discards = 0, L2 Session ID = 0
Total Allocated ISDN CCBs = 0

```

The following sample output from the **show isdn status** command shows when no calls are active for a Cisco 4500 router with eight BRIs and one E1 PRI:

```

Router# show isdn status

%Q.931 is backhauled to BACKHAUL on DSL 0. L3 output may not apply

Global ISDN Switchtype = basic-5ess
ISDN BRI0 interface
    dsl 0, interface ISDN Switchtype = basic-5ess
    Layer 1 Status:
        ACTIVE
    Layer 2 Status:
        TEI = 64, Ces = 1, SAPI = 0, State = MULTIPLE_FRAME_ESTABLISHED
    Layer 3 Status:
        0 Active Layer 3 Call(s)
    Activated dsl 0 CCBs = 0
ISDN BRI1 interface
    dsl 1, interface ISDN Switchtype = basic-5ess
    Layer 1 Status:
        DEACTIVATED
    Layer 2 Status:
        Layer 2 NOT Activated
    Layer 3 Status:
        0 Active Layer 3 Call(s)
    Activated dsl 1 CCBs = 0
ISDN BRI2 interface
    dsl 2, interface ISDN Switchtype = basic-5ess
    Layer 1 Status:
        DEACTIVATED
    Layer 2 Status:
        Layer 2 NOT Activated
    Layer 3 Status:
        0 Active Layer 3 Call(s)
    Activated dsl 2 CCBs = 0
ISDN BRI3 interface
    dsl 3, interface ISDN Switchtype = basic-5ess
    Layer 1 Status:
        ACTIVE
    Layer 2 Status:
        TEI = 75, Ces = 1, SAPI = 0, State = MULTIPLE_FRAME_ESTABLISHED
    Layer 3 Status:
        0 Active Layer 3 Call(s)

```

```

    Activated dsl 3 CCBs = 0
ISDN BRI4 interface
    dsl 4, interface ISDN Switchtype = basic-5ess
    Layer 1 Status:
        DEACTIVATED
    Layer 2 Status:
        Layer 2 NOT Activated
    Layer 3 Status:
        0 Active Layer 3 Call(s)
    Activated dsl 4 CCBs = 0
ISDN BRI5 interface
    dsl 5, interface ISDN Switchtype = basic-5ess
    Layer 1 Status:
        DEACTIVATED
    Layer 2 Status:
        Layer 2 NOT Activated
    Layer 3 Status:
        0 Active Layer 3 Call(s)
    Activated dsl 5 CCBs = 0
ISDN BRI6 interface
    dsl 6, interface ISDN Switchtype = basic-5ess
    Layer 1 Status:
        DEACTIVATED
    Layer 2 Status:
        Layer 2 NOT Activated
    Layer 3 Status:
        0 Active Layer 3 Call(s)
    Activated dsl 6 CCBs = 0
ISDN BRI7 interface
    dsl 7, interface ISDN Switchtype = basic-5ess
    Layer 1 Status:
        DEACTIVATED
    Layer 2 Status:
        Layer 2 NOT Activated
    Layer 3 Status:
        0 Active Layer 3 Call(s)
    Activated dsl 7 CCBs = 0
ISDN Serial0:15 interface
    dsl 8, interface ISDN Switchtype = primary-ni
    Layer 1 Status:
        ACTIVE
    Layer 2 Status:
        TEI = 0, Ces = 1, SAPI = 0, State = MULTIPLE_FRAME_ESTABLISHED
    Layer 3 Status:
        0 Active Layer 3 Call(s)
    Activated dsl 8 CCBs = 0
    Total Allocated ISDN CCBs = 0

```

The following is partial sample output from the **show isdn status** command entered on a Cisco AS5300 with one active call on a PRI National ISDN switch type:

```

Router# show isdn status

%Q.931 is backhauled to BACKHAUL on DSL 0. L3 output may not apply

Global ISDN Switchtype = primary-ni
ISDN Serial0:23 interface      iua as5300-7-1
    Transport Link Status:
        ACTIVE
        dsl 0, interface ISDN Switchtype = primary-ni :Primary D channel of nfas group 1
        L2 Protocol = IUA  L3 Protocol(s) = Q.931
    Layer 1 Status:
        ACTIVE
    Layer 2 Status:Not Applicable

```

```

Layer 3 Status:
  0 Active Layer 3 Call(s)
Active dsl 0 CCBS = 0
The Free Channel Mask: 0x80FFFFFF
Number of L2 Discards = 0, L2 Session ID = 1
ISDN Serial1:23 interface      iua as5300-7-2
Transport Link Status:
.
.
.

```

The following example shows status of BRI interface 1/0/0:

```

Router# show isdn status bri 1/0/0

%Q.931 is backhauled to CCM MANAGER 0x0003 on DSL 8. Layer 3 output may not apply

Global ISDN Switchtype = primary-ni
ISDN BRI1/0/0 interface dsl 8, interface ISDN Switchtype = basic-net3
L2 Protocol = Q.921 0x0000 L3 Protocol(s) = CCM MANAGER 0x0003
Layer 1 Status:
  ACTIVE
Layer 2 Status:
TEI = 64, Ces = 1, SAPI = 0, State = MULTIPLE_FRAME_ESTABLISHED
Layer 3 Status:
  0 Active Layer 3 Call(s)
Active dsl 8 CCBS = 0
The Free Channel Mask: 0x80000003
Total Allocated ISDN CCBS = 0

```

Table 17 *show isdn status Field Descriptions*

Field	Description
ISDN Dchannel0 interface rlm-group = 1	Status of D-channel interface and RLM group for RLM configurations and SS7 applications in integrated SLT configurations.
Transport Link Status	Displays ACTIVE or INACTIVE.
Layer 1 Status:	
ACTIVE, DEACTIVATED, ACTIVATING	Status of ISDN Layer 1.
Layer 2 Status:	
TEI = <i>n</i> , State = MULTIPLE_FRAME_ESTABLISHED	Status of ISDN Layer 2. Terminal endpoint identifier (TEI) number and multiframe structure state. Note The value (<i>n</i>) of the TEI will always be 0 for a D-channel interface.
SPID Status:	
TEI 65, ces = 1, state = 5(init)	Terminal endpoint identifier number and state.
spid1 configured, no LDN, spid1 sent, spid1 valid	Service profile identifier (SPID) configuration information. For example, local directory number is defined. Note There is no SPID report for a D-channel interface.

Table 17 *show isdn status Field Descriptions (continued)*

Field	Description
Endpoint ID Info: epsf = 0, usid = 3, tid = 7F	Endpoint identifier information.
Layer 3 Status:	
1 Active Layer 3 Call(s)	Number of active calls.
Activated dsl 0 CCBs =	Number of the DSL activated. Number of call control blocks in use.
CCB:callid=8003, callref=0, sapi=0, ces=1, B-chan=1	Information about the active call.
Number of active calls =	Number of active calls.
Number of available B-channels =	Number of B channels that are not being used.
Total Allocated ISDN CCBs =	Number of ISDN call control blocks that are allocated.

show isdn timers Command Examples

Cisco routers support an extensive list of ISDN switch types, which are listed in the “ISDN Service Provider BRI Switch Types” and “ISDN Service Provider PRI Switch Types” tables in the *Cisco IOS Dial Technologies Configuration Guide*.

The examples in this section show reports seen on Cisco routers connected to various ISDN switch types. [Table 18](#) and [Table 19](#) show typical and default values of the timers shown in the **show isdn timers** displays. The values of the timers depend on the switch type. Refer to the Q.921 specifications for detailed technical definitions of the Layer 2 timers; refer to the Q.931 specifications for detailed technical definitions of the Layer 3 timers.

The following is sample output from the **show isdn timers** command on a router connected to a PRI Lucent (AT&T) 5ESS ISDN switch type:

```
Router# show isdn timers

%Q.931 is backhauled to CCM MANAGER 0x0003 on DSL 8. Layer 3 output may not apply

ISDN Serial0:23 Timers (dsl 0) Switchtype = primary-5ess
  ISDN Layer 2 values
    K      = 7 outstanding I-frames
    N200   = 3 max number of retransmits
    T200   = 1.000 seconds
    T202   = 2.000 seconds
    T203   = 30.000 seconds
  ISDN Layer 3 values
    T303   = 4.000 seconds
    T304   = 20.000 seconds
    T305   = 4.000 seconds
    T306   = 30.000 seconds
    T307   = 180.000 seconds
    T308   = 4.000 seconds
    T309   = Disabled
    T310   = 30.000 seconds
    T313   = 4.000 seconds
    T316   = 120.000 seconds
    T318   = 4.000 seconds
    T319   = 4.000 seconds
    T322   = 4.000 seconds
    T300S  = 5.000 seconds
    TGUARD = 8.000 seconds, Expiry = REJECT_CALL
```

```
%Q.931 is backhauled to CCM MANAGER 0x0003 on DSL 8. Layer 3 output may not apply
```

```
ISDN Serial1:23 Timers (dsl 1) Switchtype = primary-5ess
ISDN Layer 2 values
K      = 7 outstanding I-frames
N200  = 3 max number of retransmits
T200  = 1.000 seconds
T202  = 2.000 seconds
T203  = 30.000 seconds
ISDN Layer 3 values
T303  = 4.000 seconds
T304  = 20.000 seconds
T305  = 4.000 seconds
T306  = 30.000 seconds
T307  = 180.000 seconds
T308  = 4.000 seconds
T309  = Disabled
T310  = 30.000 seconds
T313  = 4.000 seconds
T316  = 120.000 seconds
T318  = 4.000 seconds
T319  = 4.000 seconds
T322  = 4.000 seconds
T300S = 5.000 seconds
TGUARD= 8.000 seconds, Expiry = REJECT_CALL
*** dsl 2 is not configured
*** dsl 3 is not configured
*** dsl 4 is not configured
*** dsl 5 is not configured
*** dsl 6 is not configured
*** dsl 7 is not configured
```

```
%Q.931 is backhauled to CCM MANAGER 0x0003 on DSL 8. Layer 3 output may not apply
```

```
ISDN BRI0 Timers (dsl 0) Switchtype = basic-net3
ISDN Layer 2 values
K      = 1 outstanding I-frames
N200  = 3 max number of retransmits
N202  = 2 max number of retransmits of TEI ID Request
T200  = 1 seconds
T202  = 2 seconds
T203  = 10 seconds
ISDN Layer 3 values
T303  = 4 seconds
T305  = 30 seconds
T308  = 4 seconds
T310  = 40 seconds
T313  = 4 seconds
T316  = 0 seconds
T318  = 4 seconds
T319  = 4 seconds
```

The following is sample output from the **show isdn timers** command on a router connected to a BRI ETSI-compliant Euro-ISDN E-DSS1(NET3) ISDN signaling system:

```
Router# show isdn timers
```

```
%Q.931 is backhauled to CCM MANAGER 0x0003 on DSL 8. Layer 3 output may not apply
```

```
ISDN BRI0 Timers (dsl 0) Switchtype = basic-net3
ISDN Layer 2 values
K      = 1 outstanding I-frames
N200  = 3 max number of retransmits
```

```

N202 = 2    max number of retransmits of TEI ID Request
T200 = 1    seconds
T202 = 2    seconds
T203 = 10   seconds
ISDN Layer 3 values
T303 = 4    seconds
T305 = 30   seconds
T308 = 4    seconds
T309 = 0    seconds
T310 = 40   seconds
T313 = 4    seconds
T316 = 0    seconds
T318 = 4    seconds
T319 = 4    seconds

```

Table 18 *show isdn timers Layer 2 Command Output*

Timer Number Field	System Parameter (typical)
K = n outstanding I-frames	None
N200 = 3 max number of retransmits	3 seconds
T200 = 1.000 seconds	1 second
T202 = 2.000 seconds	2 seconds
T203 = 30.000 seconds	10 seconds

Table 19 *show isdn timers Layer 3 Command Output*

Timer Number Field	Network Side ITU Default Value	User Side ITU Default Value
T303 = 4.000 seconds	4 seconds	4 seconds
T304 = 20.000 seconds	20 seconds	30 seconds
T305 = 4.000 seconds	30 seconds	30 seconds
T306 = 30.000 seconds	30 seconds	None
T307 = 180.000 seconds	180 seconds (3 minutes)	None
T308 = 4.000 seconds	4 seconds	4 seconds
T309 Disabled	90 seconds	90 seconds
T310 = 30.000 seconds	10 seconds	30 to 120 seconds
T313 = 4.000 seconds	None	4 seconds
T316 = 120.000 seconds	120 seconds (2 minutes)	120 seconds (2 minutes)
T318 = 4.000 seconds	None	4 seconds
T319 = 4.000 seconds	None	4 seconds
T322 = 4.000 seconds	4 seconds	4 seconds

Table 19 *show isdn timers Layer 3 Command Output (continued)*

Timer Number Field	Network Side ITU Default Value	User Side ITU Default Value
T3OOS = 5.000 seconds	Time interval after which the software should attempt to recover from a Layer 2 failure. Default is 5 seconds	Time interval after which the software should attempt to recover from a Layer 2 failure. Default is 5 seconds
TGUARD = 8.000 seconds, Expiry = REJECT_CALL	Managed timer for authentication requests configured with the isdn guard-timer command. Default is 8 seconds.	Managed timer for authentication requests configured with the isdn guard-timer command. Default is 8 seconds.

Related Commands

Command	Description
clear ip sctp statistics	Clears statistics counts for Sctp.
isdn answer1, isdn answer2	Configures the router to verify a called-party or subaddress number in the incoming setup message for ISDN BRI calls when the number is delivered by the switch.
show ip sctp association list	Displays a list of all current Sctp associations.
show ip sctp association parameters	Displays the parameters configured for the association defined by the association ID.
show ip sctp association statistics	Displays the current statistics for the association defined by the association ID.
show ip sctp errors	Displays error counts logged by Sctp.
show ip sctp instances	Displays the currently defined Sctp instances.
show ip sctp statistics	Displays the overall statistics counts for Sctp.
show iua as	Displays information about the current condition of an AS.
show iua asp	Displays information about the current condition of an ASP.

show isdn nfas group

To display all the members of a specified Non-Facility Associated Signaling (NFAS) group or all NFAS groups, use the **show isdn nfas group** command in privileged EXEC mode.

```
show isdn nfas group [id-number]
```

Syntax Description

id-number (Optional) Identifier number in the range from 1 to 24 of a specific NFAS group.

Command Modes

Privileged EXEC

Command History

Release	Modification
11.3	This command was introduced.
12.3	This command was enhanced to display the message “%Q.931 is backhauled to BACKHAUL on DSL 0. Layer 3 output may not apply”.

Usage Guidelines

Native ISDN stacks do not know Layer 3 details because Layer 3 is backhauled to an external application. So informational message “%Q.931 is backhauled to IUA BACKHAUL on DSL 3. Layer 3 output may not apply” is displayed for those users that expect ISDN commands to show the required output.

Examples

The following is sample output from the **show isdn nfas group** command:

```
Router# show isdn nfas group 1

%Q.931 is backhauled to IUA BACKHAUL on DSL 3. L3 output may not apply

ISDN NFAS GROUP 1 ENTRIES:

The primary D is Serial1/0:23.
The backup D is Serial1/1:23.
The NFAS member is Serial2/0:23.

There are 3 total nfas members.
There are 93 total available B channels.
The primary D-channel is DSL 0 in state INITIALIZED.
The backup D-channel is DSL 1 in state INITIALIZED.
The current active layer 2 DSL is 1.
```

The following three examples show the D-channel state changes when rollover occurs from the primary NFAS D channel to the backup D channel. The first example shows the output with the primary D channel in service and the backup D channel in standby.

```
Router# show isdn nfas group 0

%Q.931 is backhauled to IUA BACKHAUL on DSL 3. L3 output may not apply

ISDN NFAS GROUP 0 ENTRIES:
```

show isdn nfas group

```
The primary D is Serial1/0:23.
The backup D is Serial1/1:23.
The NFAS member is Serial2/0:23.
```

```
There are 3 total nfas members.
There are 70 total available B channels.
The primary D-channel is DSL 0 in state IN SERVICE.
The backup D-channel is DSL 1 in state STANDBY.
The current active layer 2 DSL is 0.
```

The following example shows the output during rollover. The configured primary D channel is in maintenance busy state and the backup D channel is waiting.

```
Router# show isdn nfas group 0
```

```
%Q.931 is backhauled to IUA BACKHAUL on DSL 3. L3 output may not apply
```

```
ISDN NFAS GROUP 0 ENTRIES:
The primary D is Serial1/0:23.
The backup D is Serial1/1:23.
The NFAS member is Serial2/0:23.
```

```
There are 3 total nfas members.
There are 70 total available B channels.
The primary D-channel is DSL 0 in state MAINTENANCE BUSY.
The backup D-channel is DSL 1 in state WAIT.
The current active layer 2 DSL is 1.
```

The following example shows the output when rollover is complete. The configured primary D channel is now in standby and the backup D channel is in service.

```
Router# show isdn nfas group 0
```

```
%Q.931 is backhauled to IUA BACKHAUL on DSL 3. L3 output may not apply
```

```
ISDN NFAS GROUP 0 ENTRIES:
The primary D is Serial1/0:23.
The backup D is Serial1/1:23.
The NFAS member is Serial2/0:23.
```

```
There are 3 total nfas members.
There are 70 total available B channels.
The primary D-channel is DSL 0 in state STANDBY.
The backup D-channel is DSL 1 in state IN SERVICE.
The current active layer 2 DSL is 1.
```

Table 20 describes the significant fields shown in the display.

Table 20 *show isdn nfas group Field Descriptions*

Field	Description
The primary D is Serial1/0:23.	Identifies the primary D channel.
The backup D is Serial1/1:23.	Identifies the backup D channel.
The NFAS member is Serial2/0:23.	Identifies the NFAS group.
There are 3 total nfas members.	Number of member interfaces in the group.
There are 70 total available B channels.	Number of B channels in this NFAS group.

Table 20 *show isdn nfas group Field Descriptions (continued)*

Field	Description
The primary D-channel is DSL 0 in state STANDBY.	Service state of the NFAS primary D channel; this D channel is in standby mode.
The backup D-channel is DSL 1 in state IN SERVICE.	Service state of the NFAS backup D channel; this D channel is in service. The states are IN SERVICE, STANDBY, OUT OF SERVICE, MAINTENANCE, WAIT, INITIALIZED, and BUSY.
The current active layer 2 DSL is 1.	Digital subscriber loop (DSL) identifier assigned by the service provider. If both D channels are out of service, the value displayed in this line is 1.

Related Commands

Command	Description
show isdn	Displays the information about memory, Layer 2 and Layer 3 timers, and the status of PRI channels.

show line async-queue

To display the status of connections currently waiting in the queue, use the **show line async-queue** command in EXEC mode.

```
show line async-queue [rotary-group]
```

Syntax Description	<i>rotary-group</i> (Optional) Specifies a rotary group.
---------------------------	--

Command Modes	EXEC
----------------------	------

Command History	Release	Modification
	12.1(1)T	This command was introduced.

Usage Guidelines	Use this command to display all rotary line queues.
-------------------------	---

Examples	The following example shows all lines that are currently queued:
-----------------	--

```
Router# show line async-queue

Showing async-queue for ALL rotary groups

Queue for Rotary Group 1:
  Pos   Waiting TTY   Dest Port   Source Host   Waiting Time
  ---   -
  1     tty69         7001        10.2.1.3     00:00:09
  2     tty70         7001        10.2.1.3     00:00:06

Queue for Rotary Group 2:
  Pos   Waiting TTY   Dest Port   Source Host   Waiting Time
  ---   -
  1     tty66         7002        10.2.1.3     00:00:36
  2     tty67         7002        10.2.1.3     00:00:29
  3     tty68         7002        10.2.1.3     00:00:26

Lines which have queuing enabled [tty (group)]:
tty33 (1) tty34 (1) tty35 (1) tty36 (1) tty37 (2)
tty38 (2) tty39 (2) tty40 (2) tty41 (3) tty42 (3)
tty43 (3) tty44 (3) tty45 (4) tty46 (4) tty47 (4)
Router#
```

Note that Waiting TTY may also be displayed as Waiting VTY and is equivalent.

show modem

To display a high-level performance report for all the modems or a single modem inside Cisco access servers, use the **show modem** command in EXEC mode.

show modem [*slot/port* | *group number*]

Syntax Description		
<i>slot/port</i>	(Optional) Location of a slot and modem port. Remember to include the forward slash (/) when entering this variable.	
<i>group number</i>	(Optional) Assigns the group to which a specified modem belongs. The group number range is from 1 to 200.	

Command Modes EXEC

Command History	Release	Modification
	11.2	This command was introduced.
	12.1(5)T	This command was enhanced to display information about modems on the Cisco 3600 series routers that support the V.110 standard.
	12.2(11)YT	This command was enhanced to display information about digital modems on the Cisco 3600 and 3700 series routers that support the V.92 and V.44 standards.
	12.2(15)T	The Cisco IOS Release 12.2(11)YT enhancements were integrated into Cisco IOS Release 12.2(15)T.

Examples

The following is sample output from the **show modem** command for two V.34 modem cards inserted in a Cisco 3600 router:

Router# **show modem**

Mdm	Usage	Inc calls		Out calls		Busied Out	Failed Dial	No Answer	Succ Pct.
		Succ	Fail	Succ	Fail				
* 1/0	17%	74	3	0	0	0	0	0	96%
* 1/1	15%	80	4	0	0	0	1	1	95%
* 1/2	15%	82	0	0	0	0	0	0	100%
1/3	21%	62	1	0	0	0	0	0	98%
1/4	21%	49	5	0	0	0	0	0	90%
* 1/5	18%	65	3	0	0	0	0	0	95%
* 1/6	19%	58	2	0	0	0	0	0	96%
* 1/7	17%	67	5	0	0	0	1	1	93%
* 1/8	20%	68	3	0	0	0	0	0	95%
1/9	16%	67	2	0	0	0	0	0	97%
1/10	18%	56	2	0	0	0	1	1	96%
* 1/11	15%	76	3	0	0	0	0	0	96%
* 1/12	16%	62	1	0	0	0	0	0	98%
1/13	17%	51	4	0	0	0	0	0	92%
1/14	16%	51	5	0	0	0	0	0	91%
1/15	17%	65	0	0	0	0	0	0	100%
1/16	15%	73	3	0	0	0	0	0	96%
1/17	17%	67	2	0	0	0	0	0	97%
1/18	17%	61	2	0	0	0	0	0	96%

show modem

```

* 1/19 17%    74    2    0    0    0    0    0    97%
  1/20 16%    65    1    0    0    0    0    0    98%
* 1/21 16%    58    3    0    0    0    0    0    95%
* 1/22 18%    56    4    0    0    0    0    0    93%
* 1/23 20%    60    4    0    0    0    0    0    93%

```

The following is sample output from the **show modem** command for two V.110 modem cards inserted in a Cisco 3600 router:

```
Router# show modem
```

Mdm	Usage	Inc calls		Out calls		Busied Out	Failed Dial	No Answer	Succ Pct.
		Succ	Fail	Succ	Fail				
0/0	0%	-	-	-	-	0	0	0	-
0/1	0%	-	-	-	-	0	0	0	-
0/2	0%	-	-	-	-	0	0	0	-
0/3	0%	-	-	-	-	0	0	0	-
0/4	0%	-	-	-	-	0	0	0	-
0/5	0%	-	-	-	-	0	0	0	-
0/6	0%	-	-	-	-	0	0	0	-
0/7	0%	-	-	-	-	0	0	0	-
0/8	0%	-	-	-	-	0	0	0	-
0/9	0%	-	-	-	-	0	0	0	-
0/10	0%	-	-	-	-	0	0	0	-
0/11	0%	-	-	-	-	0	0	0	-
1/0	0%	-	-	-	-	0	0	0	-
1/1	0%	-	-	-	-	0	0	0	-
1/2	0%	-	-	-	-	0	0	0	-
1/3	0%	-	-	-	-	0	0	0	-
1/4	0%	-	-	-	-	0	0	0	-
1/5	0%	-	-	-	-	0	0	0	-
1/6	0%	-	-	-	-	0	0	0	-
1/7	0%	-	-	-	-	0	0	0	-
1/8	0%	-	-	-	-	0	0	0	-
1/9	0%	-	-	-	-	0	0	0	-

The following is sample output from the **show modem** command for a Cisco 3600 series router:

```
Router# show modem
```

Codes:

```

* - Modem has an active call
R - Modem is being Reset
D - Download in progress
B - Modem is marked bad and cannot be used for taking calls
b - Modem is either busied out or shut-down

```

Mdm	Avg Hold Time	Inc calls		Out calls		Busied Out	Failed Dial	No Answer	Succ Pct.
		Succ	Fail	Succ	Fail				
* 0/0	00:21:01	132	0	0	0	0	0	0	100%
* 0/1	2d01h	1	0	0	0	0	0	0	100%
0/2	00:00:34	130	0	0	0	0	0	0	100%
* 0/3	00:21:53	126	1	0	0	0	0	0	99%
* 0/4	2d01h	1	0	0	0	0	0	0	100%
0/5	00:00:33	131	0	0	0	0	0	0	100%
* 0/6	00:21:12	131	0	0	0	0	0	0	100%
0/7	00:00:34	131	0	0	0	0	0	0	100%
b 0/8	00:00:00	0	0	0	0	0	0	0	0%
b 0/9	00:00:00	0	0	0	0	0	0	0	0%
!.									
!.									
!.									
b 0/29	00:00:00	0	0	0	0	0	0	0	0%
Total:	00:18:25	783	1	0	0	0	0	0	99%

Table 21 describes the significant fields shown in the previous displays of the **show modem** command.

Table 21 *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: <ul style="list-style-type: none"> • 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 Digital Signal Processor (DSP) code, which supports K56flex, is not configured. The modem will revert to transmitting at 33.6 kbps. • D—Modem is 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.
Usage	Percentage of the total system uptime that all modems are in use.
Inc calls	Number of incoming calls that successfully and unsuccessfully connected to a modem.
Out calls	Number of outgoing calls that successfully and unsuccessfully dialed out from an available modem.
Busied Out	Number of modems that have been manually removed from service.
Failed Dial	Number of modems that attempted to dial in to the network but failed to make a connection.
No Answer	Number of modems that detected an incoming ring but failed to answer the call.
Succ Pct.	Successful connection percentage of total available modems.

The following example shows the statistics and current configurations for the manageable modem 2/10, which exists on a V.34 modem card in a Cisco 3600 router. A dash (-) indicates a field that is not available on basic modems. An x indicates a field that is available and active on manageable modems. See Table 22 for a description of the fields displayed by the **show modem** command with slot and port designators.

```
Router# show modem 2/10
```

```
Mdm Typ      Status      Tx/Rx      G Duration TX  RX  RTS  CTS  DSR  DCD  DTR
2/10 V34     Idle       33600/33600 1 00:00:00          x   x   x          x
```

```
Modem 2/10, Microcom MNP10 V34 Modem (Select), Async35, TTY35
Firmware (Boot) Rev: 2.1(9) (1.0(5))
Modem config: Incoming and Outgoing
Protocol: reliable/MNP, Compression: V42bis
Management port config: Status polling and AT session
```

```
Management port status: Status polling and AT session
TX signals: 0 dBm, RX signals: 0 dBm
```

```
Last clearing of "show modem" counters never
  0 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
```

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	28800	31200	33600
# of connections	0	0	0	0	0	1

The following is sample output for a basic V.34 modem module. Notice that unavailable fields are marked with dashes (-):

```
Router# show modem 1/1
```

Mdm	Typ	Status	Tx/Rx	G	Duration	TX	RX	RTS	CTS	DSR	DCD	DTR
1/1	-	Idle	19200/19200	0	00:01:05	-	-	-	-	-	-	-

```
Modem 1/1, C3600 Non-Manageable Modem
Firmware (Boot) Rev: Unknown
Modem config: Unknown
Management config: Not Manageable Modem
```

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

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	28800	31200	33600
# of connections	0	0	0	0	0	0

The following is sample output from the **show modem slot/port** command for V.110 modem cards:

```
Router# show modem 0/1
```

Mdm	Typ	Status	Tx/Rx	G	Duration	TX	RX	RTS	CTS	DSR	DCD	DTR
0/1		Idle	-/-	1	00:00:00	-	-	-	-	-	-	-

```
Modem 0/1, V.110 Terminal Adaptor (Unmanaged), Async2, TTY2
Firmware (Boot) Rev: Unmanaged (Unmanaged)
Modem config: Incoming and Outgoing
Management config: Unmanaged
```

```
Last clearing of "show modem" counters never
- incoming completes, - incoming failures
- outgoing completes, - outgoing failures
```

```

0 failed dial attempts, 0 ring no answers, 0 busied outs
- no dial tones, - dial timeouts, 0 watchdog timeouts
- no carriers, - link failures, 0 resets, - recover oob
- protocol timeouts, - protocol errors, - lost events

```

```

Connection Speeds      75      300      600      1200      2400      4800
# of connections      -      -      -      -      -      -
Connection Speeds     7200     9600    12000    14400    16800    19200
# of connections      -      -      -      -      -      -
Connection Speeds    21600    24000    26400    28800    31200    32000
# of connections      -      -      -      -      -      -
Connection Speeds    33600    34000    36000    38000    40000    42000
# of connections      -      -      -      -      -      -
Connection Speeds    44000    46000    48000    50000    52000    54000
# of connections      -      -      -      -      -      -
Connection Speeds     56000
# of connections      -

```

The type of display output generated from the **show modem slot/port** command depends on the version of Cisco IOS software running on the router or access server. For example, the following shows example output for a 56K modem card, which carries digital modems that transmit at 56 kbps. (In truth, 56K modems do not modulate or demodulate data. A pure digital-to-digital connection is made.) See [Table 22](#) for a description of the fields displayed by this modem card.

```
Router# show modem 0/0
```

```

Mdm Typ   Status   Tx/Rx   G Duration TX  RX  RTS  CTS  DSR  DCD  DTR
0/0      Idle    0/0     0 00:00:00      x   x   x     x

```

```

Modem 0/0, Microcom MNP10 K56 Modem (Select), TTY1
Firmware (Boot) Rev: 3.1(16) (3.0(4))
DSP Controller (SPX) Rev: 1.1(0) (1.1(0))
Modem config: Incoming and Outgoing
Protocol: Normal, Compression: None
Management port config: Status polling and AT session
Management port status: Status polling and AT session
TX signals: 0 dBm, RX signals: 0 dBm

```

```

Last clearing of "show modem" counters never
0 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, 1 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    28800    31200    32000
# of connections      0      0      0      0      0      0
Connection Speeds    33600    34000    36000    38000    40000    42000
# of connections      0      0      0      0      0      0
Connection Speeds    44000    46000    48000    50000    52000    54000
# of connections      0      0      0      0      0      0
Connection Speeds     56000
# of connections      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	28800	31200	32000
# of connections	0	0	0	0	0	0
Connection Speeds	33600	34000	36000	38000	40000	42000
# of connections	0	0	0	0	0	0
Connection Speeds	44000	46000	48000	50000	52000	54000
# of connections	0	0	0	0	0	0
Connection Speeds	56000					
# of connections	0					

The following is sample output from the **show modem slot/port** command for digital modems on a Cisco 3600 series router that supports the V.92 and V.44 modem standards:

Router# **show modem 3/0**

Mdm	Typ	Status	Tx/Rx	G	Duration	TX	RX	RTS	CTS	DSR	DCD	DTR
3/0	V90/92	Idle	46666/31200	1	00:01:30	-	-			x		

Modem 3/0 [line 97], Async97, TTY97

MICA-6DM Firmware: CP ver 2910 - 7/13/2001, SP ver 2910 - 7/13/2001.

Modem config: Incoming and Outgoing

Protocol: LAPM, Compression: V44

Last clearing of "show modem" counters: never

1 incoming completes, 1 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
 0 TDM errors, 0 speed shifts (up/dn - 0/0), 0 retrains (hi/lo - 0/0)
 0 MOH

Modulation type	V90/92
# of connections	1

Protocol type	LAPM
# of connections	1

Transmit Speed Counters:

Connection Speeds	46667
# of connections	1

Receive Speed Counters:

Connection Speeds	31200
# of connections	1

Table 22 describes the fields in the previous four displays, which were created using the **show modem slot/port** command. This table applies to all modem module types.

Table 22 *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, V17, V27, V33, K56Flx, and V90/92.
Status	<p>Current status of the modem. Possible values are as follows:</p> <ul style="list-style-type: none"> • 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 (in hours: minutes: seconds) of the current or the last call.
Modem functions	<p>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 (-).</p> <ul style="list-style-type: none"> • TX—Transmit Data. The DTE device transmits data to the DCE device. • RX—Receive Data. The DCE device receives data from the DTE device. • RTS—Request To Send. The DTE device signals to the DCE device that the DTE device accepts data into its buffers. • CTS—Clear To Send. The DCE device signals to the DTE device that the DCE device accepts data into its buffers. • DSR—Data Set Ready. The modem is ready to start communication. • DCD—Data Carrier Detect. The DCE device indicates to the DTE device that a call is present and established with a remote modem. Dropping the DCD function terminates the session. • DTR—Data Terminal Ready. The DTE device indicates to the DCE device that it accepts calls.
Firmware	Installed modem firmware.
Modem config	Current modem configuration, which includes the fields Incoming, Outgoing, Incoming and Outgoing, Unknown, Protocol, and Compression.

Table 22 *show modem slot/port Field Descriptions (continued)*

Field	Description
Protocol	Protocol the modem is running such as Normal, Direct, reliable/Microcom Network Protocol (MNP)4, and reliable/LAPM (Link Access Procedure for Modems).
Compression	Compression algorithm running on the modem, such as None, V42bis, V.44, 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.

Table 22 *show modem slot/port Field Descriptions (continued)*

Field	Description
Last clearing of “show modem” counters	<p>Last time the modem’s counters were cleared using the clear modem counters command. A summary of modem events also appears.</p> <ul style="list-style-type: none"> • Incoming completes and failures—Total number of incoming connection requests that the modem answered and successfully or unsuccessfully connected with the remote DCE device. • Outgoing completes and failures—Total number of outgoing connection requests that the modem dialed and successfully or unsuccessfully connected with the remote DCE device. • 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 reinitialized. • 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. • MOH—Indicates V.92 Modem on Hold (MOH), which allows suspending a modem session to answer an incoming voice call or to place an outgoing call while engaged in a modem session.
Modulation type	Modulation type, which can be any of the following values: Bel103, Bel212, V21, V22, V22bis, V23, V32, V32bis, VFC, V34, V17, V27, V33, K56Flx, and V90/92.
Protocol type	Protocol the modem is running such as Normal, Direct, reliable/MNP4, and reliable/LAPM.
Transmit Speed Counters:	List of connection speeds that were sent by the modem.

Table 22 *show modem slot/port Field Descriptions (continued)*

Field	Description
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 56000 bits per second (bps). The number of successful connections is 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 example shows the output for modem group 1, which comprises modem 1/0 through modem 1/23. The report is self explanatory.

```
Router# show modem group 1
```

```

          Incoming calls      Outgoing calls  Busied  Failed  No  Succ
Grp  Usage  Succ  Fail  Avail  Succ  Fail  Avail  Out   Dial  Ans  Pct.
1    0%    0    0    24    0    0    24    0    0    0    0%
```

```
Modem Group 1: 1/0, 1/1, 1/2, 1/3, 1/4, 1/5, 1/6, 1/7, 1/8, 1/9, 1/10, 1/11, 1/12, 1/13,
1/14, 1/15, 1/16, 1/17, 1/18, 1/19, 1/20, 1/21, 1/22, 1/23
```

Related Commands

Command	Description
show modem version	Displays version information about the modem firmware, controller and DSP code (for 56-kbps modems only), and boot code.

show modem at-mode

To display a list of the manageable Microcom modems that have open AT sessions and a list of users logged in to those sessions, use the **show modem at-mode** command in EXEC mode.

show modem at-mode

Syntax Description This command has no arguments or keywords.

Command Modes EXEC

Command History	Release	Modification
	11.2	This command was introduced.

Examples The report from the show modem at-mode command is self-explanatory. The following output shows that modem 1/1 has one open AT directly connected session:

```
Router# show modem at-mode

Active AT-MODE management sessions:
Modem   User's Terminal
1/1 0   cty 0
```

show modem bundled-firmware

To display a list of available modem firmware running in a Cisco AS5800 access server, use the **show modem bundled-firmware** command in EXEC mode.

show modem bundled-firmware

Syntax Description This command has no arguments or keywords.

Command Modes EXEC

Command History	Release	Modification
	11.3(5)AA	This command was introduced.

Usage Guidelines Use this command instead of the the **show modem mapping** command on the Cisco AS5800 access servers. The **show modem bundled-firmware** command is useful for displaying a list of available modem firmware running in the access server.

Examples The report from the **show modem bundled-firmware** command is self-explanatory. The following sample output shows firmware images by slot number:

```
Router# show modem bundled-firmware

List of bundled modem firmware images by slot
Slot 4
  2.6.2.0
Slot 5
  2.6.2.0
Slot 6
  2.6.2.0
Slot 7
  2.6.2.0
Slot 8
  2.6.2.0
```

Related Commands	Command	Description
	copy	Copies any file from a source to a destination, including a source or destination URL for a TFTP network server, or for Flash memory.
	copy modem	Copies modem firmware to integrated modems in an access server.
	show modem mapping	Displays a snapshot of all the firmware versions running on all the modems in access servers besides the AS5800.

show modem call-stats

To display the local disconnect reasons for all modems inside an access server or router, use the **show modem call-stats** command in EXEC mode.

show modem call-stats [*slot*]

Syntax Description	<i>slot</i>	(Optional) Slot number, which limits the display output to a particular range of modems in the system.
--------------------	-------------	--

Command Modes	EXEC
---------------	------

Command History	Release	Modification
	11.3	This command was introduced.
	12.2(11)YT	This command was enhanced to display information about digital modems on the Cisco 3600 and 3700 series routers that support the V.92 and V.44 standards.
	12.2(15)T	This enhanced command was integrated into Cisco IOS Release 12.2(15)T.

Usage Guidelines Use this command to find out why a modem ended its connection or why a modem is not operating at peak performance.

Local disconnect reasons for a particular modem are listed across the top of the screen display. For example, see `lostCarr`, `dtrDrop`, `rmtLink`, `wdogTimr`, `compress`, `retrain`, `inacTout`, and `linkFail` in the following output:

```
Router# show modem call-stats

dial-in/dial-out call statistics

      lostCarr  dtrDrop  rmtLink  wdogTimr  compress  retrain  inacTout  linkFail
Mdm
* 0/0
* 0/1
```

In the body of the screen display, the number of times an error occurred on a specific modem is displayed (see the # column). The % column shows the total running percent that a modem was logged for the specified disconnect reason with respect to the entire modem pool. For example, out of all the times that the `lostCarr` error occurred on all the modems in the system, the `lostCarr` error occurred 2 percent of the time on modem 0/0.

```
Router# show modem call-stats

dial-in/dial-out call statistics

      lostCarr  dtrDrop  rmtLink  wdogTimr  compress  retrain  inacTout  linkFail
Mdm   #   %   #   %   #   %   #   %   #   %   #   %   #   %
* 0/0   6   2   2   3   1   0   0   0   0   0   0   0   0   0
* 0/1   5   2   2   3   2   1   0   0   0   0   0   0   0   0
```

Bad or malfunctioning modems are detected by an unusually high number of disconnect counters for a particular disconnect reason. For example, if modem 1/0 had a high number of compression errors compared to the remaining modems in system, modem 1/0 would probably be bad or inoperable.

To reset the counters displayed by the **show modem call-stats** command, use the **clear modem counters** command.

**Note**

Remote disconnect reasons are not described by this command.

Examples

The following example shows call statistics for the **show modem call-stats** command. Because of the screen size limitation of most terminal screen displays, all the possible disconnect reasons cannot be displayed at the same time. Only the top eight most frequently experienced disconnect reasons are displayed.

```
Router# show modem call-stats
```

```
dial-in/dial-out call statistics
```

Mdm	lostCarr		dtrDrop		rmtLink		wdogTimr		compress		retrain		inacTout		linkFail	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
* 0/0	6	2	2	3	1	0	0	0	0	0	0	0	0	0	0	0
* 0/1	5	2	2	3	2	1	0	0	0	0	0	0	0	0	0	0
0/2	5	2	2	3	4	3	0	0	0	0	0	0	0	0	0	0
* 0/3	5	2	2	3	2	1	0	0	0	0	0	0	0	0	0	0
* 0/4	5	2	1	1	1	0	0	0	0	0	0	0	0	0	0	0
* 0/5	5	2	2	3	2	1	0	0	0	0	0	0	0	0	0	0
* 0/6	4	1	2	3	2	1	0	0	0	0	0	0	0	0	0	0
* 0/7	4	1	2	3	4	3	0	0	0	0	0	0	0	0	0	0
* 0/8	6	2	1	1	3	2	0	0	0	0	0	0	0	0	0	0
* 0/9	5	2	1	1	1	0	0	0	0	0	0	0	0	0	0	0
* 0/10	5	2	1	1	2	1	0	0	0	0	0	0	0	0	0	0
* 0/11	5	2	1	1	2	1	0	0	0	0	0	0	0	0	0	0
0/12	5	2	2	3	2	1	0	0	0	0	0	0	0	0	0	0
* 0/13	5	2	1	1	1	0	0	0	0	0	0	0	0	0	0	0
* 0/14	5	2	1	1	1	0	0	0	0	0	0	0	0	0	0	0
* 0/15	5	2	1	1	1	0	0	0	0	0	0	0	0	0	0	0
* 0/16	5	2	1	1	1	0	0	0	0	0	0	0	0	0	0	0
* 0/17	5	2	1	1	2	1	0	0	0	0	0	0	0	0	0	0
* 0/18	5	2	1	1	2	1	0	0	0	0	0	0	0	0	0	0
* 0/19	5	2	1	1	3	2	0	0	0	0	0	0	0	0	0	0
* 0/20	5	2	1	1	1	0	0	0	0	0	0	0	0	0	0	0
* 0/21	5	2	1	1	1	0	0	0	0	0	0	0	0	0	0	0
* 0/22	5	2	1	1	11	10	0	0	0	0	0	0	0	0	0	0
* 0/23	5	2	1	1	2	1	0	0	0	0	0	0	0	0	0	0
* 2/0	4	1	2	3	2	1	0	0	0	0	0	0	0	0	0	0
* 2/1	5	2	1	1	2	1	0	0	0	0	0	0	0	0	0	0
* 2/2	5	2	2	3	0	0	0	0	0	0	0	0	0	0	0	0
* 2/3	5	2	1	1	2	1	0	0	0	0	0	0	0	0	0	0
* 2/4	5	2	1	1	2	1	0	0	0	0	0	0	0	0	0	0
* 2/5	5	2	1	1	2	1	0	0	0	0	0	0	0	0	0	0
* 2/6	4	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0
* 2/7	5	2	1	1	1	0	0	0	0	0	0	0	0	0	0	0
* 2/8	5	2	1	1	1	0	0	0	0	0	0	0	0	0	0	0
* 2/9	4	1	1	1	2	1	0	0	0	0	0	0	0	0	0	0
* 2/10	5	2	1	1	0	0	0	0	0	0	0	0	0	0	0	0
* 2/11	5	2	1	1	5	4	0	0	0	0	0	0	0	0	0	0
* 2/12	5	2	1	1	2	1	0	0	0	0	0	0	0	0	0	0
* 2/13	5	2	1	1	1	0	0	0	0	0	0	0	0	0	0	0
* 2/14	5	2	1	1	2	1	0	0	0	0	0	0	0	0	0	0

```

* 2/15  4  1  1  1  3  2  0  0  0  0  0  0  0  0  0  0
* 2/16  4  1  1  1  3  2  0  0  0  0  0  0  0  0  0  0
* 2/17  5  2  2  3  9  8  0  0  0  0  0  0  0  0  0  0
* 2/18  4  1  1  1  1  0  0  0  0  0  0  0  0  0  0  0
* 2/19  3  1  1  1  2  1  0  0  0  0  0  0  0  0  0  0
* 2/20  7  3  1  1  8  7  0  0  0  0  0  0  0  0  0  0
* 2/21  5  2  1  1  1  0  0  0  0  0  0  0  0  0  0  0
* 2/22  4  1  1  1  2  1  0  0  0  0  0  0  0  0  0  0
* 2/23  5  2  1  1  2  1  0  0  0  0  0  0  0  0  0  0
Total 233      59      110      0      0      0      0
    
```

dial-out call statistics

Mdm	noCarr		noDitone		busy		abort		dialStrg		autoLgon		dialTout		rmtHgup	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
* 0/0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* 0/1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0/2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* 0/3	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* 0/4	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* 0/5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* 0/6	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* 0/7	5	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* 0/8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* 0/9	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* 0/10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* 0/11	5	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0/12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* 0/13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* 0/14	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* 0/15	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* 0/16	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* 0/17	4	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* 0/18	5	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* 0/19	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* 0/20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* 0/21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* 0/22	5	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* 0/23	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* 2/0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* 2/1	3	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* 2/2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* 2/3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* 2/4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* 2/5	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* 2/6	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* 2/7	4	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* 2/8	7	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* 2/9	4	1	1	1	2	1	0	0	0	0	0	0	0	0	0	0
* 2/10	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* 2/11	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* 2/12	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* 2/13	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* 2/14	4	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* 2/15	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* 2/16	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* 2/17	5	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* 2/18	5	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* 2/19	3	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* 2/20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* 2/21	4	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* 2/22	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* 2/23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	84		0		0		0		0		0		0		0	

The following is sample output from the **show modem call-stats** command for digital modems on a Cisco 3600 series router that supports the V.92 modem standard (see the “mohTrmnt” column for data about the V.92 Modem on Hold [MOH] function):

Router# **show modem call-stats**

Codes:

* - Modem has an active call
 R - Modem is being Reset
 D - Download in progress
 B - Modem is marked bad and cannot be used for taking calls
 b - Modem is either busied out or shut-down

dial-in/dial-out call statistics

Mdm	mohTrmnt		wdogTimr		compress		retrain		inacTout		linkFail		moduFail		mnpProto	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
3/0	1	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* 3/1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3/2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3/3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3/4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3/5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3/6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3/7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3/8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3/9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3/10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3/11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	1		0		0		0		0		0		0		0	

dial-out call statistics

Mdm	noCarr		noDitone		busy		abort	dialStrg		autoLgon		dialTout		rmtHgup	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	
3/0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* 3/1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3/2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3/3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3/4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3/5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3/6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3/7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3/8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3/9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3/10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3/11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0		0		0		0		0		0		0		0

Table 23 describes the significant fields shown in the display.

Table 23 *show modem call-stats Field Descriptions*

Field	Description
dial-in/dial-out call statistics	This category of disconnect reasons can happen only in dial-in or dial-out scenarios.
mohTrmnt	The number of times that a modem is disconnected because Modem on Hold (MOH) terminates. MOH will terminate for two reasons: <ul style="list-style-type: none"> • MOH clear down by the modem (MICA_DR_MOH_CLEAR_DOWN) • MOH time out (MICA_DR_MOH_TIMEOUT)
wdogTimr	Watchdog timeout. An obscure firmware problem occurred. This is a rare disconnect reason.
compress	Compression. An error was detected during decompression, which caused the internal decompression dictionary to overflow. This could be caused by a modem dialing in that is using a slightly different compression algorithm.
retrain	Retrain failure. A connection was lost and not reestablished after three attempts.
inacTout	Inactivity timeout. The time specified in the AT/T command has expired. No modem data transfers were detected during that period.
linkFail	Link failure. The protocol level link failed while using MNP-10 or LAPM (Link Access Procedure for Modems) in reliable mode.
moduFail	Modulation error. An error was detected at the Digital Signal Processor (DSP) chip level, which caused a disconnect.
mnpProto	MNP10 protocol error. An uncorrectable error occurred during an MNP-10 connection.
lapmProt	LAPM protocol error. An uncorrectable error occurred during a LAPM connection.
lostCarr	Lost carrier. The modem firmware detected a carrier drop during a connection. The cause for the carrier drop could be the loss of signal from the remote modem or the result of a error detection.
dtrDrop	DTR drop. The modem disconnected because the DTR signal from the host became inactive.
userHgup	User hang-up. The modem disconnected because a command such as ATH was detected.
rmtlink	Remote link disconnect. If an MNP-10 reliable link is established, the remote modem sends the disconnect reason across the link before disconnecting. The disconnect reason displayed is LOCAL (remote link disconnect) and REMOTE (the reason the remote modem disconnected).
trminate	Terminate. A password security error occurred in the Microcom High Density Management System (HDMS). This error occurs only with Microcom modems.
callBkfa	Callback failed. This error applies to leased line connections only. A switched line connection failed and a connection still cannot be made on the leased line.
dial-out call statistics	This category of disconnect reasons can happen only in a dial-out scenario.

Table 23 *show modem call-stats Field Descriptions (continued)*

Field	Description
noCarr	No carrier. The called number answered, but no answer tone was detected after the appropriate wait.
noDitone	No dial tone. No dial tone was detected after the modem went off hook.
busy	Busy. A busy signal was detected while the local modem was attempting to dial.
abort	Abort. A character was received from the remote host after the dial command was issued and before a connection was established.
dialStrg	Dial string error. An invalid character was detected in the dial string, which forced the dial attempt to terminate.
autoLgon	Autologon error. An autologon sequence did not successfully complete.
dialTout	Dial timeout. When a semicolon is used as a dial modifier, the modem returns to the command state as indicated by an "OK." This character allows a continuation of the dial string. If a period of time elapses as specified in the S7 register without the dial string completing, the attempt is aborted with dial timeout as the disconnect reason.
rmtHgup	Remote hang-up. The modem disconnected because the remote modem disconnected the call and dropped DTR.
blacklst	Blacklist. In a country that supports blacklisting, an attempt was made to go off hook with a null dial string (ATD).
ccpNssn	CCP not seen. The credit card prompt (also known as Bong) was not detected.
faxClasz	Fax class 2 error. An abnormal termination to a fax transmission was detected.
Total	Total number of times the disconnect reason occurred among all the modems in the system.

show modem calltracker

To display all information stored within the Call Tracker active or history database for the latest call assigned to a specified modem, use the **show modem calltracker** command in privileged EXEC mode.

show modem calltracker [*slot/port*]

Syntax Description	<i>slot/port</i> (Optional) Location of a slot and modem port. Remember to include the slash mark when entering this argument.
---------------------------	--

Command Modes	Privileged EXEC
----------------------	-----------------

Command History	Release	Modification
	12.1(3)T	This command was introduced.

Usage Guidelines	This command allows you to display all Call Tracker data for a given modem when you do not have the call handle readily available and do not want to search the Call Tracker database.
-------------------------	--

Examples	The following example shows Call Tracker data for the modem in slot 1, port 1:
-----------------	--

```
Router# show modem calltracker 1/1

----- call handle=0000000058 -----
status=Active, service=PPP, origin=Answer, category=Modem
DS0 slot/cntr/chan=0/0/22, called=71071, calling=6669999
userid=router5200, ip=172.19.4.2, mask=255.255.255.0
setup=10/16/1999 18:29:20, conn=0.10, phys=17.00, service=24.71, authen=24.71
init rx/tx b-rate=28800/33600, rx/tx chars=0/0
resource slot/port=1/1, mp bundle=0, charged units=0, account id=75
idb handle=0x6185B968, tty handle=0x612F8598, tcb handle=0x0
-----
protocol: last=LAP-M, attempted=LAP-M
compression: last=V.42bis-Both, supported= V.42bis-RX V.42bis-TX
standard: last=V.34+, attempted=V.34+, initial=V.34+

snr=35 dB, sq=3, rx/tx level=-16/-15 dBm
phase jitter: freq=0 Hz, level=0 degrees
far end echo level=-83 dBm, freq offset=0 Hz
phase roll=-99 degrees, round-trip delay=1 msecs
digital pad=None dB, digital pad comp=0
rbs pattern=0, constellation=16 point
rx/tx: symbol rate=3429/3429, carrier freq=1959/1959
rx/tx: trellis code=0/0, preemphasis index=6/0
rx/tx: constellation shape=Off/On, nonlinear encode=Off/On
rx/tx: precode=Off/On, xmit level reduct=2/2 dBm

rx/tx: chars=0/0, general info=0x0
rx/tx: link layer chars=0/0, NAKs=0/0
error corrected: rx/tx=0/0, rx bad=0
```


show modem configuration

To display the current modem configuration for digital MICA technologies modems loaded inside an access server or router, use the **show modem configuration** command in EXEC mode.

show modem configuration [*slot/port*]

Syntax Description	<i>slot/port</i>
	(Optional) Slot and modem port location. If this number is not specified, statistics for all connected modems are displayed. You must type in the forward slash (/).

Command Modes	EXEC
---------------	------

Command History	Release	Modification
	11.2P	This command was introduced.
	12.1(5)T	This command was enhanced to display information about digital modems on the Cisco 3600 series routers that support V.110.
	12.2(2)XA	This command was implemented on Cisco AS5350 and Cisco AS5400 universal access servers running NextPort firmware. This command was implemented on Cisco AS5300 universal access servers running Cisco MICA Portware Version 2.9.1.0.
	12.2(2)XB	This command was integrated into Cisco IOS Release 12.2(2)XB.
	12.2(11)T	This command was integrated into Cisco IOS Release 12.2(11)T and was implemented on the Cisco AS5300 and Cisco AS5800 platforms.

Examples

The following is sample output from the **show modem configuration** command. A specific modem, 0/0, has been designated. V.110 information is highlighted in this example.

```
Router# show modem configuration 0/0
```

```

S-Reg  Value  Meaning
---|---|-----
S-- = 1   Country Code is Default u-law
S00 = 0   Auto Answer immediately
S01 = 0   Reserved
S02 = 43  escape character is 0x2B or '+'
S03 = 13  carriage return character is 0xD
S04 = 10  line feed character is 0xA
S05 = 8   backspace character is 0x8
S06 = 2   pause 2 seconds before blind dialing
S07 = 60  wait up to 60 seconds for carrier after dialing
S08 = 2   comma adds 2 second dial delay
S09 = 317 BitMap register value = 0x13D
S10 = 14  1.4 second delay for hangup after carrier loss
S11 = 0   In Answer Mode
S12 = 3   3 Data Bits
S13 = 3   Space Parity
S14 = 1   1 Stop Bits
S15 = 1   V.42 ODP generation enabled
S16 = 50  5.0 second Error Correction autodetect timeout

```

show modem configuration

```

S17 = 100      10.0 second Error Correction negotiation timeout
S18 = 13      Error Correction fallback char is 0xD
S19 = 12      Error Correction retransmission limit is 12
S20 = 256     Error Correction frame length is 256 octets
S21 = 3       V42bis or MNP Data Compression
S22 = 0       ARA Error Correction is disabled
S23 = 1       V.42 Error Correction enabled
S24 = 1       MNP Error Correction enabled
S25 = 0       Link Protocol Fallback to Async framing
S26 = 0       Using TDM slice 0
S27 = 0       Calling Tone disabled
S28 = 0       Guard Tone disabled
S29 = 8       V.110 modem standard
S30 = 33600   Maximum connect rate of 33600 bps
S31 = 300     Minimum connect rate of 300 bps
S32 = 2       Bit Errors >= 1:1000 cause recovery
S33 = 500     Fallback/Fallforward Squelch Timer is 500ms
S34 = 2000    Fall Forward Timer is 20.0 seconds
S35 = 50      Fall Back Timer is 0.50 seconds
S36 = 20      Terminate timeout is 20 seconds
S37 = 60      Wait 60 seconds for data mode timeout
S38 = 14      1.4 second lost carrier to hang-up delay
S39 = 7       Transmit level setting of -13dBm
S40 = 4       4 consecutive retrains cause link disconnect
S41 = 5       V.34 maximum symbol rate of 3429 baud
S42 = 0       V.34 minimum symbol rate of 2400 baud
S43 = 2       V.34 carrier frequency is Auto Selection
S44 = 11      V.34 Preemphasis filter selection is Automatic
S45 = 0       Null transmit and receive Signalling Type
S46 = 0       No call progress tone detection
S47 = 2       +++ escape detection enabled for originate mode only
S48 = 1       AT command processor enabled
S49 = 0       no call setup delay
S50 = 60000   Maximum PCM connect rate of 60000 bps
S51 = 28000   Minimum PCM connect rate of 28000 bps
S52 = 1       Digital Pad Compensation is enabled
S53 = 3       V.8bis is enabled
S57 = 2400    User rate for V.110 connection is 2400 bps
configuration index = 59, value = 0x3

```

The following example uses the **show modem configuration** command to display the configuration for modem 0/1, which resides in slot 0/1 of a Cisco AS5300:

```

Router# show modem configuration 0/1

Modem(0/1) Configuration Block:
Country Code: 1
Originate/Answer Mode: Answer
Data Bits Selection: 8
Parity Selection: 0
Stop Bits Selection: 1
V.42 ODP generation: Generate ODP sequence when originating a call
Error Correction Autodetect Time-out value: 5000 ms
Protocol Negotiation Time-out value: 10000 ms
Protocol Negotiation Fallback Character:
Protocol Negotiation Retransmission Limit: 12
Error Correction Frame Length: 256 bytes
Data Compression: V.42bis and MNP5
ARA Error Correction: ARA1.0 & ARA2.0 Enabled for Answer only
V.42 Error Correction: V.42(LAP-M) Originate&Answer enabled
MNP Error Correction: MNP Originate&Answer enabled
Link Protocol Fallback: Asynchronous Framing (Start/Stop/Parity)
DSP processor MVIP TDM slice: 0
Calling Tone: Disabled

```

```

Guard Tone: Disabled
Modem Standard: V.34bis Automode, with terbo
Max. Connect Rate: 33600 bps
Min. Connect Rate: 300 bps
Signal Quality Threshold: Bit Errors >=1:1000 cause recovery
Fallback/Fallforward Squelch Timer: 500 ms
Fall Forward Timer: 10000 ms
Fall Back Timer: 500 ms
Terminate Time-out: 20 second(s)
Wait For Data Mode Time-out: 40 second(s)
Lost Carrier To Hang-up Delay: 1400 ms
Transmit Level Setting: -13 dBm
Retrain Limit: 4
V.34 Max. Symbol Rate: 3249 Baud
V.34 Min. Symbol Rate: 2400 Baud
V.34 Carrier Frequency: Auto Carrier Selection
V.34 Preemphasis Filter Selection: 11
Tx and RX Signaling Type: NULL signaling
Call Progress Tone Detection: No tone detection
+++ Escape Detection: Enabled-Originate-Mode-Only
AT Command Processor: Enabled
Call Set Up Delay: no delay before link initiation
Automatic Answer: delay 1 second(s)
Escape Detection Character: ASCII 43 ('+')
Carriage Return Character: ASCII 13 (CR)
Line Feed Character: ASCII 10 (LF)
Backspace Character: ASCII 8 (BS)
Pause Before Blind Dialing: 2 second(s)
Wait For Carrier After Dial: 40 second(s)
Comma Dial Modifier Time: 2 second(s)
Bit-mapped Register(S9=0x13D): E1Q2V1&D3X4
Delay For Hangup After Carrier Loss: 1400 ms

```

Table 24 describes the significant fields shown in the display.

Table 24 *show modem configuration Field Descriptions for MICA Modems*

Field	Description
Modem (0/1)	Slot and port for the specified modem.
Country Code:	Transmit level limits with respect to the S39 register. Default is 1 (U.S. domestic).
Originate/Answer Mode:	Answer or originate. Default is answer.
Data Bits Selection:	7, 8, or 9 data bits. Default is 8.
Parity Selection:	0 = no parity, 1 = even parity, 2 = odd parity. Default is no parity.
Stop Bits Selection:	1 or 2 stop bits. Default is 1 stop bit.
V.42 ODP generation:	Disabled or generated ODP sequence when originating a V.42 call. Default is Generate ODP sequence when originating a V.42 call.
Error Correction Autodetect Time-out value:	Maximum period (in milliseconds) during which the modem will run an automated detection machine upon the incoming data. Default is 5000 ms.
Protocol Negotiation Time-out value:	Maximum wait period (in ms) for error correction protocol negotiation before fallback. Default is 10,000 ms.
Protocol Negotiation Fallback Character:	0 to 127. Default is 13.

Table 24 *show modem configuration Field Descriptions for MICA Modems (continued)*

Field	Description
Protocol Negotiation Retransmission Limit:	0 = Do not disconnect on excessive retransmission; 1 to 255 = number of successive retransmissions to cause disconnect. Default is 12.
Error Correction Frame Length:	Buffer length; 64 to 1024 octets of data. Default is 256.
Data Compression:	Disabled, V.42bis, MNP5, or V.42bis or MNP5 (V.42 has precedence). Default is V.42bis or MNP5 (V.42 has precedence).
ARA Error Correction:	ARA1.0 & ARA2.0 Disabled, Enabled for Answer only, Enabled for Answer originate ARA1.0, and Enabled for Answer originate ARA2.0. Default is Enabled for Answer only.
V.42 Error Correction:	V.42(LAP-M) Disabled, V.42(LAP-M) Originate&Answer enabled. Default is disabled.
MNP Error Correction:	MNP Disabled or MNP Originate and Answer enabled. Default is MNP Originate&Answer enabled.
Link Protocol Fallback:	Asynchronous Framing (Start/Stop/Parity), Synchronous framing (Raw 8 bits to DSP), or Disconnect (Hang-up). Default is Asynchronous Framing (Start/Stop/Parity).
DSP processor MVIP TDM slice:	0 to 15.
Calling Tone:	Disabled or Send calling tone. Default is disable.
Guard Tone:	Guard tone disabled, Use Guard tone (V.22 and V.22bis only). Default is Disabled.
Modem Standard:	V.34bis Automode, with terbo; V.34bis Automode skip terbo; V.32 terbo Automode; V.32bis Automode; V.22bis Automode; or K56Flex 1.1. Default is V.34bis Automode, with terbo.
Max. Connect Rate:	75 to 56,000 bits per second (bps).
Min. Connect Rate:	75 to 56,000 bps.
Signal Quality Threshold:	No action on bit errors, Bit Errors >=1:100 cause recovery, Bit Errors >=1:1000 cause recovery, Bit Errors >=1:10000 cause recovery, Bit Errors >=1:100000 cause recovery, or Bit Errors >=1:1000000 cause recovery. Default is 1:1000.
Fallback/Fallforward Squelch Timer:	Time (in milliseconds) to delay after a speed shift before allowing another speed shift. Default is 500 ms.
Fall Forward Timer:	Elapsed time (in milliseconds) with continuous good signal quality to cause a fall forward. Default is 10,000 ms.
Fall Back Timer:	Elapsed time (in milliseconds) with bad signal quality to cause a fallback. Default is 500 ms.
Terminate Time-out:	Elapsed time (in seconds) after a disconnect request before forcing a link disconnect. During this period, the modem sends buffered data and then clears down the link. Default is 20 seconds.
Wait for Data Mode Time-out:	Maximum time (in seconds) during link establishment before disconnection. Default is 40; 60 for K56Flex.
Lost Carrier To Hang-up Delay:	Maximum time (in milliseconds) without a carrier to cause the link disconnect. Default is 1400 ms.

Table 24 *show modem configuration Field Descriptions for MICA Modems (continued)*

Field	Description
Transmit Level Setting:	6 dBm, 7 dBm, 8 dBm, -20 dBm, or -21 dBm. Default is 9 dBm.
Retrain Limit:	Maximum successive failed retrains to cause the link to disconnect. Default is 4.
V.34 Max. Symbol Rate:	2400 baud, 2743 baud, 2800 baud, 3000 baud, 3200 baud, or 3429 baud. Default is 3429 baud.
V.34 Min. Symbol Rate:	2400 baud, 2743 baud, 2800 baud, 3000 baud, 3200 baud, or 3429 baud. Default is 2400 baud.
V.34 Carrier Frequency:	Low Carrier, High Carrier, or Auto Carrier Selection. Default is High Carrier.
V.34 Preemphasis Filter Selection:	0 to 10 = a selected filter; 11 = Automatic Preemphasis Selection. Default is 11.
Tx and Rx Signaling Type:	NULL signaling, MF signaling, DTMF signaling, Lower band R2 signaling, Upper band R2 signaling, or R1 signaling. Default is NULL signaling.
Call Progress Tone Detection:	No tone detection, Dial tone detection, Ring-Back tone detection, or Busy tone detection. Default is No tone detection.
+++ Escape Detection:	Disabled, Enabled, or Enabled-Originate-Mode-Only. Default is Enabled-Originate-Mode-Only.
AT Command Processor:	Disabled or Enabled. Default is Disabled.
Call Set Up Delay:	No delay before link initiation, delay value (1 to 255). Default is no delay.
Automatic Answer:	Answer immediately, delay value (1 to 255 seconds). Default is 1 second.
Escape Detection Character:	ASCII value (0 to 127). Default is 43.
Carriage Return Character:	ASCII value (0 to 127). Default is 13.
Line Feed Character:	ASCII value (0 to 127). Default is 10.
Backspace Character:	ASCII value (0 to 127). Default is 8.
Pause Before Blind Dialing:	2 to 255 seconds. Default is 2.
Wait For Carrier After Dial:	Wait for data mode timeout (in seconds).
Comma Dial Modifier Time:	2 to 255 seconds. Default is 2.
Bit-mapped Register(S9=0x13D):	Bit mapped register.
Delay For Hangup After Carrier Loss:	Lost carrier to hang-up delay (in milliseconds).

■ show modem configuration

Related Commands	Command	Description
	show modem log	Displays the modem history event status performed on a manageable modem or group of modems.
	show modem mica	Displays information about MICA technologies digital modems.
	show modem operational-status	Displays the current modem operational status for MICA technologies digital modems loaded in access servers or routers.

show modem connect-speeds

To display connection speed statistics for all the modems running in an access server or router, use the **show modem connect-speeds** command in EXEC mode.

show modem connect-speeds [*max-speed* [*slot*]]

Syntax Description	
<i>max-speed</i>	(Optional) Maximum speed you want displayed in the shifting speed window. You can specify from 12000 to 56000 bits per second (bps), and the default is 12000 bps.
<i>slot</i>	(Optional) Slot number, which limits the display output to a particular range of modems in the system.

Defaults The maximum speed displayed is 12000 bps.

Command Modes EXEC

Command History	Release	Modification
	11.3	This command was introduced.
	12.1(5)T	This command was enhanced to display information about digital modems on the Cisco 3600 series routers that support V.110.

Usage Guidelines Because most terminal screens are not wide enough to display the entire range of connection speeds at one time (for example, 75 to 56000 bps), the *max-speed* variable is used. This variable specifies the contents of a shifting baud-rate window, which provides you with a snapshot of modem connection speeds for your system. If you want to display a snapshot of lower baud rates, specify a lower connection speed. If you want to see a snapshot of higher baud rates, specify a higher connection speed.

The Cisco IOS software rounds up the *max-speed* variable to the nearest recognizable baud rate, so you need not memorize or enter exact connection speeds. For example, if you enter a maximum baud rate of 22059, the system software automatically rounds the value up to 24000.

To display a complete picture of all the connection speeds and counters on the system, you must enter a series of commands. Each time you issue the **show modem connect-speeds** *max-speed* command, only nine baud rate columns can be displayed at the same time.

[Table 25](#) shows a range of commands that you can issue, one at a time, to display a complete picture of the total possible connection speeds on your access server.

Table 25 Connect Speed Displays for the show modem connect-speeds Command

Command	Connect Speed Range Displayed
show modem connect-speeds 56000	40000 to 56000 bps
show modem connect-speeds 38000	24000 to 38000 bps

Table 25 Connect Speed Displays for the show modem connect-speeds Command (continued)

Command	Connect Speed Range Displayed
show modem connect-speeds 21600	2400 to 21600 bps
show modem connect-speeds 1200	75 to 1200 bps



Note

The Cisco IOS software does not accept commas (,) in the connect speed field. For example, enter **28000** not **28,000**.

The **show modem connect-speeds** command displays a log of connection speed statistics starting from the last time the access servers or router was power cycled or the **clear modem counters** command was issued. If you want to create a monthly report of the connection speeds achieved by the modems, issue the **clear modem counters** command at the beginning of the month and issue the **show modem connect-speeds** command at the end of the month.

Examples

The following is sample output from the **show modem connect-speeds** command on a Cisco 3600 series router:

```
Router# show modem connect-speeds

Codes:
* - Modem has an active call
R - Modem is being Reset
D - Download in progress
B - Modem is marked bad and cannot be used for taking calls
b - Modem is either busied out or shut-down

Transmit connect speeds

Mdm      75    300    600    1200    2400    4800    7200    9600    12000    TotCnt
* 0/0      0      0      0      36      35      61      0      0      0      132
* 0/1      0      0      0      1       0       0       0      0      0      1
  0/2      0      0      0      48      45      37      0      0      0      130
* 0/3      0      0      0      86      36      4       0      0      0      126
* 0/4      0      0      0      0       0       1       0      0      0      1
  0/5      0      0      0      20      33      78      0      0      0      131
* 0/6      0      0      0      25      57      49      0      0      0      131
  0/7      0      0      0      47      48      36      0      0      0      131
b 0/8      0      0      0      0       0       0       0      0      0      0
!.
!.
!.
b 0/29     0      0      0      0       0       0       0      0      0      0
Tot        0      0      0      263     254     266     0      0      0      783
Tot %      0      0      0      33      32      33      0      0      0

Receive connect speeds

Mdm      75    300    600    1200    2400    4800    7200    9600    12000    TotCnt
* 0/0      0      0      0      36      35      61      0      0      0      132
* 0/1      0      0      0      1       0       0       0      0      0      1
  0/2      0      0      0      48      45      37      0      0      0      130
* 0/3      0      0      0      86      36      4       0      0      0      126
* 0/4      0      0      0      0       0       1       0      0      0      1
  0/5      0      0      0      20      33      78      0      0      0      131
```

```

* 0/6      0      0      0      25      57      49      0      0      0      131
  0/7      0      0      0      47      48      36      0      0      0      131
b 0/8      0      0      0      0       0       0       0      0      0      0
!.
!.
!.
b 0/29     0      0      0      0       0       0       0      0      0      0
Tot        0      0      0      263     254     266     0      0      0      783
Tot %      0      0      0      33      32      33      0      0      0

```

Router# **show modem connect-speeds ?**

```

<12000-64000> Max baud connect speed to display to
|              Output modifiers
<cr>

```

Router# **show modem connect-speeds 12000 ?**

```

<0-3> Slot number
|      Output modifiers
<cr>

```

Router# **show modem connect-speeds 12000 2**

```

Codes:
* - Modem has an active call
R - Modem is being Reset
D - Download in progress
B - Modem is marked bad and cannot be used for taking calls
b - Modem is either busied out or shut-down

```

Transmit connect speeds

Mdm	75	300	600	1200	2400	4800	7200	9600	12000	TotCnt
Tot	0	0	0	263	254	266	0	0	0	783
Tot %	0	0	0	33	32	33	0	0	0	

Receive connect speeds

Mdm	75	300	600	1200	2400	4800	7200	9600	12000	TotCnt
Tot	0	0	0	263	254	266	0	0	0	783
Tot %	0	0	0	33	32	33	0	0	0	

The following example shows connection speed statistics up to 28000 bps:

Router# **show modem connect-speeds 28800**

transmit connect speeds

Mdm	9600	12000	14400	16800	19200	21600	24000	26400	28800	TotCnt
* 1/0	0	0	0	0	3	4	6	37	23	74
* 1/1	0	0	3	1	0	4	9	41	20	80
* 1/2	0	0	2	0	1	3	10	37	26	82
1/3	1	0	0	0	0	3	15	35	7	62
1/4	0	0	0	0	4	2	8	20	13	49
* 1/5	0	0	4	0	1	0	4	38	17	65
* 1/6	0	0	2	1	0	1	9	32	11	57
* 1/7	1	0	2	0	0	5	10	31	18	67
* 1/8	0	0	0	1	1	1	10	42	11	68
1/9	0	0	2	1	2	4	4	30	23	67
1/10	0	0	0	0	0	2	5	26	22	56
* 1/11	0	0	0	0	3	1	16	38	17	76
* 1/12	0	0	0	0	0	3	7	40	12	62
1/13	0	0	0	1	2	3	11	20	14	51

show modem connect-speeds

1/14	0	0	2	0	0	2	7	26	12	51
1/15	0	0	1	1	1	2	6	29	25	65
1/16	2	0	2	0	1	5	10	37	15	73
1/17	0	0	0	0	0	2	10	33	22	67
1/18	0	0	2	2	0	2	12	17	25	61
* 1/19	2	0	3	0	1	2	9	35	20	74
1/20	0	0	2	2	2	2	8	28	21	65
* 1/21	0	1	2	0	1	2	5	23	21	58
* 1/22	0	0	1	0	1	1	5	27	21	56
* 1/23	0	0	2	0	0	4	8	30	15	60
Tot	6	1	32	10	24	60	204	752	431	1546
Tot %	0	0	2	0	1	3	13	48	27	

receive connect speeds

Mdm	9600	12000	14400	16800	19200	21600	24000	26400	28800	TotCnt
* 1/0	0	0	1	0	1	2	9	35	25	74
* 1/1	0	0	3	0	1	3	10	42	18	80
* 1/2	0	0	2	0	1	4	8	40	26	82
1/3	1	0	0	0	0	1	10	36	14	62
1/4	0	0	1	0	2	2	8	22	8	49
* 1/5	0	1	4	0	0	0	9	32	17	65
* 1/6	0	0	2	0	0	0	7	33	14	57
* 1/7	0	0	2	1	1	0	6	39	18	67
* 1/8	0	0	0	0	1	0	11	43	12	68
1/9	1	0	3	0	0	0	8	33	22	67
1/10	0	0	0	0	1	1	6	31	17	56
* 1/11	0	0	0	1	1	1	14	43	16	76
* 1/12	0	0	0	0	0	0	5	43	12	62
1/13	0	0	0	0	0	2	10	26	13	51
1/14	0	0	2	1	0	0	5	27	14	51
1/15	0	0	1	0	1	2	3	36	22	65
1/16	1	0	3	1	2	0	8	37	20	73
1/17	0	0	0	0	0	0	8	36	22	67
1/18	0	1	1	0	0	2	4	30	20	61
* 1/19	0	0	3	2	1	1	6	42	18	74
1/20	0	1	2	1	2	1	2	37	18	65
* 1/21	0	0	3	3	1	2	2	28	18	58
* 1/22	0	0	1	0	1	0	5	32	16	56
* 1/23	0	0	2	0	0	1	8	35	13	60
Tot	3	3	36	10	17	25	172	838	413	1546
Tot %	0	0	2	0	1	1	11	54	26	

The following example shows connection speed statistics up to 56000 bps:

Router# **show modem connect-speeds 56000**

transmit connect speeds

Mdm	40000	42000	44000	46000	48000	50000	52000	54000	56000	TotCnt
1/0	0	0	0	0	0	0	0	0	0	0
1/1	0	0	0	0	0	0	0	0	0	0
1/2	0	0	0	0	0	0	0	0	0	0
1/3	0	0	0	0	0	0	0	0	0	0
1/4	0	0	0	0	0	0	0	0	0	0
1/5	0	0	0	0	0	0	0	0	0	0
1/6	0	0	0	0	0	0	0	0	0	0
1/7	0	0	0	0	0	0	0	0	0	0
1/8	0	0	0	0	0	0	0	0	0	0
1/9	0	0	0	0	0	0	0	0	0	0
1/10	0	0	0	0	0	0	0	0	0	0
1/11	0	0	0	0	0	0	0	0	0	0
1/12	0	0	0	0	0	0	0	0	0	0
1/13	0	0	0	0	0	0	0	0	0	0

```

1/14      0      0      0      0      0      0      0      0      0      0
1/15      0      0      0      0      0      0      0      0      0      0
1/16      0      0      0      0      0      0      0      0      0      0
1/17      0      0      0      0      0      0      0      0      0      0
1/18      0      0      0      0      0      0      0      0      0      0
1/19      0      0      0      0      0      0      0      0      0      0
1/20      0      0      0      0      0      0      0      0      0      0
1/21      0      0      0      0      0      0      0      0      0      0
1/22      0      0      0      0      0      0      0      0      0      0
1/23      0      0      0      0      0      0      0      0      0      0
Tot        0      0      0      0      0      0      0      0      0      0
Tot %      0      0      0      0      0      0      0      0      0      0

```

receive connect speeds

```

Mdm  40000  42000  44000  46000  48000  50000  52000  54000  56000  TotCnt
1/0   0      0      0      0      0      0      0      0      0      0
1/1   0      0      0      0      0      0      0      0      0      0
1/2   0      0      0      0      0      0      0      0      0      0
1/3   0      0      0      0      0      0      0      0      0      0
1/4   0      0      0      0      0      0      0      0      0      0
1/5   0      0      0      0      0      0      0      0      0      0
1/6   0      0      0      0      0      0      0      0      0      0
1/7   0      0      0      0      0      0      0      0      0      0
1/8   0      0      0      0      0      0      0      0      0      0
1/9   0      0      0      0      0      0      0      0      0      0
1/10  0      0      0      0      0      0      0      0      0      0
1/11  0      0      0      0      0      0      0      0      0      0
1/12  0      0      0      0      0      0      0      0      0      0
1/13  0      0      0      0      0      0      0      0      0      0
1/14  0      0      0      0      0      0      0      0      0      0
1/15  0      0      0      0      0      0      0      0      0      0
1/16  0      0      0      0      0      0      0      0      0      0
1/17  0      0      0      0      0      0      0      0      0      0
1/18  0      0      0      0      0      0      0      0      0      0
1/19  0      0      0      0      0      0      0      0      0      0
1/20  0      0      0      0      0      0      0      0      0      0
1/21  0      0      0      0      0      0      0      0      0      0
1/22  0      0      0      0      0      0      0      0      0      0
1/23  0      0      0      0      0      0      0      0      0      0
Tot    0      0      0      0      0      0      0      0      0      0
Tot %  0      0      0      0      0      0      0      0      0      0

```

Table 26 describes the significant fields shown in the displays.

Table 26 *show modem connect-speeds Field Descriptions*

Field	Description
transmit connect speeds	Connection speeds for calls initiated by the system.
Mdm slot/port	Specified slot and port number assigned to the modem.
speed counters	The transmit and receive speed counters are 75, 300, 600, 1200, 2400, 4800, 7200, 9600, 12000, 14400, 16800, 19200, 21600, 24000, 26400, 28800, 31200, 33600, 32000, 34000, 36000, 38000, 40000, 42000, 44000, 46000, 48000, 50000, 52000, 54000, and 56000 bps.
TotCnt	For the specified modem, the sum of the number of times a connection was initiated or received at one of the specified connection rates (75 to 56,000 bps).

Table 26 *show modem connect-speeds Field Descriptions (continued)*

Field	Description
Tot	For all modems loaded in the system, the total number of times a call was initiated or received at the specified speed.
Tot %	Percentage of the total number of calls that were initiated or received at the specified speed.
receive connect speeds	Connection speeds for incoming calls.

Related Commands

Command	Description
clear modem counters	Clears the statistical counters on one or more manageable modems on access servers or routers.

show modem cookie

To display information about the modem cookie, use the **show modem cookie** command in EXEC mode.

show modem cookie

Syntax Description This command has no arguments or keywords.

Command Modes EXEC

Command History	Release	Modification
	11.2	This command was introduced.

Examples The following is sample output from the **show modem cookie** command for a V.34 carrier card and two modem cards:

```
Router# show modem cookie

Hex dump of modem board HW version info:

Slot 1:
  Carrier card:
    0000:  1802 0200 0000 0000 0000 0000 0000 0000
    0010:  0000 0000 0000 0000 0000 0000 0000 0000
  Modem Module 0:
    0000:  0C01 3033 3030 3031 4D69 6372 6F63 6F6D
    0010:  204D 4E50 3130 2056 3334 204D 6F64 656D
  Modem Module 1:
    0000:  0C01 3033 3030 3031 4D69 6372 6F63 6F6D
    0010:  204D 4E50 3130 2056 3334 204D 6F64 656D
```

[Table 27](#) describes the significant fields shown in the display.

Table 27 *show modem cookie Field Descriptions*

Field	Description
Slot 1:	The slot carrying the carrier and modem card.
Carrier card:	Carrier card and its cookie parameters.
Modem Module 0:	Modem card and its cookie parameters.

show modem csm

To display the internal status of the call switching module for modems inside access servers or routers, use the **show modem csm** command in EXEC mode.

show modem csm [*slot/port* | **group number**]

Syntax Description	<i>slot/port</i>	(Optional) Slot and modem port location. If this number is not specified, statistics for all connected modems are displayed. (Include the forward slash (/) when entering this variable.)
	group number	(Optional) Specific group of modems. If the modem group number is not specified, statistics for all modems in the access server are displayed. The group number range is from 1 to 200.

Command Modes EXEC

Command History	Release	Modification
	11.2	This command was introduced.

Examples

The following example displays the call switching module information for modem 1/2 on a Cisco AS5200:

```
Router# show modem csm 1/2

MODEM_INFO: slot 1, port 2, unit 130, modem_mask=0x0004, modem_port_offset=0
tty_hwidb=0x00000000, modem_tty=0x004370A8, mgmt_tty=0x004370A8, modem_pool=0x0041D99C
csm_status(0): CSM_STATUS_UNLOCKED
csm_state(0x00000000)=CSM_OC_STATE, csm_event_proc=0x0005B448
invalid_event_count=0, wdt_timeout_count=0
wdt_timestamp_started is not activated
wait_for_dialing:False, wait_for_bchan:False
pri_chnl=TDM_ISDN_STREAM(s0, c0), modem_chnl=TDM_ISDN_STREAM(s0, c0)
dchan_idb_start_index=0, dchan_idb_index=0, call_id=0x0000, bchan_num=0
csm_event=CSM_EVENT_NONE, cause=0x0000, phone_num=
ring_indicator=0, oh_state=0, oh_int_enable=0, modem_reset=0
ring_no_answer=0, ic_failure=0, ic_complete=0
dial_failure=0, oc_failure=0, oc_complete=0
oc_busy=0, oc_no_dial_tone=0, oc_dial_timeout=0
remote_link_disc=0, busyout=0, modem_reset=0
call_duration_started=00:00:00, call_duration_ended=00:00:00, total_call_duration=00:00:00
The calling party phone number = 4082968388
The called party phone number = 4085267406
```

Table 28 describes the significant fields shown in the display.

Table 28 *show modem csm Field Descriptions*

Field	Description
MODEM_INFO	Displays internal data structure information.
csm_status	Displays the status of the call switching module. Possible statuses include unlocked, active call, busyout req, shutdown, bad modem, modem hold, back-to-back, file downloading, and reset.
csm_state	Displays the current state of the call switching module. Possible states include idle and connected. Incoming calls are marked IC and outgoing calls are marked OC.
Modem counters	Counters for different modem events.
The calling party phone number The called party phone number	Phone numbers for the dialing integrated modem and the remote modem.

show modem log

To display the modem history event status performed on a manageable modem or group of modems, use the **show modem log** command in EXEC mode.

```
show modem log [slot/port | group number]
```

Syntax Description	<i>slot/port</i>	(Optional) Slot and modem port location. If this number is not specified, statistics for all connected modems are displayed. (Include the forward slash (/) when entering this variable.)
	group number	(Optional) Specific group of modems. If the modem group number is not specified, statistics for all modems in the access server are displayed. The group number range is from 1 to 200.

Command Modes EXEC

Command History	Release	Modification
	11.2	This command was introduced.
	12.1(5)T	This command was enhanced to display information about the Cisco 3600 series digital modems that support V.110, and about the Cisco 2600 and Cisco 3600 series modems that support leased-line operation.

Examples

The following is sample output from the **show modem log** command issued on a Cisco AS5300, which is loaded with MICA technologies digital modems. See [Table 29](#) for MICA modem field descriptions.

```
Router# show modem log 1/0

Modem 1/0 Events Log:
 01:54:02:Startup event:MICA Hex modem (Select)
      Modem firmware = 2.0.0.9
 01:54:02:RS232 event:
      noRTS, noDTR, CTS, noDCD
 01:54:02:RS232 event:
      RTS, DTR, CTS, noDCD
 01:54:02:RS232 event:
      RTS, DTR, CTS, noDCD
 01:54:02:RS232 event:
      noRTS, DTR, CTS, noDCD
 01:54:02:RS232 event:
      RTS, DTR, CTS, noDCD
 01:54:02:RS232 event:
      noRTS, noDTR, CTS, noDCD
 01:54:02:RS232 event:
      RTS, DTR, CTS, noDCD
 01:54:03:RS232 event:
      RTS, DTR, CTS, noDCD
00:01:09: ISDN outgoing called number: 1000
00:01:04:RS232 event:
      noRTS, DTR, CTS, noDCD
```

```

00:01:04:RS232 event:
    RTS, DTR, CTS, noDCD
00:01:06:Modem State event:
    State: Open
00:01:06:Modem State event:
    State: Connect
00:01:06:Modem State event:
    State: Link
00:00:54:Modem State event:
    State: Training
00:00:32:Modem State event:
    State: EC Correction
00:00:32:Modem State event:
    State: Steady
00:00:32:RS232 event:
    RTS, DTR, CTS, DCD
00:00:32:Static event:
    Connect Protocol: LAP-M
    Compression: (invalid#3)
    Connected Standard: Bell212
    TX,RX Symbol Rate: 3429, 3429
    TX,RX Carrier Frequency: 1959, 1959
    TX,RX Trellis Coding: 16, 16
    Frequency Offset: 0 Hz
    Round Trip Delay: 1 msec
    TX,RX Bit Rate: 16800, 16800
00:00:33:Dynamic event:
    Sq Value: 7
    Signal Noise Ratio: 35 dB
    Receive Level: -8 dBm
    Phase Jitter Frequency: 0 Hz
    Phase Jitter Level: 0 degrees
    Far End Echo Level: -73 dBm
    Phase Roll: -98 degrees
    Total Retrans: 0
    EC Retransmission Count: 0
    Characters received, transmitted: 0, 32
    Characters received BAD: 0
    PPP/SLIP packets received, transmitted: 0, 0
    PPP/SLIP packets received (BAD/ABORTED): 0
    EC packets transmitted, received: 0, 0
    EC packets (Received BAD/ABORTED): 0

```

The following example shows a portion of the output display when using the **show modem log** command. Because no specific modem or range of modems is designated, the data from all modems is displayed. The V.110 information is highlighted in this example.

```
Router# show modem log
```

```

Modem 0/0 Mica: Event Log contains 100 Events:
1d21h MICA-Cfg issued S-Reg configuration change:
    configuration index = 59, value = 0x3
1d21h CSM: Incoming call from 9195555301 to Unknown
1d21h CSM: event-ISDN_CALL New State-IC_MODEM_RESERVED
    CSM: status-1 dchan-3/2 bchan-0
.
.
.
1d21h CSM: event-MODEM_CONNECTED New State-CONNECTED_STATE
1d21h MICA-Qry Static Link Information:
    Connect Protocol - V.110, Compression - None, Connected Standard - V110
    Tx/Rx Symbol Rate - 0/0, Tx/Rx Carrier Freq - 0/0
    Tx/Rx Trellis Coding - /, Frequency offset - 0Hz

```

■ show modem log

```

Round trip delay - 0ms, Tx/Rx bit rate - 2400/2400
RBS pattern - 0x0, digital pad - , compensation - 0
1d21h MICA-Cmd Set Framing Mode to PPP.
.
.
.
1d21h MICA-Qry Final Link Information:
  Call Time - 00:00:34, Disconnect Reason (0x8001) - SOFTWARE_RESET command
  0 retrains and/or speed shifts, 0 ec retransmissions
  9454 chars tx, 6577 chars rx, 0 chars rx bad
  189 ppp packets tx, 129 ppp packets rx, 14 ppp packets rx bad
  0 ec packets tx, 0 ec packets rx, 0 ec packets rx bad
  0 v110 packets tx, 0 v110 packets rx, 0 v110 packets rx bad, 0 v110 sync loss
1d21h CSM: event-ASYNC_DTR_DOWN New State-IDLE_STATE
1d21h CSM: event-ASYNC_DTR_DOWN New State-IDLE_STATE
.
.
.
1d21h MICA-Cfg issued S-Reg configuration change:
  S29 = 8          V.110 modem standard
1d21h MICA-Cfg issued S-Reg configuration change:
  S57 = 3          User rate for V.110 connection is 3 bps
.
.
.

```

Table 29 describes the significant fields shown in the MICA modem display.

Table 29 *show modem log Field Descriptions for MICA Modems*

Field	Event State	Description
Modem <slot/port> Events Log:	—	The modem for which log events are currently displayed.
00:00:00:	—	Identifies the time elapsed (in hours: minutes: seconds) since each MICA modem event was performed (for example, 01:02:41 means the modem event occurred 1 hour, 2 minutes, and 41 seconds ago).
Startup event:	—	Type of specified MICA modem.
Modem firmware:	—	Modem firmware version.
RS232 event:	—	Detected modem signaling event.
ISDN outgoing called number:	—	Outgoing ISDN phone number dialed by the specified MICA modem.

Table 29 *show modem log Field Descriptions for MICA Modems (continued)*

Field	Event State	Description
Modem State event:	Current state of the MICA modem, which can be any of the following:	
	Connect	Modem is connected to a remote host.
	Open	Open modem event.
	Link	Link protocol event occurred.
	Training	Modem retraining event.
	EC Correction	Error correction frames transmitted or received.
	Steady	Steady modem event.
	Bad	Inoperable state, which is configured by the modem bad command.
	Bad*	Inoperable state, which is configured by the modem startup-test command during initial power-up testing.
	Reset	Modem is in reset mode.
	D/L	Modem is downloading firmware.
	Bad FW	Downloaded modem firmware is not operational.
	Busy	Modem is out of service and not available for calls.
	Idle	Modem is ready for incoming and outgoing calls.
Static event:	Current static event of the MICA modem, which can be any of the following:	
	Connect Protocol	Connection protocol used for the current session, which can be SYNC mode, ASYNC mode, ARA1.0, ARA2.0, Link Access Procedure for Modems (LAP-M), or Microcom Network Protocol (MNP).
	Compression	Type of compression used for the current session, which can be None, V.42bis TX, V.42bis RX, V.42bis both, or MNP5 data compression.
	Connected Standard	Standards protocol used to connect, which can be V.21, Bell103, V.22, V.22bis, Bell212, V.23, V.32, V.32bis, V.32terbo, V.34, V.34+, or K56Flex 1.1.
	TX, RX Symbol Rate	Symbol rate used to send samples to the line or receive samples off of the line.
	TX, RX Carrier Frequency	Carrier frequency used by the remote service provider.
	TX, RX Trellis Coding	Trellis coding received and transmitted.
	Frequency Offset	+/-32 in 1/8 Hz steps.
	Round Trip Delay	Total round trip propagation delay of the link, which is expressed in milliseconds.
	TX, RX Bit Rate	For RX, the bit rate from the remote service provider to the local service provider. For TX, the bit rate from the local service provider to the remote service provider.

Table 29 *show modem log Field Descriptions for MICA Modems (continued)*

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

The following example displays the event log status for a V.34 Microcom manageable modem installed in a Cisco AS5200. To escape from the log display mode, press the keys Ctrl-c. See [Table 30](#) for Microcom field descriptions.

```
Router# show modem log 1/0
```

```
Modem 1/0 Events Log:
```

```
04:58:33: End connection event: Retransmits for EC block (TX/RX) = 86/33
Duration = 0:10:21, Number of TX/RX char = 100183/34307
Local Disc Reason = Remote Link Disc
Remote Disc Reason = Unknown
04:58:33: Modem State event: Idle
04:58:33: DTR event: DTR Off
04:58:33: RS232 event: RTS noDTR* CTS* DSR* noDCD* noRI* noTST*
```

```
04:58:21: DTR event: DTR On
      04:58:21: RS232 event: RTS* DTR* CTS DSR noDCD noRI noTST
04:56:27: ISDN incoming calling number: 7039687666
04:56:27: ISDN incoming called number: 8366
04:56:21: Modem State event: Dialing/Answering
04:56:21: Modem State event: Incoming ring
04:56:21: Modem State event: Waiting for Carrier
      04:56:21: RS232 event: RTS DTR CTS DSR noDCD noRI* noTST
04:56:09: Modem State event: Connected
04:56:09: Connection event: TX/RX Speed = 24000/26400, Modulation = V34
      Direction = Answer, Protocol = reliable/LAPM, Compression = V42bis
      04:56:09: RS232 event: RTS DTR CTS DSR DCD* noRI noTST
04:55:57: Modem Analog signal event: TX = -13, RX = -17, Signal to noise = 40
04:55:21: Modem State event: Disconnecting
04:55:21: End connection event: Retransmits for EC block (TX/RX) = 0/0
      Duration = 0:00:46, Number of TX/RX char = 8911/7732
      Local Disc Reason = Remote Link Disc
      Remote Disc Reason = Unknown
04:55:23: Modem State event: Idle
04:55:23: DTR event: DTR Off
      04:55:23: RS232 event: RTS noDTR* CTS* DSR* noDCD* noRI* noTST*
04:55:11: DTR event: DTR On
      04:55:11: RS232 event: RTS DTR* CTS DSR noDCD noRI noTST
04:53:23: ISDN incoming calling number: 8477262725
04:53:23: ISDN incoming called number: 8366
04:53:22: Modem State event: Dialing/Answering
04:53:22: Modem State event: Incoming ring
      04:53:22: RS232 event: RTS DTR CTS DSR noDCD noRI* noTST
04:53:10: Modem State event: Waiting for Carrier
      04:53:10: RS232 event: RTS DTR CTS DSR noDCD noRI* noTST
04:52:58: Modem State event: Connected
04:52:58: Connection event: TX/RX Speed = 24000/24000, Modulation = V34
      Direction = Answer, Protocol = reliable/LAPM, Compression = V42bis
04:52:58: Modem Analog signal event: TX = -13, RX = -19, Signal to noise = 40
      04:52:58: RS232 event: RTS DTR CTS DSR DCD* noRI noTST
04:52:46: Modem State event: Retrain Initiated
04:52:34: Connection update event: TX/RX Speed = 24000/24000, Modulation = V34
04:52:34: Modem State event: Connected
04:52:22: Modem Analog signal event: TX = -13, RX = -17, Signal to noise = 40
      04:52:12: RS232 event: RTS DTR CTS* DSR DCD noRI noTST
      04:49:24: RS232 event: RTS DTR CTS* DSR DCD noRI noTST
      04:49:12: RS232 event: RTS DTR CTS* DSR DCD noRI noTST
      04:19:14: RS232 event: RTS DTR CTS* DSR DCD noRI noTST
03:46:29: Modem State event: Disconnecting
03:46:29: End connection event: Retransmits for EC block (TX/RX) = 6/8
      Duration = 1:06:31, Number of TX/RX char = 114943/29854
      Local Disc Reason = Remote Link Disc
      Remote Disc Reason = Unknown
03:46:29: Modem State event: Idle
03:46:29: DTR event: DTR Off
03:46:29: DTR event: DTR On
      03:46:29: RS232 event: RTS DTR* CTS* DSR* noDCD* noRI* noTST*
03:45:35: ISDN incoming calling number: 5124745911
03:45:35: ISDN incoming called number: 8366
03:45:29: Modem State event: Dialing/Answering
03:45:29: Modem State event: Incoming ring
03:45:29: Modem State event: Waiting for Carrier
```

Table 30 describes the significant fields shown in the Microcom modem display.

Table 30 *show modem log Field Descriptions for Microcom Modems*

Field	Description
Modem <slot/port> Events Log:	The modem for which log events are currently displayed.
00:00:00:	Identifies the time elapsed (in hours: minutes: seconds) since each Microcom modem event was performed (for example, 01:02:41 means the modem event occurred 1 hour, 2 minutes, and 41 seconds ago).
Startup Response:	List of information describing the modem type, modem firmware, and Digital Signal Processor (DSP) controller version (for 56K modems only).
Control Reply	Indicates the events the modem will be monitoring.
RS232 event	Detected modem signaling.
Modem State event	Current state of the modem, which can be any of the following: <ul style="list-style-type: none"> • Conn—Modem is connected to a remote host. • Bad—Inoperable state, which is configured by the modem bad command. • Bad*—Inoperable state, which is configured by the modem startup-test command during initial power-up testing. • Reset—Modem is in reset mode. • D/L—Modem is downloading firmware. • Bad FW—Downloaded modem firmware is not operational. • Busy—Modem is out of service and not available for calls. • Idle—Modem is ready for incoming and outgoing calls.

Table 30 *show modem log Field Descriptions for Microcom Modems (continued)*

Field	Description
End connection event	<p>Descriptions or reasons why a connection was terminated:</p> <ul style="list-style-type: none"> • Duration—Time (in hours: minutes: seconds) a connection was up between the local and remote devices. • Number of TX/RX char—Transmit and receive characters exchanged during the connection time. • Local or Remote Disc Reason—Reason the local or remote modem disconnected: <ul style="list-style-type: none"> – Lost Carrier—The modem firmware detects a drop in Carrier Detect during a connection. – DSP Task Hung—The DSP chip malfunctioned and failed to reset. – Link Access Procedure for Modems (LAPM) Timeout—Timed out waiting for a reply from remote. – Reliable link transmit timeout—Have not received a link acknowledgment in the first 30 seconds of the connection. – DSP access failure—Timed out trying to access the DSP chip. – CD off timeout—Timed out waiting for carrier to return after a retrain/rate renegotiation. – Code word size mismatched—The code word sizes are mismatched. – DSP code download Error—Error during the DSP code download. The time taken to recover and repeat the download would take too long to complete the handshake.
Phone number event	Descriptive information about the last dialed or current phone number.

The following example displays the event log status for a manageable modem. It also identifies the time elapsed since each modem event was performed (for example, 01:02:41 means the modem event occurred 1 hour, 2 minutes, and 41 seconds ago). To escape from the log display mode, press the keys Ctrl-c.

```
Router# show modem log 0/0
```

```
Modem 0/0 Events Log:
 01:03:03: Startup Response: Microcom MNP10 K56 Modem (Select)
           Modem (boot) firmware = 3.1(16) (3.0(4))
           DSP Controller (SPX) rev = 204.173(0) (143.191(0))
 01:03:03: Control Reply: 0xFF1F
 01:03:03: RS232 event: RTS noDTR* CTS* DSR* noDCD* noRI noTST
 01:03:03: RS232 event: RTS noDTR CTS DSR noDCD noRI noTST
 01:03:03: Modem State event: Idle
 01:03:03: End connection event: Retransmits for MNP block (TX/RX) = 0/0
           Duration = 0:00:00, Number of TX/RX char = 0/0
           Local Disc Reason = Lost Carrier
           Remote Disc Reason = Unknown
 01:03:04: Phone number event:
```

```

01:02:51: DTR event: DTR On
01:02:51: RS232 event: RTS DTR* CTS DSR noDCD noRI noTST
00:39:52: Startup Response: Microcom MNP10 K56 Modem (Select)
      Modem (boot) firmware = 3.1(16) (3.0(4))
      DSP Controller (SPX) rev = 1.1(0) (1.1(0))
00:39:52: Control Reply: 0xFF1F
00:39:52: RS232 event: RTS noDTR* CTS* DSR* noDCD* noRI noTST
00:39:52: RS232 event: RTS noDTR CTS DSR noDCD noRI noTST
00:39:53: Modem State event: Idle
00:39:53: End connection event: Retransmits for MNP block (TX/RX) = 0/0
      Duration = 0:00:00, Number of TX/RX char = 0/0
      Local Disc Reason = Lost Carrier
      Remote Disc Reason = Unknown
00:39:53: Phone number event:
00:39:32: DTR event: DTR On
00:39:32: RS232 event: RTS DTR* CTS DSR noDCD noRI noTST

```

Table 31 describes the significant fields shown in the display.

Table 31 *show modem log Field Descriptions*

Field	Description
Modem <slot/port> Events Log:	The modem for which log events are currently displayed.
Startup Response:	List of information describing the modem type, modem firmware, and DSP controller version (for 56K modems only).
Control Reply	Indicates the events the modem will be monitoring.
RS232 event	Detected modem signaling.
Modem State event	Current state of the modem, which can be any of the following: <ul style="list-style-type: none"> • Conn—Modem is connected to a remote host. • Bad—Inoperable state, which is configured by the modem bad command. • Bad*—Inoperable state, which is configured by the modem startup-test command during initial power-up testing. • Reset—Modem is in reset mode. • D/L—Modem is downloading firmware. • Bad FW—Downloaded modem firmware is not operational. • Busy—Modem is out of service and not available for calls. • Idle—Modem is ready for incoming and outgoing calls.

Table 31 *show modem log Field Descriptions (continued)*

Field	Description
End connection event	Descriptions or reasons why a connection was terminated: <ul style="list-style-type: none"> • Duration—Time a connection (in hours: minutes: seconds) was up between the local and remote devices. • Number of TX/RX char—Transmit and receive characters exchanged during the connection time. • Local or Remote Disc Reason—Reason the local or remote modem disconnected: <ul style="list-style-type: none"> – Lost Carrier—The modem firmware detects a drop in Carrier Detect during a connection. – DSP Task Hung—The DSP chip malfunctioned and failed to reset.
Phone number event	Descriptive information about the last dialed or current phone number.

The **show modem log** command shows the progress of leased line connections. The following example is taken from a Cisco 2600 series router configured for a leased line. Note the “LL Answering” state and “LL Answer” in the “Direction” field of the connection report:

```
Router# show modem log

00:44:03.884 DTR set high
00:44:02.888 Modem enabled
00:43:57.732 Modem disabled
00:43:52.476 Modem State: LL Answering
00:43:52.476 CSM: event-MODEM_STARTING_CONNECT New State-CSM_CONNECT_INITIATED_STATE
00:43:51.112 Modem State: Waiting for Carrier
00:43:43.308 Modem State: Connected
00:43:42.304 Connection: TX/RX Speed = 33600/33600, Modulation = V34
Direction = LL Answer, Protocol = MNP, Compression = V42bis
00:43:42.304 CSM: event-MODEM_CONNECTED New State-CONNECTED_STATE
00:43:42.300 RS232: noCTS* DSR* DCD* noRI noRxBREAK TxBREAK*
00:43:41.892 PPP mode active
00:43:41.892 Modem enabled
00:43:39.888 PPP escape maps set: TX map=00000000 RX map=FFFFFFFF
00:43:39.724 PPP escape maps set: TX map=00000000 RX map=000A0000
00:43:34.444 RS232: CTS* DSR DCD noRI noRxBREAK TxBREAK
00:43:11.716 Modem Analog Report: TX = -20, RX = -34, Signal to noise = 61
```

Table 32 describes the significant fields shown in the display.

Table 32 *show modem log Field Descriptions*

Field	Description
Modem <slot/port> Events Log:	The modem for which log events are currently displayed.
Startup Response:	List of information describing the modem type, modem firmware, and DSP controller version (for 56K modems only).
Control Reply	Indicates the events the modem will be monitoring.
RS232 event	Detected modem signaling.

Table 32 *show modem log Field Descriptions (continued)*

Field	Description
Modem State event	<p>Current state of the modem, which can be any of the following:</p> <ul style="list-style-type: none"> • Conn—Modem is connected to a remote host. • Bad—Inoperable state, which is configured by the modem bad command. • Bad*—Inoperable state, which is configured by the modem startup-test command during initial power-up testing. • Reset—Modem is in reset mode. • D/L—Modem is downloading firmware. • Bad FW—Downloaded modem firmware is not operational. • Busy—Modem is out of service and not available for calls. • Idle—Modem is ready for incoming and outgoing calls.
End connection event	<p>Descriptions or reasons why a connection was terminated:</p> <ul style="list-style-type: none"> • Duration—Time a connection was up between the local and remote devices. • Number of TX/RX char—Transmit and receive characters exchanged during the connection time. • Local or Remote Disc Reason—Reason the local or remote modem disconnected: <ul style="list-style-type: none"> – Lost Carrier—The modem firmware detects a drop in Carrier Detect during a connection. – DSP Task Hung—The DSP chip malfunctioned and failed to reset. – Phone number event—Descriptive information about the last dialed or current phone number.

Related Commands

Command	Description
show modem configuration	Displays the current modem configuration for digital MICA technologies modems loaded inside access servers or routers.
show modem mica	Displays information about MICA technologies digital modems.
show modem operational-status	Displays the current modem operational status for MICA digital modems loaded in access servers or routers.
show modemcap	Displays the values set for the current modem and lists the modems for which the router has entries.

show modem log (pvdm2)

To display the modem history event status performed on a manageable modem on a PVDM2-xxDM device, use the **show modem log** command in privileged EXEC mode.

show modem log *slot/modem number*

Syntax Description	<i>slot/modem number</i> (Optional) Slot and modem number. If this number is not specified, statistics for all connected modems are displayed. (Include the forward slash (/) when entering this variable.)
---------------------------	---

Command Modes	Privileged EXEC
----------------------	-----------------

Command History	Release	Modification
	12.4(11)XW	This command was introduced.

Examples

The following is sample output from the **show modem log** command issued on a Cisco PVDMII-xxDM device with V12 digital modems. A specific modem, 0/323, is designated.

```
Router# show modem log 0/323
Modem 0/322 V12: Event Log contains 72 Events:
00:15:31.116 CSM: Incoming call from Unknown to 223
00:15:31.116 CSM: event-ISDN_CALL New State-IC_MODEM_RESERVED
      CSM: status-1 dchan-0/3 bchan-0
00:15:31.068 Cmd: PCMENCODE
00:15:31.068 Cmd: CMDDAT Config Change ATS
5B 0D DF 17
00:15:31.068 CSM: event-ISDN_CONNECTED New State-WAIT_FOR_CARRIER
00:15:31.036 CSM: event-CSM_EVENT_MODEM_SETUP New State-WAIT_FOR_CARRIER
00:15:31.036 Ntf: PCMENCODE
00:15:31.032 Ntf: CMDDAT Config Acknowledge ATS
Pass Pass
00:15:31.032 Ntf: CMDREQ
00:15:31.012 Cmd: LINECON
00:15:31.012 Ntf: ANSDAT
00:15:14.092 Cmd: CMDDAT Statistic--Data Transfer Information

00:15:14.092 CSM: event-MODEM_CONNECTED New State-CONNECTED_STATE
00:15:14.092 Ntf: CHANCON
00:15:14.088 Ntf: CMDDAT Statistic--Data Transfer Information
Error correction          77    LAP-M
Data compression         68    V44
Modulation type          206    V.34
receive speed            16    33600
transmit speed            16    33600
error correction frames sent 0
error correction frames rcvd 0
characters transmitted    0
characters received       0
synchronous frames sent   0
synchronous frames rcvd  0
bad synchronous frames rcvd 0
```

show modem log (pvdm2)

```

reject frames sent          0
reject frames rcvd         0
total retransmissions      0

00:15:16.080 Ntf: CMDREQ
00:15:16.076 Ntf: DCERPT
00:15:16.076 Cmd: SETSYNCR
00:15:16.072 Ntf: CONFIGACK
00:15:13.844 Cmd: ACCMTRX
00:15:13.844 Cmd: ACCMRX
00:15:13.840 Ntf: CONFIGACK
00:15:13.840 Ntf: CONFIGACK
00:15:13.600 Cmd: ACCMTRX
00:15:13.600 Cmd: ACCMRX
00:15:13.600 Ntf: CONFIGACK
00:15:13.596 Ntf: CONFIGACK
00:13:24.384 Cmd: CMDSTAT Statistic--Data Transfer Information

00:13:24.380 Ntf: CMDSTAT Statistic--Data Transfer Information
Error correction           77    LAP-M
Data compression          68    V44
Modulation type           206   V.34
receive speed             16    33600
transmit speed            16    33600
error correction frames sent 7
error correction frames rcvd 12
characters transmitted    218
characters received       487
synchronous frames sent   7
synchronous frames rcvd   12
bad synchronous frames rcvd 0
reject frames sent        0
reject frames rcvd        0
total retransmissions     0

00:13:44.996 Ntf: CMDREQ
00:13:44.996 Cmd: CMDSTAT Statistic--Call Summary Information

00:13:44.992 Ntf: CMDSTAT Statistic--Call Summary Information
Disconnect reason         21    Clears previous disconnect reason
Retrain/rate renegotiate reason 0    None
Connection time (hours)   0
Connection time (minutes) 1
Connection time (seconds) 53
Initial receive speed     16    33600
Initial transmit speed    16    33600
Maximum receive speed     16    33600
Maximum transmit speed    16    33600
Minimum receive speed     16    33600
Minimum transmit speed    16    33600
Max retransmit for one frame 1
Total retransmit during connect 0
Minimum EQM               17
Maximum EQM               24
Negative EQMs              0
Minimum SNR                27    31 dB
Maximum SNR                27    31 dB
Retrains requested locally 0
Retrains requested remotely 0
Rate renegotiation req locally 0
Rate renegotiation req remotely 0

00:13:47.140 Ntf: CMDREQ

```

00:13:45.436 Cmd: CMDDAT Statistic--DSP Information

00:13:45.432 Ntf: CMDDAT Statistic--DSP Information

```
Raw AGC value          94
Last EQM              20
Transmit symbol rate   5      3429
Receive symbol rate   5      3429
Transmit carrier frequency 0      1959 (low)
Receive carrier frequency 0      1959 (low)
Minimum AGC reading    94
Maximum AGC reading    94
Transmit level         13
Remote req tx level reduction 2
SNR                   27      31 dB
Transmit non-linear encoding 1      On
Receive non-linear encoding 1      On
Transmit precoding     1      On
Receive precoding      1      On
Transmit shaping       16
Receive shaping        16
Trellis mapping        0      16-state
Transmit pre-emphasis index 0
Raw round trip delay   424
EQM sum low            0
EQM sum medium         0
EQM sum high           0
```

00:14:18.796 Ntf: CMDREQ

00:14:17.396 Cmd: CMDDAT Statistic--Digital Impairments

00:14:17.392 Ntf: CMDDAT Statistic--Digital Impairments

```
Digital pad detected    0
RBS pattern            0
Rate drop due to RBS   255
V.90 minimum distance (high) 0
V.90 minimum distance (low) 0
Raw V.90 digital pad val (high) 255
Raw V.90 digital pad val (low) 255
```

00:14:17.392 Ntf: CMDREQ

00:14:17.392 Cmd: CMDDAT Statistic--V.8bis(proprietary flex) Information

00:14:17.388 Ntf: CMDDAT Statistic--V.8bis(proprietary flex) Information

```
Negotiation status      74      RLSD on
                          K56flex/K56Plus negotiation failed
                          V.90 negotiation not tried
                          V.90/K56flex negotiation failed
Non-standard V.8bis Octet 13 148      K56flex (generic)
Non-standard V.8bis Octet 14 129      Conexant Conexant-based
Non-standard V.8bis Octet 15 131      K56flex capable, Last byte,
Non-standard V.8bis Octet 16 66        flex version 0x2, Not prototype,
                          Server, Not last byte,
Non-standard V.8bis Octet 17 0         Not last byte,
                          Conexant data pump revision 0x0
Non-standard V.8bis Octet 18 0         u-law, x-law not forced,
                          Not last byte,
                          Conexant controller revision 0x0
```

00:14:18.884 Ntf: CMDREQ

00:12:09.636 Cmd: CMDDAT Statistic--Data Transfer Information

00:12:09.632 Ntf: CMDDAT Statistic--Data Transfer Information

```
Error correction        77      LAP-M
Data compression        68      V44
```

show modem log (pvdm2)

```

Modulation type          206   V.34
receive speed            16   33600
transmit speed           16   33600
error correction frames sent 7
error correction frames rcvd 12
characters transmitted   218
characters received      487
synchronous frames sent  7
synchronous frames rcvd  12
bad synchronous frames rcvd 0
reject frames sent       0
reject frames rcvd       0
total retransmissions    0

```

00:12:10.664 Ntf: CMDREQ

00:12:35.372 Cmd: CMDDAT Statistic--Call Summary Information

00:12:35.368 Ntf: CMDDAT Statistic--Call Summary Information

```

Disconnect reason        21   Clears previous disconnect reason
Retrain/rate renegotiate reason 0   None
Connection time (hours)  0
Connection time (minutes) 4
Connection time (seconds) 5
Initial receive speed    16   33600
Initial transmit speed   16   33600
Maximum receive speed    16   33600
Maximum transmit speed   16   33600
Minimum receive speed    16   33600
Minimum transmit speed   16   33600
Max retransmit for one frame 1
Total retransmit during connect 0
Minimum EQM              17
Maximum EQM              25
Negative EQMs            0
Minimum SNR              27   31 dB
Maximum SNR              27   31 dB
Retrains requested locally 0
Retrains requested remotely 0
Rate renegotiation req locally 0
Rate renegotiation req remotely 0

```

00:12:36.400 Ntf: CMDREQ

00:12:35.596 Cmd: CMDDAT Statistic--DSP Information

00:13:01.796 Ntf: CMDDAT Statistic--DSP Information

```

Raw AGC value            94
Last EQM                 19
Transmit symbol rate     5     3429
Receive symbol rate      5     3429
Transmit carrier frequency 0     1959 (low)
Receive carrier frequency 0     1959 (low)
Minimum AGC reading      94
Maximum AGC reading      94
Transmit level           13
Remote req tx level reduction 2
SNR                      27     31 dB
Transmit non-linear encoding 1     On
Receive non-linear encoding 1     On
Transmit precoding       1     On
Receive precoding        1     On
Transmit shaping         16
Receive shaping          16
Trellis mapping          0     16-state
Transmit pre-emphasis index 0

```

```

Raw round trip delay          424
EQM sum low                   0
EQM sum medium                0
EQM sum high                  0

00:13:02.832 Ntf: CMDREQ
00:13:01.792 Cmd: CMDDAT Statistic--Digital Impairments

00:13:01.788 Ntf: CMDDAT Statistic--Digital Impairments
Ditital pad detected          0
RBS pattern                   0
Rate drop due to RBS         255
V.90 minimum distance (high) 0
V.90 minimum distance (low) 0
Raw V.90 digital pad val (high) 255
Raw V.90 digital pad val (low) 255

00:13:02.784 Ntf: CMDREQ
00:13:01.748 Cmd: CMDDAT Statistic--V.8bis(proprietary flex) Information

00:13:01.744 Ntf: CMDDAT Statistic--V.8bis(proprietary flex) Information
Negotiation status           74    RLSD on
                                K56flex/K56Plus negotiation failed
                                V.90 negotiation not tried
                                V.90/K56flex negotiation failed
Non-standard V.8bis Octet 13  148  K56flex (generic)
Non-standard V.8bis Octet 14  129  Conexant Conexant-based
Non-standard V.8bis Octet 15  131  K56flex capable, Last byte,
Non-standard V.8bis Octet 16   66  flex version 0x2, Not prototype,
                                Server, Not last byte,
Non-standard V.8bis Octet 17   0    Not last byte,
                                Conexant data pump revision 0x0
Non-standard V.8bis Octet 18   0    u-law, x-law not forced,
                                Not last byte,
                                Conexant controller revision 0x0

00:13:02.776 Ntf: CMDREQ
00:06:19.580 Cmd: CMDDAT Statistic--Data Transfer Information

00:06:21.296 Ntf: CMDDAT Statistic--Data Transfer Information
Error correction              77    LAP-M
Data compression              68    V44
Modulation type               206   V.34
receive speed                  16    33600
transmit speed                 16    33600
error correction frames sent   7
error correction frames rcvd  12
characters transmitted         218
characters received            487
synchronous frames sent       7
synchronous frames rcvd      12
bad synchronous frames rcvd   0
reject frames sent             0
reject frames rcvd             0
total retransmissions         0

00:06:21.300 Ntf: CMDREQ
00:06:21.300 Cmd: CMDDAT Statistic--Call Summary Information

00:06:21.296 Ntf: CMDDAT Statistic--Call Summary Information
Disconnect reason             21    Clears previous disconnect reason
Retrain/rate renegotiate reason 0    None
Connection time (hours)       0
Connection time (minutes)     10

```

show modem log (pvdm2)

```

Connection time (seconds)      51
Initial receive speed         16   33600
Initial transmit speed        16   33600
Maximum receive speed         16   33600
Maximum transmit speed        16   33600
Minimum receive speed         16   33600
Minimum transmit speed        16   33600
Max retransmit for one frame   1
Total retransmit during connect 0
Minimum EQM                   17
Maximum EQM                   25
Negative EQMs                 0
Minimum SNR                   27   31 dB
Maximum SNR                   27   31 dB
Retrains requested locally     0
Retrains requested remotely    0
Rate renegotiation req locally 0
Rate renegotiation req remotely 0

00:07:22.856 Ntf: CMDREQ
00:07:21.828 Cmd: CMDDAT Statistic--DSP Information

00:07:21.824 Ntf: CMDDAT Statistic--DSP Information
Raw AGC value                 94
Last EQM                     21
Transmit symbol rate          5   3429
Receive symbol rate           5   3429
Transmit carrier frequency    0   1959 (low)
Receive carrier frequency     0   1959 (low)
Minimum AGC reading           94
Maximum AGC reading           94
Transmit level                13
Remote req tx level reduction 2
SNR                           27   31 dB
Transmit non-linear encoding   1   On
Receive non-linear encoding    1   On
Transmit precoding            1   On
Receive precoding             1   On
Transmit shaping              16
Receive shaping               16
Trellis mapping               0   16-state
Transmit pre-emphasis index   0
Raw round trip delay          424
EQM sum low                   0
EQM sum medium                0
EQM sum high                  0

00:07:23.216 Ntf: CMDREQ
00:07:22.180 Cmd: CMDDAT Statistic--Digital Impairments

00:07:22.176 Ntf: CMDDAT Statistic--Digital Impairments
Ditital pad detected          0
RBS pattern                   0
Rate drop due to RBS         255
V.90 minimum distance (high) 0
V.90 minimum distance (low) 0
Raw V.90 digital pad val (high) 255
Raw V.90 digital pad val (low) 255

00:07:22.176 Ntf: CMDREQ
00:07:23.208 Cmd: CMDDAT Statistic--V.8bis(proprietary flex) Information

00:07:24.824 Ntf: CMDDAT Statistic--V.8bis(proprietary flex) Information
Negotiation status           74   RLSD on

```

```

K56flex/K56Plus negotiation failed
V.90 negotiation not tried
V.90/K56flex negotiation failed
Non-standard V.8bis Octet 13 148 K56flex (generic)
Non-standard V.8bis Octet 14 129 Conexant Conexant-based
Non-standard V.8bis Octet 15 131 K56flex capable, Last byte,
Non-standard V.8bis Octet 16 66 flex version 0x2, Not prototype,
Server, Not last byte,
Non-standard V.8bis Octet 17 0 Not last byte,
Conexant data pump revision 0x0
Non-standard V.8bis Octet 18 0 u-law, x-law not forced,
Not last byte,
Conexant controller revision 0x0

```

```
00:07:25.856 Ntf: CMDREQ
```

```
Router#
```

[Table 33](#) describes the major fields shown in the display.

Table 33 *show modem log Field Descriptions for V12 Modems*

Field	Description
CSM	PVDM2-xxDM internal state machine commands.
Cmd	Commands sent from Cisco IOS software to V12 modems.
Ntf	Notifications sent from V12 modems to Cisco IOS software.

Related Commands

Command	Description
show modem configuration (pvdm2)	Displays the current modem configuration for V12 digital modems on PVDM2-xxDM devices.
show modem operational-status (pvdm2)	Displays the current modem operational status for V12 digital modems on PVDM2-xxDM devices.
show modemcap	Displays the values set for the current modem and lists the modems for which the router has entries.

show modem mapping

To display a snapshot of all the firmware versions running on all the modems in the access server, use the **show modem mapping** command in EXEC mode.

show modem mapping

Syntax Description This command has no arguments or keywords.

Command Modes EXEC

Command History	Release	Modification
	11.3T	This command was introduced.

Usage Guidelines This command is useful for managing and monitoring multiple versions of modem firmware running in an access server. This command also shows the source location of each version of firmware (for example, running out of Flash or boot Flash memory, or bundled with Cisco IOS software).

Firmware can also be copied from a local TFTP server to the onboard modems. For the Cisco AS5300, issue the **copy tftp flash** command followed by the **copy flash modem** command. The Cisco AS5300 stores individual firmware files that are not bundled with the Cisco IOS software in Flash memory. For the Cisco AS5200, issue the **copy tftp bootflash** command followed by the **copy bootflash modem** command. The Cisco AS5200 stores individual firmware files not bundled with the Cisco IOS software in boot Flash memory.

All the modems in a single MICA technologies modem module run the same version of firmware (for example, modems 1/0 through 1/5 in module 0). However, different versions of modem firmware can exist between different modem modules (for example, module 0 and module 1).

Individual firmware files cannot be erased from Flash or boot Flash memory. The entire contents of Flash or boot Flash memory must be deleted during the erase operation. If you do this delete, be sure to back up your Cisco IOS software and running configuration *before* you erase your system's Flash or boot Flash memory.



Note

The Cisco AS5800 does not support the **show modem mapping** command. Use the **show modem bundled-firmware** command instead.

Examples

The following is sample output from the **show modem mapping EXEC** command. This access server is loaded with MICA and Microcom modems.

```
Router# show modem mapping
```

```
Slot 1 has Mica Carrier card.
```

Module	Modem Numbers	Firmware Rev	Firmware Filename
0	1/0 - 1/5	2.0.1.7	IOS-Defaults
1	1/6 - 1/11	2.0.1.7	IOS-Defaults
2	1/12 - 1/17	2.0.1.7	IOS-Defaults
3	1/18 - 1/23	2.0.1.7	IOS-Defaults
4	1/24 - 1/29	2.0.1.7	IOS-Defaults
5	1/30 - 1/35	2.0.1.7	IOS-Defaults
6	1/36 - 1/41	2.0.1.7	IOS-Defaults
7	1/42 - 1/47	2.2.3.0	flash:mica-modem-portware.2.2.3.0.bin

```
Slot 2 has Microcom Carrier card.
```

Mdm	Module Number	Firmware Rev	Firmware Filename
2/0	0	3.2(10)	flash:mcom-modem-code-3.2.10.bin
2/1	0	3.1(30)	IOS-Defaults
2/2	0	3.1(30)	IOS-Defaults
2/3	0	3.1(30)	IOS-Defaults
2/4	0	3.1(30)	IOS-Defaults
2/5	0	3.1(30)	IOS-Defaults
2/6	0	3.1(30)	IOS-Defaults
2/7	0	3.1(30)	IOS-Defaults
2/8	0	3.1(30)	IOS-Defaults
2/9	0	3.1(30)	IOS-Defaults
2/10	0	3.1(30)	IOS-Defaults
2/11	0	3.1(30)	IOS-Defaults
2/12	1	3.1(30)	IOS-Defaults
2/13	1	3.1(30)	IOS-Defaults
2/14	1	3.1(30)	IOS-Defaults
2/15	1	3.1(30)	IOS-Defaults
2/16	1	3.1(30)	IOS-Defaults
2/17	1	3.1(30)	IOS-Defaults
2/18	1	3.1(30)	IOS-Defaults
2/19	1	3.1(30)	IOS-Defaults
2/20	1	3.1(30)	IOS-Defaults
2/21	1	3.1(30)	IOS-Defaults
2/22	1	3.1(30)	IOS-Defaults
2/23	1	3.1(30)	IOS-Defaults

```
IOS Bundled Firmware Information:
```

```
Mica Boardware Version : 1.3.4.5
Mica Portware Version : 2.0.1.7
Microcom Firmware Version : 3.1.30
Microcom DSP Software Version : 1.01
```

```
Firmware files on Boot Flash:
```

Firmware-file	Version	Firmware-Type
=====	=====	=====

```
Firmware files on System Flash:
```

■ show modem mapping

```

Firmware-file                               Version  Firmware-Type
=====
flash:mcom-modem-code-3.2.10.bin            3.2.10  Microcom F/W and DSP
flash:mica-modem-portware.2.2.3.0.bin       2.2.3.0  Mica Portware

```

Table 34 describes the significant fields shown in the display.

Table 34 *show modem mapping Field Descriptions*

Field	Description
Slot <i>x</i> has card	Type of modem card inserted in the specified slot.
Module	Modem module number that corresponds with the specified modem or group of modems.
Modem numbers	Range of specified modems, which are displayed as slot/port.
Mdm	Specified modem number, which is displayed as slot/port.
Firmware Rev	Version of firmware running on the modem or module. Each time the access server reloads, this version of firmware is copied to the specified modem or range of modems. The field “Unknown” is displayed when a modem is upgrading its firmware.
Firmware Filename	Location or filename of the firmware that is downloaded to the modems. A firmware file located in Flash memory begins as flash:filename. A file located in boot Flash memory begins as bootflash:filename. If the firmware is embedded or bundled in the Cisco IOS image, the field IOS-Defaults appears. On the Cisco AS5300, firmware files are stored in the system Flash memory. On the Cisco AS5200, firmware files are stored in boot Flash memory.
IOS Bundled Firmware Information:	List of firmware versions that are bundled with the Cisco IOS software running on the system. If the firmware versions in this section are more current than the firmware running on your modems, you should upgrade the running modem firmware.
Firmware files on Boot Flash:	List of current firmware located on boot Flash memory. The categories are Firmware-file, Version, and Firmware-Type.
Firmware files on System Flash:	List of current firmware located on the system Flash memory. The categories are Firmware-file, Version, and Firmware-Type.

Related Commands

Command	Description
copy	Copies any file from a source to a destination, including a source or destination URL for a TFTP network server, or for Flash memory.
copy modem	Copies modem firmware to integrated modems in an access server.
show modem bundled-firmware	Displays a list of bundled modem firmware images by slot (Cisco AS5800 access server only).

show modem mica

To display information about MICA technologies digital modems, use the **show modem mica** command in EXEC mode.

```
show modem mica {slot/port | all | slot [slot-number]}
```

Syntax Description	
<i>slot/port</i>	Single modem in a MICA digital modem board. The slash mark is required.
all	All the MICA modems in the system.
slot <i>slot-number</i>	A particular slot, which is mainly used for debugging purposes. The optional <i>slot-number</i> argument allows you to specify a slot number.

Command Modes	EXEC
---------------	------

Command History	Release	Modification
	11.2P	This command was introduced.

Usage Guidelines Each MICA modem has its own data channel port, which is tied to its own TTY line. For example, modem 0/1 is tied to TTY line 2. To display data channel information for a single MICA modem, issue the **show modem mica slot/port** command.

All the modems on each MICA modem card share three pseudochannels for modem management functions, for example, the DC session channel, status polling channel, and controlling channel. To display statistics for each modem management channel, issue the **show modem mica all** command. The first channel you see displayed is the status polling channel (shown as SLOT/PORT (0/61) TTYNUM=-1 (MM Status Port)). The second displayed channel is the DC session channel (shown as SLOT/PORT (0/60) TTYNUM=-1 (MM DC Port)). The third displayed port is the controlling channel (shown as SLOT/PORT (0/62) TTYNUM=-1 (Control Port)). No TTY lines are associated with the modem management ports, as indicated by the field display TTYNUM=-1. An extensive list of all the data channels for each MICA modem is also displayed.

Examples The following example displays the data port channel for modem 0/1. For a description of the significant fields shown in this display, see [Table 35](#).

```
Router# show modem mica 0/1

SLOT/PORT (0/1) TTYNUM=2 (Data Port)
Modem hardware state: CTS noDSR DTR RTS
RX Queue count is 0
TX Queue count is 1
TTY outpak is 0
TX pending FALSE
RX pending FALSE
RX ring with 4 entries at 0x40093184, (RX_AVAILABLE) rx_count=4
Rx_pak_head=0x6082B030 Rx_BD_head=0x4009318C Rx_BD_base=0x40093184
INPUT count = 12
00 pak=0x60753064 buf=0x40067514 status=8000 pak_size=0
```

```

01 pak=0x6082B030 buf=0x4013F948 status=8000 pak_size=0
02 pak=0x60A4323C buf=0x4021A214 status=8000 pak_size=0
03 pak=0x60A32DA0 buf=0x40208E9C status=8800 pak_size=0

TX ring with 4 entries at 0x400943F0, (TX_READY) tx_count = 0
tx_head = 0x400943F0 , head_txp = 0x0
Tx_bd_tail=0x400943F0 , Tx_bd_base=0x400943F0
OUTPUT count = 12
00 pak=0x00000000 buf=0x00000000 status=0000 pak_size=0
01 pak=0x00000000 buf=0x00000000 status=0000 pak_size=0
02 pak=0x00000000 buf=0x00000000 status=0000 pak_size=0
03 pak=0x00000000 buf=0x00000000 status=0800 pak_size=0

```

The following is sample output from the **show modem mica all** command. For a description of the significant fields shown in this display, see [Table 35](#).

```

Router# show modem mica all

SLOT/PORT (0/60) TTYNUM=-1 (MM DC Port)
Modem hardware state: CTS DSR DTR RTS
Board is running boardware version 1.3.2.0
Boardware redirect state = DISABLE size=4520 location=0x400968A8
Board INTR ON
RX[0]=0x0 RX[1]=0x0 RX[2]=0x0 RX[3]=0x0
TX[0]=0x0 TX[1]=0x0 TX[2]=0x0 TX[3]=0x0
Next Modem service is 0
Throttle count is 0, Throttle state is OFF
Data channel no buffer count is 0
Boardware crash count is 0
No crash dump available
Board state is RUNNING
Modules state are: R R R R R R R R
Modules crash count are: 0 0 0 0 0 0 0 0
Interval timer is 16

RX Queue count is 0
TX Queue count is 0
TTY outpak is 0
TX pending FALSE
RX pending FALSE
RX ring with 4 entries at 0x400938E4, (RX_AVAILABLE) rx_count=4
Rx_pak_head=0x60761CE0 Rx_BD_head=0x400938F4 Rx_BD_base=0x400938E4
INPUT count = 2
00 pak=0x60761920 buf=0x4009025C status=8000 pak_size=0
01 pak=0x60761740 buf=0x4008FBA4 status=8000 pak_size=0
02 pak=0x60761CE0 buf=0x40090FCC status=8000 pak_size=0
03 pak=0x6084311C buf=0x40150608 status=8800 pak_size=0

TX ring with 4 entries at 0x40094B50, (TX_READY) tx_count = 0
tx_head = 0x40094B60 , head_txp = 0x0
Tx_bd_tail=0x40094B60 , Tx_bd_base=0x40094B50
OUTPUT count = 2
00 pak=0x00000000 buf=0x00000000 status=0000 pak_size=0
01 pak=0x00000000 buf=0x00000000 status=0000 pak_size=0
02 pak=0x00000000 buf=0x00000000 status=0000 pak_size=0
03 pak=0x00000000 buf=0x00000000 status=0800 pak_size=0

SLOT/PORT (0/61) TTYNUM=-1 (MM Status Port)
Modem hardware state: CTS DSR DTR RTS
Board is running boardware version 1.3.2.0
Boardware redirect state = DISABLE size=4520 location=0x400968A8
Board INTR ON
RX[0]=0x0 RX[1]=0x0 RX[2]=0x0 RX[3]=0x0
TX[0]=0x0 TX[1]=0x0 TX[2]=0x0 TX[3]=0x0

```

```

Next Modem service is 0
Throttle count is 0, Throttle state is OFF
Data channel no buffer count is 0
Boardware crash count is 0
No crash dump available
Board state is RUNNING
Modules state are: R R R R R R R
Modules crash count are: 0 0 0 0 0 0 0
Interval timer is 16

```

The following is sample output from the **show modem mica slot** command. For a description of the significant fields shown in this display, see [Table 35](#).

```

Router# show modem mica slot

SLOT/PORT (0/62) TTYNUM=-1 (Control Port)
Modem hardware state: CTS DSR DTR RTS
Board is running boardware version 1.3.2.0
Boardware redirect state = DISABLE size=4520 location=0x400968A8
Board INTR ON
RX[0]=0x0 RX[1]=0x0 RX[2]=0x0 RX[3]=0x0
TX[0]=0x0 TX[1]=0x0 TX[2]=0x0 TX[3]=0x0
Next Modem service is 0
Throttle count is 0, Throttle state is OFF
Data channel no buffer count is 0
Boardware crash count is 0
No crash dump available
Board state is RUNNING
Modules state are: R R R R R R R
Modules crash count are: 0 0 0 0 0 0 0
Interval timer is 16

RX Queue count is 0
TX Queue count is 0
TTY outpak is 0
TX pending FALSE
RX pending FALSE
RX ring with 4 entries at 0x40093924, (RX_AVAILABLE) rx_count=4
Rx_pak_head=0x6075D4D8 Rx_bd_head=0x40093934 Rx_bd_base=0x40093924
INPUT count = 1366
00 pak=0x6075CD58 buf=0x4008A2BC status=8000 pak_size=0
01 pak=0x6075D6B8 buf=0x4008C454 status=8000 pak_size=0
02 pak=0x6075D4D8 buf=0x4008BD9C status=8000 pak_size=0
03 pak=0x6075D2F8 buf=0x4008B6E4 status=8800 pak_size=0

TX ring with 4 entries at 0x40094B90, (TX_READY) tx_count = 0
tx_head = 0x40094BA0 , head_txp = 0x0
Tx_bd_tail=0x40094BA0 , Tx_bd_base=0x40094B90
OUTPUT count = 1894
00 pak=0x00000000 buf=0x00000000 status=0000 pak_size=0
01 pak=0x00000000 buf=0x00000000 status=0000 pak_size=0
02 pak=0x00000000 buf=0x00000000 status=0000 pak_size=0
03 pak=0x00000000 buf=0x00000000 status=0800 pak_size=0

```

The first channel you see displayed is the status polling channel (shown as SLOT/PORT (0/62) TTYNUM=-1 (MM Status Port)). The second displayed channel is the DC session channel (shown as SLOT/PORT (0/60) TTYNUM=-1 (MM DC Port)). The third displayed port is the controlling channel (shown as SLOT/PORT (0/62) TTYNUM=-1 (Control Port)). No TTY lines are associated with the modem management ports, as indicated by the field display TTYNUM=-1. An extensive list of all the data channels for each individual MICA modem is displayed.

Table 35 describes the significant fields shown in the displays.

Table 35 *show modem mica Field Descriptions*

Field	Description
SLOT/PORT (0/61) TTYNUM=-1 (MM Status Port)	Status polling channel.
SLOT/PORT (0/60) TTYNUM=-1 (MM DC Port)	DC session channel.
SLOT/PORT (0/62) TTYNUM=-1 (Control Port)	Controlling pseudochannel.
Modem hardware state:	State of the modem hardware, which can be CTS, DSR, DTR, and RTS.
Board is running boardware version	Version of boardware.
Boardware crash count	Number of times the board has crashed since the system was last power cycled.
Modules state are:	State of the modem modules. R means that the specified modem module is running.
Modules crash count are:	Number of times each modem module has crashed since the system was last power cycled.
INPUT count =	Count of packets received since the last power cycle.
OUTPUT count =	Count of packets transmitted since the last power cycle.

Related Commands

Command	Description
show modem configuration	Displays the current modem configuration for digital MICA technologies modems loaded inside access servers or routers.
show modem log	Displays the modem history event status performed on a manageable modem or group of modems.
show modem operational-status	Displays the current modem operational status for MICA technologies digital modems loaded in access servers or routers.

show modem operational-status

To display performance statistics for individual modems, use the **show modem operational-status** command in EXEC mode.

Cisco 3600 Series and Cisco AS5300 Universal Access Servers

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

Cisco AS5800 Universal Access Servers

```
show modem operational-status [shelfslot/port]
```

Syntax Description	slot	(Optional) Slot number.
	slot/port	(Optional) Location of the slot and modem port. If these numbers are not specified, statistics for all connected modems are displayed. You must include the slash mark.
	shelfslot/port	(Optional) On Cisco AS5800 universal access servers, specifies the shelf, slot, and modem port. If these numbers are not specified, statistics for all connected modems are displayed. You must type in the forward slashes (/).

Command Modes	EXEC
---------------	------

Command History	Release	Modification
	11.2(10)P	This command was introduced on the Cisco AS5400.
	12.1(5)T	This command was enhanced to display information about modems on the Cisco 3600 series.
	12.2(2)XA	This command was enhanced to display additional information on disconnection reasons and states.
	12.2(2)XB	This command was integrated into Cisco IOS Release 12.2(2)XB.
	12.2(11)T	This command was integrated into Cisco IOS Release 12.2(11)T and support was added for Cisco AS5300 and Cisco AS5800 platforms.

Usage Guidelines The **show modem operational-status** command is supported on access servers with internal MICA technologies or Microcom analog (NM-AM) modems, but not on servers with internal Microcom digital modems.

To display performance statistics for Cisco AS3600 access servers with other modem types, use the following command sequence:

```
Router# modem at-mode s/p
AT@E1
```

Sample output and explanations of the **AT@E1** modem command are provided in the document *AT Command Set and Register Summary for Analog Modem Network Modules*, found in the Analog Modem Firmware index of the Cisco 3600 Series Router documentation on Cisco.com.

To display the operational status of a specific modem port or port range for the Cisco AS5400 and AS5800 access servers, use the **show port operational-status** command.

Examples

The following example shows performance statistics for modem 0/0 on a Cisco 3600 series router network module:

```
Router# show modem operational-status 0/0

Modem (0/0) Operational Status:
  Parameter #0 Disconnect Reason Info: (0x0)
    Type (=0 ): <unknown>
    Class (=0 ): Other
    Reason (=0 ): no disconnect has yet occurred
  Parameter #1 Connect Protocol: ISDN Mode
  Parameter #2 Compression: None
  Parameter #3 EC Retransmission Count: 0
  Parameter #4 Self Test Error Count: 0
  Parameter #5 Call Timer: 179077 secs
  Parameter #6 Total Retrains: 0
  Parameter #7 Sq Value: 7
  Parameter #8 Connected Standard: ISDN
  Parameter #9 TX,RX Bit Rate: 2400, 2400
  Parameter #11 TX,RX Symbol Rate: 0, 0
  Parameter #13 TX,RX Carrier Frequency: 0, 0
  Parameter #15 TX,RX Trellis Coding: (n/a), (n/a)
  Parameter #16 TX,RX Preemphasis Index: 0, 0
  Parameter #17 TX,RX Constellation Shaping: (n/a), (n/a)
  Parameter #18 TX,RX Nonlinear Encoding: (n/a), (n/a)
  Parameter #19 TX,RX Precoding: (n/a), (n/a)
  Parameter #20 TX,RX Xmit Level Reduction: 0, 0 dBm
  Parameter #21 Signal Noise Ratio: 0 dB
  Parameter #22 Receive Level: 0 dBm
  Parameter #23 Frequency Offset: 0 Hz
  Parameter #24 Phase Jitter Frequency: 0 Hz
  Parameter #25 Phase Jitter Level: 0 degrees
  Parameter #26 Far End Echo Level: 0 dBm
  Parameter #27 Phase Roll: 0 degrees
  Parameter #28 Round Trip Delay: 0 msec
  Parameter #30 Characters transmitted, received: 39483250, 41069212
  Parameter #32 General Portware Information: 0
  Parameter #33 PPP/SLIP packets transmitted, received: 774185, 774894
  Parameter #35 PPP/SLIP packets received (BAD/ABORTED): 0
  Parameter #36 EC packets transmitted, received OK: 0, 0
  Parameter #38 EC packets (Received BAD/ABORTED): 0
  Parameter #39 Robbed Bit Signalling (RBS) pattern: 0
  Parameter #40 Digital Pad: (n/a), Digital Pad Compensation: None
  Parameter #41 V110/PIAFS frames received bad: 0
  Parameter #42 V110/PIAFS frames received good: 0
  Parameter #43 V110/PIAFS frames transmitted: 0
  Parameter #44 V110/PIAFS sync lost: 0

Line Shape:
.....*
```


Table 36 *show modem operational-status Field Descriptions for MICA Modems (continued)*

Field	Description
Parameter #8 Connected Standard:	This parameter displays the modulation, which can be V.21, Bell03, V.22, V.22bis, Bell212, V.23, V.32, V.32bis, V.32terbo, V.34, V.34+, K56Flex, V.90, V.110, or ISDN.
Parameter #9 TX, RX Bit Rate:	<p>This parameter displays the TX bit rate from the local data communication equipment (DCE) to the remote DCE and the RX bit rate from the remote DCE to the local DCE.</p> <p>The following data carrier connect standards support the rates indicated in bits per second (bps):</p> <ul style="list-style-type: none"> • V.21 TX, RX—300 bps • V.22 TX, RX—1200 bps • V.22bis TX, RX—2400 bps • V.23 TX (originate)—1200 bps • V.23 RX (originate)—75 bps • V.32 TX, RX—4800 and 9600 bps • V.32bis TX, RX—4800, 7200, 9600, 12000, and 14400 bps • V.34 TX, RX—2400, 4800, 7200, 9600, 12000, 14400, 16800, 19200, 21600, 24000, 26400, and 28800 bps • V.34+ TX, RX—2400, 4800, 7200, 9600, 12000, 14400, 16800, 19200, 21600, 24000, 26400, 28800, 31200, and 33600 bps • K56Flex TX—32000, 34000, 36000, 38000, 40000, 42000, 44000, 46000, 48000, 50000, 52000, 54000, 56000, 58000, and 60000 bps • K56Flex RX—2400, 4800, 7200, 9600, 12000, 14400, 16800, 19200, 21600, 24000, 26400, 28800, and 31200 bps • V.90 TX—28000, 29333, 30666, 32000, 33333, 34666, 36000, 37333, 38666, 40000, 41333, 42666, 44000, 45333, 46666, 48000, 49333, 50666, 52000, 53333, 54666, and 56000 bps • V.90 RX—2400, 4800, 7200, 9600, 12000, 14400, 16800, 19200, 21600, 24000, 26400, 28800, 31200, and 33600 bps • Bell103 TX, RX—Up to 300 bps • Bell212 TX, RX—0 to 300 and 1200 bps <p>The following fax connect standards support the rates indicated in bps:</p> <ul style="list-style-type: none"> • V.17 TX, RX—7200, 9600, 12000, and 14400 bps • V.27ter TX, RX—2400 and 4800 bps • V.29 TX, RX—7200 and 9600 bps

Table 36 *show modem operational-status Field Descriptions for MICA Modems (continued)*

Field	Description
Parameter #11 TX, RX Symbol Rate:	<p>This parameter displays the TX symbol rate used to transmit samples to the line and the RX symbol rate used to receive samples from the line. The rates are synchronous with each other.</p> <p>The following data carrier connect standards support the indicated bit rates:</p> <ul style="list-style-type: none"> • V.21 TX, RX—300 bps • V.22 TX, RX—600 bps • V.22bis TX, RX—600 bps • V.23 TX (originate)—1200 bps • V.23 RX (originate)—75 bps • V.23 TX (answer)—75 bps • V.23 RX (answer)—1200 bps • V.32 TX, RX—2400 bps • V.32bis TX, RX—2400 bps • V.34 TX, RX—2400, 2743, 2800, 3000, 3200, and 3429 bps • V.34+ TX,RX—2400, 2743, 2800, 3000, 3200, and 3429 bps • K56Flex TX—8000 bps • K56Flex RX—3200 bps • V.90 TX—8000 bps • V.90 RX—3000, 3200, and 3429 bps • Bell103 TX, RX—300 bps • Bell212 TX, RX—600 bps <p>The following fax connect standards support the indicated bit rates:</p> <ul style="list-style-type: none"> • V.17 TX, RX—2400 bps • V.27ter TX, RX—1800 bps • V.29 TX, RX—2400 bps

Table 36 *show modem operational-status Field Descriptions for MICA Modems (continued)*

Field	Description
Parameter #13 TX, RX Carrier Frequency:	<p>This parameter displays the TX carrier frequency used by the local DCE and the RX carrier frequency used by the remote DCE.</p> <p>Data carrier frequencies are as follows:</p> <ul style="list-style-type: none"> • V.21 TX RX—1080 Hz (originate) and 1750 Hz (answer) • V.22 TX, RX—1200 Hz (originate) and 2400 Hz (answer) • V.22bis TX, RX—1200 Hz (originate) and 2400 Hz (answer) • V.23 TX (originate)—1700 Hz • V.23 RX (originate)—420 Hz • V.23 TX (answer)—420 Hz • V.23 RX (answer)—1700 Hz • V.32 TX, RX—1800 Hz • V.32bis TX, RX—1800 Hz • V.34 TX, RX—1600, 1800, 1646, 1680, 1829, 1829, 1867, 1900, 1920, 1959 Hz • V.34+ TX, RX—1600, 1800, 1646, 1680, 1829, 1829, 1867, 1900, 1920, 1959 Hz • K56Flex TX—Does not apply. • K56Flex RX—1600, 1800, 1646, 1680, 1829, 1829, 1867, 1900, 1920, 1959 Hz • V90 TX—Does not apply. • V90 RX—1600, 1800, 1646, 1680, 1829, 1829, 1867, 1900, 1920, 1959 Hz • Bell103 TX, RX—1080 Hz (originate) and 1750 Hz (answer) • Bell212 TX, RX—1200 Hz (originate) and 2400 Hz (answer) <p>Fax carrier frequencies are as follows:</p> <ul style="list-style-type: none"> • V.17 TX, RX—1800 Hz • V.27ter TX, RX—1200 (originate) and 1600 (answer) • V.29 TX, RX—1700 Hz
Parameter #15 TX, RX Trellis Coding:	<p>Trellis coding adds dependency between symbols to make the detection in noise more robust (Forward Error Correction). Trellis coding is displayed in values of 0, 8, 16, 32, or 64. Use the following key to correlate the trellis code values with the connection standard:</p> <ul style="list-style-type: none"> • 0—V.22, V.22bis, V.21, Bell212, Bell103, V.29, or V.27 • 8—V.32, V.32bis, or V.17 • 16, 32, 64—V.34, V.34+, V.90, K56Flex <p>Note MICA technologies modems do not support values of 32 or 64 in the RX direction, but do support values of 16, 32, and 64 in the TX direction.</p>

Table 36 *show modem operational-status Field Descriptions for MICA Modems (continued)*

Field	Description
Parameter #16 TX, RX Preemphasis Index:	The preemphasis index involves shaping the raw transmit spectrum to deal with spectrum roll-offs. The preemphasis index can take on the values from 0 to 10. A zero denotes no reshaping. Typical values usually fall in the range from 0 to 2, or 6 to 7. This index is used with V.34 and V.34+ connection standards.
Parameter #17 TX, RX Constellation Shaping:	Constellation shaping is a technique for improving noise immunity by using a probability distribution for transmitted signal points. The signal states are used to predict the sensitivity to certain transmission impairments. Constellation shaping is used with the V.34 and V.34+ connection standards. Values displayed by this parameter are either none or active (Off or On).
Parameter #18 TX, RX Nonlinear Encoding:	Nonlinear encoding occurs during the training phase and moves the outer points of the constellation away to deal with nonlinear distortion. Nonlinear distortion (in the range from 0 to 200 Hz) tends to affect the higher-powered signals. Moving the outer constellation points out reduces the chance of error. Nonlinear encoding is used with the V.34 and V.34+ connection standards. Values displayed by this parameter are either none or active (Off or On). Note MICA technologies modems support nonlinear coding in both directions.
Parameter #19 TX, RX Precoding:	Precoding serves the same purpose as the preemphasis index, but instead manages the bits and not the raw transmit signals. This management is done only when asked for and therefore will occur only in the RX mode. Precoding is used with the V.34 and V.34+ connection standards. Values displayed by this parameter are either none or active (Off or On).
Parameter #20 TX, RX Xmit Level Reduction:	The Xmit (transmit) level affects the transmit signal with 0 to 15 in dBm of reduction. If nonlinear distortion is detected, the MICA technologies modem will request a lower-powered TX signal. If the remote end detects nonlinear distortion, it will also request a lower-powered TX signal. Xmit level reduction is used with the V.34 and V.34+ connection standards. Values displayed by this parameter are the transmit signal and reduction, in dBm.

Table 36 *show modem operational-status Field Descriptions for MICA Modems (continued)*

Field	Description
Parameter #21 Signal Noise Ratio:	<p>A signal to noise ratio (SNR) is the ratio between the expected signal and the error signal.</p> <p>For example, consider a four-point constellation at $(x,y) = (-1,1), (1,1), (1,-1),$ and $(-1,-1)$. The receive signal comes in at $(x^{\wedge},y^{\wedge}) = (0.5,1.5)$. The expected value, although not guaranteed, is $(1,1)$. The error vector is then calculated as follows:</p> $e = (x - x^{\wedge}, y - y^{\wedge}) = ([1-0.5], [1-1.5]) = (0.5,-0.5)$ <p>and the SNR is calculated as follows:</p> $\text{SNR} = 20 * \log_{10} [\text{magnitude}(\text{expected value } x,y \text{ of constellation}) / \text{magnitude}(\text{error})]$ $\text{SNR} = 20 \log_{10} [\text{magnitude}(1,1) / \text{magnitude}(0.5,-0.5)] = 6.02 \text{ dB}$ <p>This parameter displays the ratio measurement of the desired signal to noise. MICA technologies modems measure the SNR in only the signal band that has a rate equal to the baud rate (that is, 3200 Hz, 2400 Hz, and so on).</p> <p>Note that a 28.8-kbps connection demands an SNR of about 37 dB. If the rate is lower than this value, the quality of the connection diminishes. A 33.6-kbps connection demands an SNR of 38 to 39 dB. A clean line has an SNR of about 41 dB.</p> <p>The values displayed by this parameter range from 0 to 70 decibels (dB) and change in 1-dB steps.</p>
Parameter #22 Receive Level:	<p>The receive level is the power of the received signal and ranges from 0 to -128 dBm in 1-dBm incremental steps. The ideal range is about -22 dBm in the United States and -12 dBm in Europe.</p> <p>In theory, MICA technologies modems can handle a receive level up to -4 dBm. However, the receive level they can handle is a function of the echo level. If there is absolutely no echo, the MICA modem should be able to handle a -4 dBm level. As the echo level goes up, the receive level that the MICA modem can handle moves from -4 dBm to -5 dBm, and so on.</p> <p>The optimum range for the receive level displayed by this parameter is from -12 dBm to -24 dBm.</p>
Parameter #23 Frequency Offset:	<p>Frequency offset is a difference between the modulation carriers—that is, the frequency shift in the receive spectrum between the expected RX carrier frequency and the actual RX carrier frequency.</p> <p>The values displayed by this parameter range from +/-32 in 0.125-Hz steps. The typical value is 0 Hz.</p> <p>Note Values of up to +/-7 Hz can be found on analog trunk circuits and will be compensated for by the MICA technologies modems.</p>

Table 36 *show modem operational-status Field Descriptions for MICA Modems (continued)*

Field	Description
Parameter #24 Phase Jitter Frequency:	<p>Phase jitter frequency is the peak-to-peak differential between two signal points.</p> <p>The following calculation models a typical RX carrier:</p> $e^{j(\omega t + a)}$ <p>but when phase jitter is detected, the RX carrier is modeled as follows:</p> $e^{j[\omega t + a + K \sin(bt + c)]}$ <p>where:</p> <ul style="list-style-type: none"> ω = carrier frequency a = carrier phase K = magnitude of sinusoidal phase jitter b = frequency of sinusoidal phase jitter c = phase of sinusoidal phase jitter <p>Uncanceled phase jitter looks like “rocking” of the baseband QAM constellation. The points look like arcs with the outer points having longer arcs.</p> <p>The phase jitter measurements displayed by this parameter range from +/-32 in 0.125-Hz steps. The typical value is 0 degrees (that is, phase jitter is not normally present).</p> <p>Note This phase jitter value is found only on analog trunk circuits. Typical frequencies are power generation frequencies and their harmonics (that is, 60, 120 Hz within the United States; 50, 100 Hz international). MICA technologies modems cancel all known frequencies.</p>
Parameter #25 Phase Jitter Level:	<p>Phase jitter level is the amount of phase jitter measured and indicates how large the “rocking” is, in degrees. On an oscilloscope, the constellation points would look like crescent moons. The jitter level corresponds to magnitude K as described in Parameter #24.</p> <p>Values displayed by this parameter can range up to 15 degrees. The typical value is 0 degrees (that is, phase jitter is not normally present).</p>

Table 36 *show modem operational-status Field Descriptions for MICA Modems (continued)*

Field	Description
Parameter #26 Far End Echo Level:	<p>Over long connections, an echo is produced by impedance mismatches at 2-wire-to-4-wire and at 4-wire-to-2-wire hybrid circuitry.</p> <p>This parameter displays the far-end echo level (that portion of the transmitted analog signal that has bounced off of the analog front end of the remote modem), which can range from 0 to -90 dBm.</p> <p>A MICA modem cannot handle near-end echo if far-end echo is present and the round-trip delay is greater than 10 microseconds. This constraint comes from the number of taps in the echo canceler of MICA modems.</p> <p>Assuming that there is no near-end echo, the performance of the receiver varies as the ratio of the receive level divided by the far-end echo (RECEIVE LEVEL/FAR END ECHO). As the echo level rises, the receiver performance degrades. (This is why the MICA modem can handle “hotter” receive levels with less echo.)</p> <p>The technical reason for this degradation has to do with <i>dynamic range</i>. Every echo canceler has some residual echo (error) left in the signal. This residual echo adds to the power of the receive signal going through the rest of the MICA modem receiver. With little residual echo, there is more dynamic range for the actual receive signal.</p> <p>For a call to go from the MICA modem to the local switch and back into MICA, the reported far-end echo level must be less than -55 dBm. A greater echo level indicates a digital-to-analog conversion in the path between the MICA modem and the switch. MICA modems are not supported in this topology.</p>
Parameter #27 Phase Roll:	<p>This parameter displays the phase roll, which affects the echo signal coming back to the MICA modem.</p> <p>A certain constellation pattern is transmitted from a MICA modem when the echo signal reaches the central office (CO). Some echoed form of this signal/constellation pattern is sent back to the MICA modem; however, the constellation shape may be rotated from 0 to 359 degrees. This rotation is called the <i>phase roll</i>.</p> <p>The echoed signal consists of a frequency component and a phase component. If the frequency component changes at all, a correction is needed for echo cancellation to work correctly. A slight variance (an unknown amount that would have to be determined through experimentation) in the phase may not affect how the echo canceler performs. Too much change in phase also needs correcting for proper echo cancellation to occur.</p> <p>The phase roll value ranges from +/-32 in 0.125-Hz steps. The typical value is 0 or close to 0.</p>

Table 36 *show modem operational-status Field Descriptions for MICA Modems (continued)*

Field	Description
Parameter #28 Round Trip Delay:	<p>Round-trip delay is the total round-trip propagation delay of the link in microseconds. This delay is important for proper echo cancellation.</p> <p>This parameter displays the round-trip delay; the amount of delay varies with each network.</p> <p>Note The buffer speed for MICA modems is 4096 bps; therefore, at 2400 bps the delay is 1.7 seconds, and at 3429 bps, 1.19 seconds. Because round-trip delay is measured before the bps rate is chosen, round-trip delay is used to disable those bit rates for which the round-trip delay cannot be supported. For example, if the round trip-delay is 1.25 seconds, 3429 is disabled for that train attempt.</p>
Parameter #30 Characters transmitted, received:	This parameter displays the total count of characters (before modem compression of any type) received and transmitted.
Parameter #32 General Portware Information:	Not used.
Parameter #33 PPP/SLIP packets transmitted, received:	This parameter displays the total count of Point-to-Point Protocol (PPP) and Serial Line Internet Protocol (SLIP) packets transmitted and received. This total could include all PPP/SLIP packets, including BAD/ABORTED packets.
Parameter #35 PPP/SLIP packets received (BAD/ABORTED):	This parameter displays the total count of the bad or aborted PPP/SLIP packets, and is a subset of the counter shown in Parameter #33 (PPP/SLIP packets received). A counted PPP packet has a bad FCS, or the SLIP packet has a transparency error. Errored PPP frames should be displayed only when asynchronous framing (no EC protocol) is being used.
Parameter #36 EC packets transmitted, received OK:	This parameter displays the number of EC packets transmitted (the number of TX frames that the client modem has accepted) and the number of EC packets received (the number of RX frames that the MICA modem has accepted).
Parameter #38 EC packets (Received BAD/ABORTED):	Parameter #38 is identical to Parameter #3 (EC Retransmission Count). It may read differently from Parameter #3, depending on how the software requests the parameter information.
Parameter #39 Robbed Bit Signalling (RBS) pattern:	This parameter displays the number of robbed bits detected in the connection. The robbed bits are used for in-band signaling. This information is reported only for K56Flex by the analog modem. The six least significant bits of the returned value indicate the periodic RBS pattern, where a 1 denotes a pulse code modulation sample with a robbed bit.

Table 36 *show modem operational-status Field Descriptions for MICA Modems (continued)*

Field	Description
Parameter #40 Digital Pad, Digital Pad Compensation:	<p>A digital pad can be implemented by the CO to attenuate a “hot” signal. Compensation boosts the signal by the amount of the pad.</p> <p>This parameter displays values that usually range from 0 to 10 dB, with typical values being 0, 3, and 6 dB.</p> <p>Note A digital pad is mandatory for K56Flex, but configurable for V.90 using S52. K56Flex supports only 0, 3, and 6 dB. V.90 supports steps of 1/8192 dB, but it is reported to the host in steps of 0.125-dB granularity.</p>
Line Shape:	<p>The display at the end of the report shows line shaping as a frequency-response graph of the channel. The Y (vertical) axis represents frequencies from 150 Hz (top of chart) to 3750 Hz (bottom of chart) in 150-Hz steps. The X (horizontal) axis represents a normalized amplitude. The graph can help identify nulls, bandwidth, and distortion (irregular shape). A flat spectrum plot is best.</p> <p>This display is available only for V.34, V.90, and K56Flex connection standards.</p>

Table 36 show modem operational-status Field Descriptions for MICA Modems (continued)

Field	Description
Parameter #9 TX, RX Bit Rate:	<p>This parameter displays the TX bit rate from the local data communication equipment (DCE) to the remote DCE and the RX bit rate from the remote DCE to the local DCE.</p> <p>The following data carrier connect standards support the rates indicated in bits per second (bps):</p> <ul style="list-style-type: none"> • V.21 TX, RX—300 bps • V.22 TX, RX—1200 bps • V.22bis TX, RX—2400 bps • V.23 TX (originate)—1200 bps • V.23 RX (originate)—75 bps • V.32 TX, RX—4800 and 9600 bps • V.32bis TX, RX—4800, 7200, 9600, 12000, and 14400 bps • V.34 TX, RX—2400, 4800, 7200, 9600, 12000, 14400, 16800, 19200, 21600, 24000, 26400, and 28800 bps • V.34+ TX, RX—2400, 4800, 7200, 9600, 12000, 14400, 16800, 19200, 21600, 24000, 26400, 28800, 31200, and 33600 bps • K56Flex TX—32000, 34000, 36000, 38000, 40000, 42000, 44000, 46000, 48000, 50000, 52000, 54000, 56000, 58000, and 60000 bps • K56Flex RX—2400, 4800, 7200, 9600, 12000, 14400, 16800, 19200, 21600, 24000, 26400, 28800, and 31200 bps • V.90 TX—28000, 29333, 30666, 32000, 33333, 34666, 36000, 37333, 38666, 40000, 41333, 42666, 44000, 45333, 46666, 48000, 49333, 50666, 52000, 53333, 54666, and 56000 bps • V.90 RX—2400, 4800, 7200, 9600, 12000, 14400, 16800, 19200, 21600, 24000, 26400, 28800, 31200, and 33600 bps • Bell103 TX, RX—Up to 300 bps • Bell212 TX, RX—0 to 300 and 1200 bps <p>The following fax connect standards support the rates indicated in bits per second (bps):</p> <ul style="list-style-type: none"> • V.17 TX, RX—7200, 9600, 12000, and 14400 bps • V.27ter TX, RX—2400 and 4800 bps • V.29 TX, RX—7200 and 9600 bps

Table 36 *show modem operational-status Field Descriptions for MICA Modems (continued)*

Field	Description
Parameter #11 TX, RX Symbol Rate:	<p>This parameter displays the TX symbol rate used to transmit samples to the line and the RX symbol rate used to receive samples from the line. The rates are synchronous with each other.</p> <p>The following data carrier connect standards support the indicated bit rates:</p> <ul style="list-style-type: none"> • V.21 TX, RX—300 bps • V.22 TX, RX—600 bps • V.22bis TX, RX—600 bps • V.23 TX (originate)—1200 bps • V.23 RX (originate)—75 bps • V.23 TX (answer)—75 bps • V.23 RX (answer)—1200 bps • V.32 TX, RX—2400 bps • V.32bis TX, RX—2400 bps • V.34 TX, RX—2400, 2743, 2800, 3000, 3200, and 3429 bps • V.34+ TX,RX—2400, 2743, 2800, 3000, 3200, and 3429 bps • K56Flex TX—8000 bps • K56Flex RX—3200 bps • V.90 TX—8000 bps • V.90 RX—3000, 3200, and 3429 bps • Bell103 TX, RX—300 bps • Bell212 TX, RX—600 bps <p>The following fax connect standards support the indicated bit rates:</p> <ul style="list-style-type: none"> • V.17 TX, RX—2400 bps • V.27ter TX, RX—1800 bps • V.29 TX, RX—2400 bps

The following Microcom example shows details for an 8-port analog modem module inside a Cisco 3640 router. (For an explanation of the fields seen in this display, refer to the description of the **AT@E1** modem command in the document *AT Command Set and Register Summary for Analog Modem Network Modules*.)

```
Router# show modem operational-status 1/0

MNP Class 10 V.34 Modem
MODEM HW: PC 2W ANALOG United States
Firmware Rev 2.2.48/85
DSP C36 Part/Rev          3635 4241
DSP C58 Part/Rev          3635 2041
DSP Controller Rev        0.0
```

■ show modem operational-status

```

DSP Data Pump Rev          0.0
Connect Time               000:00:00
- RTS 5 CTS 6 DSR - CD 20 DTR - RI
Disconnect Remote - Local -

Mod Type                   IDLE
TX/RX Spd                 ***** ***** BPS
TX/RX Spd Mask            NA 0000 Hex
Symbol Rate                2400 Hz
TX/RX Carrier Freq        1800 1800 Hz
TX/RX States              16 16
TX/RX NLE                 OFF OFF
TX/RX Precoding           OFF OFF
TX/RX Shaping             OFF OFF
TX Preemphasis Index      0

TX Lvl REG                 - 13 dBm
TX Lvl RAM                 - 0 dB
TX Lvl Reduct             0 dB
TX Lvl                    - 13 dBm
RX Lvl                     - 57 dBm
S/NR                      0
S/DR                      0
EQM                       0000 Hex
AVG EQM                   0000 Hex
Lower/Upper Edge          0 0 Hz
Phase Jitter Freq         0 Hz
Phase Jitter Amp          0.0 deg
Far Echo Lvl              0 N
Round Trip Delay          0 msec
Dropouts > 5dB           0
RTRNs Init/Accept         0 0
RRENs Init/Accept         0 0
BLER                      0000 Hex
RBS Counter               0000 Hex
Digital Pad Detected      NA
Max SECRXB                00
Max SECTXB                00
OK

```

Related Commands

Command	Description
show modem configuration	Displays the current modem configuration for digital MICA modems loaded inside access servers or routers.
show modem log	Displays the modem history event status performed on a manageable modem or group of modems.
show modem mica	Displays information about MICA digital modems.
show port operational-status	Displays the operational status of a specific modem port or port range for the Cisco AS5400 and AS5800 access servers.

show modem operational-status (pvdm2)

To display performance statistics for individual digital modems on PVDM2-xxDM devices, use the **show modem operational-status** command in privileged EXEC mode.

show modem operational-status [*slot/port*]

Syntax Description	<i>slotmodem number</i> (Optional) Location of the slot and modem number. If these numbers are not specified, statistics for all connected modems are displayed. You must include the slash mark.
---------------------------	---

Command Modes	Privileged EXEC
----------------------	-----------------

Command History	Release	Modification
	12.4(11)XW	This command was introduced.

Examples The following example shows details for a V12 digital modem on a PVDMII-xxDM device. A specific modem, 0/322, is designated.

```
Router# show modem operational-status 0/322
Modem (0/322) Operational Status:

Error correction                77    LAP-M
Data compression                68    V44
Modulation type                 206   V.34
receive speed                   16    33600
transmit speed                   16    33600
error correction frames sent     7
error correction frames rcvd    12
characters transmitted           218
characters received              487
synchronous frames sent         7
synchronous frames rcvd        12
bad synchronous frames rcvd     0
reject frames sent              0
reject frames rcvd              0
total retransmissions           0

Disconnect reason               21    Clears previous disconnect reason
Retrain/rate renegotiate reason 0     None
Connection time (hours)         0
Connection time (minutes)       19
Connection time (seconds)       15
Initial receive speed           16    33600
Initial transmit speed          16    33600
Maximum receive speed           16    33600
Maximum transmit speed          16    33600
Minimum receive speed           16    33600
Minimum transmit speed          16    33600
Max retransmit for one frame     1
Total retransmit during connect 0
```

show modem operational-status (pvdm2)

```

Minimum EQM                17
Maximum EQM                 26
Negative EQMs               0
Minimum SNR                 27    31 dB
Maximum SNR                 27    31 dB
Retrains requested locally  0
Retrains requested remotely 0
Rate renegotiation req locally 0
Rate renegotiation req remotely 0

Raw AGC value               94
Last EQM                   21
Transmit symbol rate        5    3429
Receive symbol rate         5    3429
Transmit carrier frequency  0    1959 (low)
Receive carrier frequency   0    1959 (low)
Minimum AGC reading         94
Maximum AGC reading         94
Transmit level              13
Remote req tx level reduction 2
SNR                         27    31 dB
Transmit non-linear encoding 1    On
Receive non-linear encoding  1    On
Transmit precoding          1    On
Receive precoding           1    On
Transmit shaping            16
Receive shaping             16
Trellis mapping            0    16-state
Transmit pre-emphasis index 0
Raw round trip delay        424
EQM sum low                 0
EQM sum medium              0
EQM sum high                0

Ditital pad detected        0
RBS pattern                 0
Rate drop due to RBS        255
V.90 minimum distance (high) 0
V.90 minimum distance (low) 0
Raw V.90 digital pad val (high) 255
Raw V.90 digital pad val (low) 255

Negotiation status          74    RLSD on
                               K56flex/K56Plus negotiation failed
                               V.90 negotiation not tried
                               V.90/K56flex negotiation failed

Non-standard V.8bis Octet 13 148    K56flex (generic)
Non-standard V.8bis Octet 14 129    Conexant Conexant-based
Non-standard V.8bis Octet 15 131    K56flex capable, Last byte,
Non-standard V.8bis Octet 16 66     flex version 0x2, Not prototype,
                               Server, Not last byte,

Non-standard V.8bis Octet 17 0      Not last byte,
                               Conexant data pump revision 0x0
Non-standard V.8bis Octet 18 0      u-law, x-law not forced,
                               Not last byte,
                               Conexant controller revision 0x0

```

Router#

Related Commands	Command	Description
	show modem configuration (pvdm2)	Displays the current modem configuration for digital V12 modems on PVDM2-xxDM devices.
	show modem log (pvdm2)	Displays the modem history event status performed on a manageable modem or group of modems.

show modem summary

To display a high-level report for all manageable modems dialing in to and out of the network, use the **show modem summary** command in EXEC mode.

show modem summary

Syntax Description This command has no arguments or keywords.

Command Modes EXEC

Command History	Release	Modification
	11.2	This command was introduced.

Examples The following is sample output from the **show modem summary** command:

```
Router# show modem summary

          Incoming calls      Outgoing calls      Busied   Failed   No   Succ
Usage  Succ  Fail  Avail  Succ  Fail  Avail  Out    Dial   Ans  Pct.
 17%  1547    64    11    0    0    11    0      3     3   96%
```

[Table 37](#) describes the significant fields shown in the display.

Table 37 *show modem summary Field Descriptions*

Field	Description
Incoming and Outgoing calls	Calls dialing into and out of the modem. <ul style="list-style-type: none"> Usage—Percentage of the total system uptime that all the modems are in use. Succ—Total calls successfully connected. Fail—Total calls that did not successfully connect. Avail—Total modems available for use in the system.
Busied Out	Total number of times the modems were taken out of service with the modem busy command or the modem shutdown command.
Failed Dial	Total number of attempts the modems did not hang up or there was no dial tone.
No Ans	Total number of times call ringing was detected, but the calls were not answered by a modem.
Succ Pct.	Successful connection percentage of total available modems.

show modem test

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

show modem test

Syntax Description This command has no arguments or keywords.

Command Modes EXEC

Command History	Release	Modification
	11.2	This command was introduced.

Usage Guidelines The modem test log displays the results of the modem diagnostics test, which is issued with the **modem autotest** global configuration command.

Examples The following is sample output from the **show modem test** command for a V.34 modem card:

```
Router# show modem test

Date Time           Modem  Test              Reason            State Result
5/15 07:25:17 AM  1/0    Back-To-Back     TIME INTERVAL     Idle  FAIL
5/15 07:25:17 AM  1/1    Back-To-Back     TIME INTERVAL     Idle  PASS
5/15 07:25:17 AM  1/2    Back-To-Back     TIME INTERVAL     Idle  PASS
5/15 07:25:17 AM  1/3    Back-To-Back     TIME INTERVAL     Idle  FAIL
5/15 07:25:17 AM  1/4    Back-To-Back     TIME INTERVAL     Idle  PASS
5/15 07:25:17 AM  1/5    Back-To-Back     TIME INTERVAL     Idle  PASS
5/15 07:25:17 AM  1/6    Back-To-Back     TIME INTERVAL     Idle  PASS
5/15 07:25:17 AM  1/7    Back-To-Back     TIME INTERVAL     Idle  PASS
5/15 07:25:17 AM  1/8    Back-To-Back     TIME INTERVAL     Idle  PASS
5/15 07:25:17 AM  1/9    Back-To-Back     TIME INTERVAL     Idle  PASS
.
.
.
```

[Table 38](#) describes the significant field shown in the display.

Table 38 *show modem test Field Descriptions*

Field	Description
Date	Date the back-to-back test occurred for the specified modem.
Time	Time the test occurred.
Modem	Specified modem that performed a back-to-back test.
Test	Operation performed by the specified modem.
Reason	Reason the modem performed a back-to-back test.

Table 38 show modem test Field Descriptions (continued)

Field	Description
State	Current operational state of the modem.
Result	Result of the back-to-back test for the specified modem.

show modem version

To display version information about the modem firmware, controller and Domain Specific Part (DSP) ATM address field code (for 56K modems only), and boot code, use the **show modem version** command in EXEC mode.

show modem version

Syntax Description This command has no arguments or keywords.

Command Modes EXEC

Command History	Release	Modification
	11.2	This command was introduced.
	12.0(4)XI1	This command was enhanced to display service processing element (SPE) features. The “-/-” in the DSP REV field indicates that the spe configuration commands for firmware download are unavailable on that modem.

Usage Guidelines This command is useful for verifying the version of modem firmware running on the system before or after a modem firmware upgrade. If there is a “-/-” in the DSP REV field, you cannot use the **spe** configuration commands for firmware download on that modem.

Examples The following example displays information for modem firmware, which includes modem firmware version, boot code version, controller and DSP code version (56K modem modules only), modem board hardware version, and carrier card information. This particular example displays information for Microcom 56K modem cards (modules 0/0, 2/0, and 2/1) and V.34 cards (module 0/1) installed in a Cisco AS5200.

If the version number is displayed as 0.0.0, verify that out-of-band status polling is functioning.

Router# **show modem version**

```

Mdm      Modem module  Firmware  Boot      DSP
Number   Rev         Rev       Rev       Rev
0/0      0            3.1(21)  3.0(4)    1.1(0)/1.1(0)
0/1      0            3.1(21)  3.0(4)    1.1(0)/1.1(0)
.
.
.
0/11     0            3.1(21)  3.0(4)    1.1(0)/1.1(0)
0/12     1            2.2(8)   1.0(5)
0/13     1            2.2(8)   1.0(5)
.
.
.
0/23     1            2.2(8)   1.0(5)
          2/0         0         3.1(21)  3.0(4)    1.1(0)/1.1(0)
2/1      0            3.1(21)  3.0(4)    1.1(0)/1.1(0)
2/2      0            3.1(21)  3.0(4)    1.1(0)/1.1(0)

```

show modem version

```

.
.
.
2/21          1          3.1(21)  3.0(4)   1.1(0)/1.1(0)
2/22          1          3.1(21)  3.0(4)   1.1(0)/1.1(0)
2/23          1          3.1(21)  3.0(4)   1.1(0)/1.1(0)

Modem board HW version info:

Slot 0:
Carrier card:
  hw version= 8, number_of_ports= 24, max_modules= 2, max_oob_ports= 2
Modem Module 0:
  number_of_modems= 12, option_bits= 1,
  rev_num= 02.00, vendor_model_number= 02,
  vendor_banner= Microcom MNP10 K56 Modem
Modem Module 1:
  number_of_modems= 12, option_bits= 1,
  rev_num= 03.00, vendor_model_number= 01,
  vendor_banner= Microcom MNP10 V34 Modem

Slot 2:
Carrier card:
  hw version= 7, number_of_ports= 24, max_modules= 2, max_oob_ports= 2
Modem Module 0:
  number_of_modems= 12, option_bits= 1,
  rev_num= 02.00, vendor_model_number= 02,
  vendor_banner= Microcom MNP10 K56 Modem
Modem Module 1:
  number_of_modems= 12, option_bits= 1,
  rev_num= 02.00, vendor_model_number= 02,
  vendor_banner= Microcom MNP10 K56 Modem

```

The following example displays modem version information for V.110 terminal adapter modules:

```

Router# show modem version

          Modem module      Firmware      Boot
Mdm      Number            Rev           Rev
0/0      0                  Unmanaged    Unmanaged
0/1      0                  Unmanaged    Unmanaged
0/2      0                  Unmanaged    Unmanaged
.
.
.
0/11     0                  Unmanaged    Unmanaged
1/0      0                  Unmanaged    Unmanaged
.
.
.
1/11     0                  Unmanaged    Unmanaged
1/12     1                  Unmanaged    Unmanaged
.
.
.
1/22     1                  Unmanaged    Unmanaged
1/23     1                  Unmanaged    Unmanaged
2/0      0                  Unmanaged    Unmanaged
.
.
.
2/11     0                  Unmanaged    Unmanaged
2/12     1                  Unmanaged    Unmanaged

```

```

.
.
.
2/22          1          Unmanaged  Unmanaged

```

Modem board HW version info:

```

Slot 0:
Carrier card:
  hw version= 3, number_of_ports= 12, max_modules= 1, max_oob_ports= 1
Modem Module 0:
  number_of_modems= 12, option_bits= 1,
  rev_num= 03.01, vendor_model_number= 01,
  vendor_banner= V.110 Terminal Adaptor

Slot 1:
Carrier card:
  hw version= 8, number_of_ports= 24, max_modules= 2, max_oob_ports= 2
Modem Module 0:
  number_of_modems= 12, option_bits= 1,
  rev_num= 03.01, vendor_model_number= 01,
  vendor_banner= V.110 Terminal Adaptor
Modem Module 1:
  number_of_modems= 12, option_bits= 1,
  rev_num= 03.01, vendor_model_number= 01,
  vendor_banner= V.110 Terminal Adaptor

Slot 2:
Carrier card:
  hw version= 8, number_of_ports= 24, max_modules= 2, max_oob_ports= 2
Modem Module 0:
  number_of_modems= 12, option_bits= 1,
  rev_num= 03.00, vendor_model_number= 01,
  vendor_banner= V.110 Terminal Adaptor
Modem Module 1:
  number_of_modems= 12, option_bits= 1,
  rev_num= 03.00, vendor_model_number= 01,
  vendor_banner= V.110 Terminal Adaptor

```

The following example shows the display from a Cisco AS5300. If there is a “-/-” in the DSP REV field, you cannot use the **spe** configuration commands for firmware download on that modem.

Router# **show modem version**

Mdm	Modem module Number	Firmware Rev	Boot Rev	DSP Rev
1/0	0	2.6.1.0		
1/1	0	2.6.1.0		
1/2	0	2.6.1.0		
1/3	0	2.6.1.0		
1/4	0	2.6.1.0		
1/5	0	2.6.1.0		
1/6	1	2.6.1.0		
.				
.				
.				
1/41	6	2.6.1.0		
1/42	7	2.6.1.0		
1/43	7	2.6.1.0		
1/44	7	2.6.1.0		
1/45	7	2.6.1.0		
1/46	7	2.6.1.0		
1/47	7	2.6.1.0		
2/0	0	5.0(40)	3.0(4)	22.0/47.0

show modem version

```

2/1          0      5.0(40)  3.0(4)   22.0/47.0
2/2          0      5.1(9)   3.0(4)   22.0/47.0
.
.
.
2/8          0      5.1(9)   3.0(4)   22.0/47.0
2/9          0      5.0(40)  3.0(4)   22.0/47.0
2/10         0      5.1(9)   3.0(4)   22.0/47.0
2/11         0      5.1(9)   3.0(4)   22.0/47.0
2/12         1      2.3(6)   1.0(5)   -/-
2/13         1      2.3(6)   1.0(5)   -/-
.
.
.

```

Modem board HW version info:

Slot 1:

Carrier card:

number_of_ports= 48, max_modules= 10

Manufacture Cookie Info:

EEPROM Type 0x0001, EEPROM Version 0x01, Board ID 0x47,
Board Hardware Version 1.0, Item Number 73-2393-3,
Board Revision A0, Serial Number 09361116,
PLD/ISP Version 5.9, Manufacture Date 20-Jun-1998.

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 B48, Serial Number 06542204,
PLD/ISP Version 255.255, Manufacture Date 23-Jun-1998.

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 B48, Serial Number 06478113,
PLD/ISP Version 255.255, Manufacture Date 23-Jun-1998.

.

.

.

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 B48, Serial Number 06478929,
PLD/ISP Version 255.255, Manufacture Date 23-Jun-1998.

Modem Module 8

Modem Module 9

Slot 2:

Carrier card:

hw version= 2, pld= 0, number_of_ports= 24,
max_modules= 2, max_oob_ports= 2

Manufacture Cookie Info:

EEPROM Type 0x0001, EEPROM Version 0x01, Board ID 0x47,
Board Hardware Version 1.0, Item Number 73-2522-2,
Board Revision ^@2, Serial Number 05433763,
PLD/ISP Version 255.255, Invalid Date code.

Modem Module 0:

number_of_modems= 12, option_bits= 1,

```

    rev_num= 03.30, vendor_model_number= 02,
    vendor_banner= Microcom MNP10 K56 Modem
Modem Module 1:
    number_of_modems= 12, option_bits= 1,
    rev_num= 03.00, vendor_model_number= 01,
    vendor_banner= Microcom MNP10 V34 Modem
Router#

Router# write terminal

Building configuration...

Current configuration:
!
version 12.0
service timestamps debug datetime msec
service timestamps log datetime msec
no service password-encryption
service internal
!
hostname Router
!
aaa new-model
aaa group server radius aaa-server
server 1.2.3.4
!
spe 1/0 1/7
firmware location system:/ucode/mica_port_firmware
spe 2/0 2/1
firmware location system:/ucode/microcom_firmware
spe 2/2 2/8
firmware location flash:mcom-fw-dsp.5.1.9_47.22.bin
spe 2/9 2/9
firmware location system:/ucode/microcom_firmware
spe 2/10 2/11
firmware location flash:mcom-fw-dsp.5.1.9_47.22.bin
spe 2/12 2/23
firmware location feature_card_flash
!

Router# termination length 0

```

Table 39 describes the significant fields shown in the displays of the **show modem version** command.

Table 39 *show modem version Field Descriptions*

Field	Description
Mdm	Slot and port number for the specified modem.
Modem module Number	Card number associated with the carrier card.
Firmware Rev	Modem firmware version, or one of the following: <ul style="list-style-type: none"> Unknown—Indicates that the retrieved version is 0.0.0. Unknown (F)—Indicates that the modem's out-of-band feature has failed. Unknown (NP)—Indicates that the user has disabled the status polling for this modem using the no modem status-polling command.

Table 39 *show modem version Field Descriptions (continued)*

Field	Description
Boot Rev	Modem boot version, or one of the following: <ul style="list-style-type: none"> Unknown—Indicates that the retrieved version is 0.0.0. Unknown (F)—Indicates that the modem's out-of-band feature has failed. Unknown (NP)—Indicates that the user has disabled the status polling for this modem using the no modem status-polling command.
DSP Rev	Controller and DSP version, which is displayed for the 56K modems only. The first set of numbers correspond to the controller version. The second set of numbers, which begin with a forward slash (/), corresponds to the DSP version.
Modem board HW version info:	Modem hardware board information.
Slot	Slot number used for the carrier card.
Carrier card	Modem carrier card.
hw version	Modem carrier card hardware version.
number_of_ports	Maximum number of modem ports that can be installed in the carrier card.
max_modules	Maximum number of modem cards that can be installed in a carrier card.
max_oob_ports	Maximum number of out-of-band ports used in the carrier card.
Modem Module	Modem card.
number_of_modems	Number of modems installed in the modem card.
option_bits	Signal level of the modem A-law and the U-law.
rev_num	Modem card version number.
vendor_model_number	Vendor modem model number.
vendor_banner	Type of banner displayed by the modem vendor.

show modem version (pvdms)

To display version information about the modem firmware, controller, and boot code, use the **show modem version** command in Privileged EXEC mode.

show modem version

Syntax Description This command has no arguments or keywords.

Command Modes Privileged EXEC

Command History	Release	Modification
	12.4(11)XW	This command was introduced.

Usage Guidelines This command is useful for verifying the version of modem firmware running on the system before or after a modem firmware upgrade. If there is a “-/-” in the DSP REV field, you cannot use the **spe** configuration commands for firmware download on that modem.

Examples The following example displays modem version information about PVDM2-xxDM digital modems. This example specifically shows information about a Cisco 2821 router with three PVDM2-36DMs, high-density pvdms holding 36 digital modems each.

```
Router# show modem version
Slot 0:
PVDM 0: PVDMII-36DM - HW Version 1, FPGA Version 3.3, NIOS(2) 5.0.1
  Modem 0/322-0/333:
    PCI Classid: 0x07800001 Bootrom Rev: 0x00005601 Diag Result: 0x0000007F
    Firmware: V3_09
  Modem 0/334-0/345:
    PCI Classid: 0x07800001 Bootrom Rev: 0x00005601 Diag Result: 0x0000007F
    Firmware: V3_09
  Modem 0/346-0/357:
    PCI Classid: 0x07800001 Bootrom Rev: 0x00005601 Diag Result: 0x0000007F
    Firmware: V3_09

PVDM 1: PVDMII-36DM - HW Version 1, FPGA Version 3.3, NIOS(2) 5.0.1
  Modem 0/386-0/397:
    PCI Classid: 0x07800001 Bootrom Rev: 0x00005601 Diag Result: 0x0000007F
    Firmware: V3_09
  Modem 0/398-0/409:
    PCI Classid: 0x07800001 Bootrom Rev: 0x00005601 Diag Result: 0x0000007F
    Firmware: V3_09
  Modem 0/410-0/421:
    PCI Classid: 0x07800001 Bootrom Rev: 0x00005601 Diag Result: 0x0000007F
    Firmware: V3_09

PVDM 2: PVDMII-36DM - HW Version 1, FPGA Version 3.3, NIOS(2) 5.0.1
  Modem 0/450-0/461:
    PCI Classid: 0x07800001 Bootrom Rev: 0x00005601 Diag Result: 0x0000007F
    Firmware: V3_09
```

■ **show modem version (pvdm2)**

```
Modem 0/462-0/473:
  PCI Classid: 0x07800001 Bootrom Rev: 0x00005601 Diag Result: 0x0000007F
  Firmware: V3_09
Modem 0/474-0/485:
  PCI Classid: 0x07800001 Bootrom Rev: 0x00005601 Diag Result: 0x0000007F
  Firmware: V3_09
```

Table 39 describes the significant fields shown in the displays of the **show modem version** command.

Table 40 *show modem version Field Descriptions*

Field	Description
PVDM	PVDM slot number where PVDM2-xxDM is present.
HW Version	Hardware revision number of PVDM2-xxDM.
FPGA Version	FPGA version loaded in the PVDM2-xxDM.
NiOS	The version number of the NIOS core soft processor in PVDM2-xxDM.
Modem	Slot and port number for the specified modem.
PCI Classid	PCI class id of the CSM V12 chipset present in PVDM2-xxDM.
Bootrom Rev	Bootrom revision number of PVDM2-xxDM.
Diag Result	Internal diagnostics result.
Firmware	CSM V12 Firmware version

show modemcap

To display the values set for the current modem and list the modems for which the router has entries, use the **show modemcap** command in EXEC mode. To display the attributes associated with a specific modem, use the **show modemcap** command in EXEC mode with the optional *modem-type* argument.

```
show modemcap [modem-type]
```

Syntax Description	<i>modem-type</i> (Optional) Modem type, such as a Codex 3260.				
Defaults	The list of modems for which the router has entries.				
Command Modes	EXEC				
Command History	<table border="1"> <thead> <tr> <th>Release</th> <th>Modification</th> </tr> </thead> <tbody> <tr> <td>11.1</td> <td>This command was introduced.</td> </tr> </tbody> </table>	Release	Modification	11.1	This command was introduced.
Release	Modification				
11.1	This command was introduced.				

Usage Guidelines When a modem name is supplied, this command displays the available modem values. As an alternative to repeatedly entering the same data, use templates as a way to join modemcap entries. For example, consider the following modemcap entries:

```
modemcap entry gv_basics:FD=&F:AA=S0=1:CD=&C1:DTR=&D2:NEC=E0:NRS=Q1
modemcap entry global_village:HFL=&K3\\X1:BCP=%C1:NCP=%C0:TPL=gv_basics
modemcap entry gv_teleport:NCP=%C0:TPL=gv_basics
```

To look up the factory default for a global_village modem, perform the following steps:

- Step 1** Look at the global_village modemcap entry for the factory default (FD).
- Step 2** If you fail to find FD in global_village, look at the global_village modemcap entry for a template (TPL).
- Step 3** Find a TPL called “gv_basics.”
- Step 4** Look in the gv_basics modemcap entry for the FD.
- Step 5** Find FD=&F in the gv_basics modemcap entry.
- Step 6** Use &F as the FD for the global_village.

Examples

The following example shows the modem values in a Codex 3260:

```
Router# show modemcap codex_3260

Modemcap values for codex_3260
Factory Defaults (FD): &F
Autoanswer (AA): S0=1
Carrier detect (CD): &C1
Drop with DTR (DTR): &D2
Hardware Flowcontrol (HFL): *FL3
Lock DTE speed (SPD): *SC1
DTE locking speed (DTE): [not set]
Best Error Control (BER): *SM3
Best Compression (BCP): *DC1
No Error Control (NER): *SM1
No Compression (NCP): *DC0
No Echo (NEC): E0
No Result Codes (NRS): Q1
Software Flowcontrol (SFL): [not set]
Caller ID (CID): &S1
On-hook (ONH): H0
Off-hook (OFH): H1
Miscellaneous (MSC): [not set]
Template entry (TPL): default
Modem entry is built-in.
```

Table 41 identifies and describes the list of attributes.

Table 41 Modem Attributes

Modem Attribute	Description
Factory defaults (FD)	Returns the modem to factory default configuration. This is commonly “&F.”
Autoanswer (AA)	Sets the modem to answer the phone if data terminal ready (DTR) is high, preferably on the first ring. This is commonly “S0=1.”
Carrier detect (CD)	Instructs the modem to raise the CD signal when a carrier is detected. Cisco configures modems into auto-answer mode by default. This is not the default for most modems, which just raise CD and leave it high. This is commonly “&C1.” In auto-answer mode, the modem waits until it detects a ring, then responds to the incoming call and negotiates an end-to-end connection with the other modem. At this point, the modem receiving the call informs the router that it has a call ready to be processed; this notification is performed by raising the signal on EIA/TIA-232 pin 8 (the Data Carrier Detect signal) to high.
Drop with DTR (DTR)	Drops the connection if DTR signal drops. There is frequently an option to reset the configuration while this drop occurs; however, this option should <i>not</i> be used. The connection should only drop. The correct value for this is commonly “&D2.”
Set Hardware Flowcontrol (HFL)	Uses ready to send/clear to send (RTS/CTS) out-of-band flow control.
Set Software flowcontrol (SFL)	Uses transmit on/transmit off (XON/XOFF) in-band flow control.

Table 41 Modem Attributes (continued)

Modem Attribute	Description
Lock DTE speed (SPD)	Instructs the modem to lock the speed at which it communicates to the router to a single rate, preferably the highest. This attribute is important and is often hard to find in manuals. SPD is often linked to the hardware flow control variable. Look for phrases like “bps rate adjust” and “bit rate adjust.” Some modems set the speed to a value that depends on an S-register; other modems simply lock to the speed that was used when the last AT command was issued. Locking to the speed that was last used is handled automatically. To enable the S-register to set the speed, you must include the proper S-register value for the fastest possible DTE speed.
Best Error Control (BER)	Instructs the modem to negotiate its best error control with remote modems. For ARAP users, this is Microcom Network Protocol (MNP) 5/Link Access Procedure, Balanced (LAPB), but not MNP4.
Best Compression (BCP)	Instructs the modem to negotiate its best compression with remote modems.
No Error Control (NER)	Instructs the modem to negotiate no error control with remote modems. This attribute will be used when placing outgoing (callback) AppleTalk Remote Access protocol (ARAP) calls.
No Compression (NCP)	Instructs the modem to negotiate no compression with remote modems. This attribute is used when placing outgoing (callback) ARAP calls.
No Echo (NEC)	Requests the modem <i>not</i> to echo characters. This attribute is commonly “E0.”
No Result Codes (NRS)	Requests the modem <i>not</i> to send a response when you issue a command. This attribute is commonly “Q1.”
Caller ID (CID)	Requests that Caller ID information be returned when dial in occurs. Not used.
Miscellaneous (MSC)	Sends any extra commands that are needed for the modem to work (possibly with specific platforms).
Template entry (TPL)	This is the name of another modem type. It is referenced as the value of any of the previously listed attributes if they are not set on the current modem type.

Related Commands

Command	Description
modemcap edit	Changes a modem value that was returned from the show modemcap command.
modemcap entry	Stores and compresses information about the capability of a specified modem.

show modem-pool

To display the configuration and connection status for one or more modem pools, use the **show modem-pool** command in EXEC mode.

```
show modem-pool [pool-name]
```

Syntax Description	<i>pool-name</i> (Optional) Modem pool name.
---------------------------	--

Command Modes	EXEC
----------------------	------

Command History	Release	Modification
	11.2P	This command was introduced.

Usage Guidelines	The counters displayed by the show modem-pool command are cleared with the copy modem command.
-------------------------	--

Examples	In the following example, two modem pools are set up: v90service and v34service. Each pool contains one Dialed Number Information Service (DNIS) number: 1234 and 5678, respectively. Each DNIS number is allowed a maximum of 48 simultaneous connections. A total of 96 modems are assigned to the modem pools: 48 and 48, respectively. Modems that are left unassigned to modem pools are automatically put into the default modem pool (displayed as System-def-Mpool). The default pool is empty in this example.
-----------------	---

```
Router# show modem-pool

modem-pool: System-def-Mpool
modems in pool: 0   active conn: 0
0 no free modems in pool

modem-pool: v90service
modems in pool: 48  active conn: 46
 8 no free modems in pool
called_party_number: 1234
  max conn allowed: 48, active conn: 46
 8 max-conn exceeded, 8 no free modems in pool

modem-pool: v34service
modems in pool: 48  active conn: 35
0 no free modems in pool
called_party_number: 5678
  max conn allowed: 48, active conn: 35
0 max-conn exceeded, 0 no free modems in pool
```

Table 42 describes the significant fields shown in the display.

Table 42 *show modem-pool Field Descriptions*

Field	Description
modem-pool	Name of the modem pool. In the previous example, there are three modem pools configured: System-def-Mpool, v34service, and v90service. To set modem pool name, see the copy modem command. All the modems not assigned to a modem pool are automatically assigned to the system default pool (displayed as System-def-Mpool).
modems in pool	Number of modems assigned to the modem pool. To assign modems to a pool, see the copy modem command.
active conn	Number of simultaneous active connections for the specified modem pool or called party DNIS number.
no free modems in pool	Number of times incoming calls were rejected because there were no more free modems in the pool to accept the call.
called_party_number	Specified called party DNIS number. This is the number that the remote clients use to dial in to the access server. You can have more than one DNIS number per modem pool. To set the DNIS number, see the copy modem command.
max conn allowed	Maximum number of modems that a called party DNIS number can use, which is an overflow protection measure. To set this feature, see the copy modem command.
max-conn exceeded	Number of times an incoming call using this called party DNIS number was rejected because the max-conn number parameter specified by the called-number command was exceeded.

Related Commands

Command	Description
called-number (modem pool)	Assigns a called party number to a pool of modems.
clear modempool-counters	Clears active or running counters associated with one or more modem pools.
copy modem	Copies modem firmware to integrated modems in access servers.
modem-pool	Creates a new modem pool or specifies an existing modem pool, which allows you to physically or virtually partition your access server for dial-in and dial-out access.
pool-member	Assigns a range of modems to a modem pool.

show nbf cache

To display NetBIOS name cache contents, use the **show nbf cache** command in EXEC mode.

show nbf cache

Syntax Description This command has no arguments or keywords.

Command Modes EXEC

Command History

Release	Modification
11.1	This command was introduced.

Examples The following is sample output from the **show nbf cache** command:

```
Router# show nbf cache

HW Addr          Name          How    Idle  NetBIOS Packet Savings
1000.5a89.449a   IKBA          E0     6     0
0000.0000.0000   NANOO         async1 21    0
```

[Table 43](#) describes significant fields shown in the display.

Table 43 *show nbf cache Field Descriptions*

Field	Description
HW Addr	MAC address mapped to the NetBIOS name in this entry.
Name	NetBIOS name mapped to the MAC address in this entry.
How	Interface through which this information was learned.
Idle	Period of time (in seconds) since this entry was last accessed. A hyphen in this column indicates a static entry in the NetBIOS name cache.
NetBIOS Packet Savings	Number of packets to which local replies were made (thus preventing transmission of these packets over the network).

Related Commands	Command	Description
	ppp multilink group	Restricts a physical link to joining only a designated multilink-group interface.
	netbios access-list	Defines an IPX NetBIOS FindName access list filter.
	netbios input-access-filter host	Defines a station access list filter on incoming messages. The access lists of station names are defined in netbios access-list host commands.

Command	Description
netbios name-cache	Defines a static NetBIOS name cache entry, tying the server with the name netbios-name to the mac-address, and specifying that the server is accessible either locally through the interface-name specified, or remotely through the ring-group group-number specified.
netbios output-access-filter host	Defines a station access list filter on outgoing messages.
show nbf sessions	Displays NetBEUI connection information.

