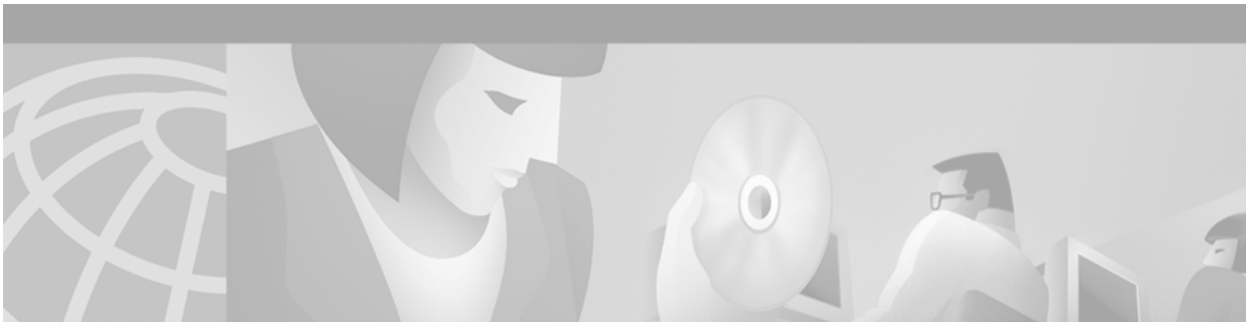

Dial Shelf Management Commands

This chapter describes the commands used to manage dial shelves and dial shelf controller (DSC) cards, including Distributed System Interconnect Protocol (DSIP)[1] commands.

For dial shelf configuration tasks, refer to the "Managing Dial Shelves" chapter in the *Cisco IOS Interfaces Configuration Guide*.

1. DSIP is also refered to as *Dial Shelf Interconnection Protocol*.

clear dsip tracing

To clear Distributed System Interconnect Protocol (DSIP) tracing statistics (trace logging), use the **clear dsip tracing** command in privileged EXEC mode.

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

Syntax Description

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

Defaults

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

Command Modes

privileged EXEC

Command History

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

Usage Guidelines

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

Examples

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

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

Related Commands

Command	Description
show dsip version	Displays DSIP version information.

debug dsc clock

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

[**execute-on**] **debug dsc clock**

[**execute-on**] **no debug dsc clock**

Syntax Description

This command has no arguments or keywords; however it can be used with the **execute-on** command

Command Modes

privileged EXEC

Command History

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

Usage Guidelines

To perform this command from the router shelf on the Cisco AS5800 series platform, use the **execute-on slot** ***slot-number*** **debug dsc clock** form of this command.

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

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

Examples

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

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

Related Commands

Command	Description
execute-on	Executes commands remotely on a line card.
show dsc clock	Displays information about the Dial Shelf Controller clock.

debug dsip

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

debug dsip {**all** | **api** | **boot** | **console** | **trace** | **transport**}

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

Syntax Description

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

Command Modes

privileged EXEC

Command History

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

Usage Guidelines

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

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

Examples

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

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

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

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

Related Commands

Command	Description
debug modem dsip	Displays information about the dial shelf, including clocking information.
show dsip tracing	Displays DSIP media header information logged using the **debug dsip trace** command.

dial-tdm- clock

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

dial-tdm-clock priority *number* {**external** {**e1** | **t1**} [**120ohm**] | **freerun** | **trunk-slot** *slot* **port** *port*}

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

Syntax Description

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

Defaults

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

Command Modes

Global configuration

Command History

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

Usage Guidelines

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

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

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

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

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

Examples

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

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

Related Commands

Command	Description
show dial-shelf	Displays information about the dial shelf, including clocking information.

hw-module slot

To enable the router shelf to stop a Dial Shelf Controller (DSC) card, to restart a stopped DSC, or to cause a reload of any specified dial shelf feature board, use the **hw-module slot** privileged EXEC command.

hw-module slot *shelf-id/slot-number* {**start** | **stop | reload**}

Syntax Description

shelf-id	The shelf ID is the number of the dial shelf. The default shelf ID for the dial shelf is 1. You must type in the forward slash (/) as part of the command.
slot-number	The slot number is number of the slot in the shelf where the target feature board or DSC is intalled. If the **start** or **stop** keywords are used, the slot number must be either 12 or 13, as these keywords apply only to DSCs.
start	Restarts the specified DSC.
stop	Stops the specified DSC.
reload	Enables a remote reload of an individual feature board without having to use manual online insertion and removal (OIR).

Defaults

None

Command Modes

Privileged EXEC

Command History

Release	Modification
11.3(6)AA	The **hw-module** command was introduced.
12.1	• The **hw-module** command was expanded to become the **hw-module slot** command. • The **reload** keyword was added to enable a remote feature board reload.

Usage Guidelines

The **stop** form of this command is issued from the router shelf console instead of pressing the attention (ATTN) button on the target DSC. Confirmation of when the start or stop took place is displayed. Warnings are issued and confirmation input is required if a **stop** command will result in a loss of service when backup functionality is not available.

When a DSC card is stopped, removed, then reinstalled, there is no need to restart the card (whether the card is the original or a replacement) since a freshly installed card reboots as the backup DSC automatically. However, if a DSC is stopped, either by using the ATTN button or by issuing the **hw-module slot stop** command, it must be restarted by using the **start** version of the same command, or the DSC must be removed and reinstalled in order to reboot.

Press the ATTN button on the DSCs to shutdown a card manually prior to removing the card. This is equivalent to issuing a **hw-module** privileged EXEC command for that card at the router command prompt. Use the ATTN button to shut down the card before it is swapped out or tested in place, or to restart it, if the card has not been removed after having been shut down.

Tips The**hw-module slot** *shelf-id/slot-number* **reload** form of this command is useful for simulating an OIR event in the case of a feature board failure when physical access to the feature board card is restricted.

Entering the **hw-module slot** *shelf-id/slot-number* **reload** command initiates the feature board reload process through powercycling. The **hw-module slot** *shelf-id/slot-number* **reload** command can not be used to reload DSCs.

Examples

The following example stops the DSC in slot 13 and starts the other in slot 12 (which has previously been stopped):

```
Router# hw-module slot 1/13 stop
Router# hw-module slot 1/12 start
```

The following example reloads the dial shelf feature board in slot 6:

```
Router# hw-module slot 1/6 reload
```

Related Commands

Command	Description
show redundancy	Displays current or historical status and related information on dual (redundant) DSC cards.
debug redundancy	Displays information used for troubleshooting dual (redundant) DSC cards.

shelf-id

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

shelf-id *number* {**router-shelf** | **dial-shelf**}

no shelf-id *number*

Syntax Description

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

Defaults

The default shelf number for the router shelf is 0.

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

Command Modes

Global configuration

Command History

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

Usage Guidelines

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

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

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

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

Examples

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

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

Related Commands

Command	Description
show version	Displays the configuration of the system hardware, the software version, the names and sources of configuration files, and the boot images.

show dial-shelf

To display information about the dial shelf, including clocking information, use the **show dial-shelf** command in user or privileged EXEC mode.

show dial-shelf [**clocks** | **slot** *slot-number* [**clocks**]]

Syntax Description

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

Command Modes

EXEC

Command History

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

Usage Guidelines

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

Examples

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

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

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

Table 78 Show Dial-Shelf Command Output

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

Table 78 Show Dial-Shelf Command Output (continued)

Field	Description
State	Current state of the card. Can be UP or DOWN.
Elapsed Time	The elapsed time the shelf has been up.

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

Display 1

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

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

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

Display 2

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

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

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

Related Commands

Command	Description
show diag	Displays advanced troubleshooting information about line cards.

show dsc clock

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

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

Syntax Description

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

Command Modes

EXEC

Command History

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

Usage Guidelines

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

Examples

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

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

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

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

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

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

Table 79 Show DSC Clock Command Output Fields

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

Table 79 Show DSC Clock Command Output Fields (continued)

Field	Description
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.

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

Syntax Description

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

Command Modes

Privileged EXEC

Command History

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

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:

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

DA-Slot1>
DSI-Tx-FastEthernet0 is up, line protocol is up
  Hardware is DEC21140A, address is 0008.26b7.b008 (bia 0008.26b7.b008)
  MTU 1500 bytes, BW 100000 Kbit, DLY 100 usec, rely 255/255, load 1/255
  Encapsulation ARPA, loopback not set, keepalive set (10 sec)
  Half-duplex, 100Mb/s, 100BaseTX/FX
  ARP type: ARPA, ARP Timeout 04:00:00
  Last input 01:17:09, output 00:00:00, output hang never
  Last clearing of "show interface" counters never
  Queueing strategy: fifo
  Output queue 0/40, 0 drops; input queue 0/75, 0 drops
  5 minute input rate 0 bits/sec, 0 packets/sec
  5 minute output rate 0 bits/sec, 0 packets/sec
     6 packets input, 596 bytes, 0 no buffer
     Received 0 broadcasts, 0 runts, 0 giants, 0 throttles
     0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
     0 watchdog, 0 multicast
     0 input packets with dribble condition detected
     6170 packets output, 813483 bytes, 0 underruns
     0 output errors, 0 collisions, 1 interface resets
     0 babbles, 0 late collision, 0 deferred
     0 lost carrier, 0 no carrier
     0 output buffer failures, 0 output buffers swapped out
DSI-Rx-FastEthernet1 is up, line protocol is up
Hardware is DEC21140A, address is 0008.26b7.b008 (bia 0008.26b7.b008)
  MTU 1500 bytes, BW 100000 Kbit, DLY 100 usec, rely 255/255, load 1/255
  Encapsulation ARPA, loopback not set, keepalive set (10 sec)
  Full-duplex, 100Mb/s, 100BaseTX/FX
  ARP type: ARPA, ARP Timeout 04:00:00
  Last input 00:00:00, output never, output hang never
  Last clearing of "show interface" counters never
  Queueing strategy: fifo
  Output queue 0/40, 0 drops; input queue 0/75, 0 drops
  5 minute input rate 0 bits/sec, 0 packets/sec
  5 minute output rate 0 bits/sec, 0 packets/sec
     6280 packets input, 362493 bytes, 0 no buffer
     Received 0 broadcasts, 0 runts, 0 giants, 0 throttles
     0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
     0 watchdog, 0 multicast
     0 input packets with dribble condition detected
     0 packets output, 0 bytes, 0 underruns
     0 output errors, 0 collisions, 1 interface resets
     0 babbles, 0 late collision, 0 deferred
     0 lost carrier, 0 no carrier
     0 output buffer failures, 0 output buffers swapped out
Interface DSI-Tx-FastEthernet0
Hardware is DEC21140A
 dec21140_ds=0x604C9FC4, registers=0x3C000000, ib=0x1912E00
 rx ring entries=128, tx ring entries=256
 rxring=0x1912F00, rxr shadow=0x604CA16C, rx_head=6, rx_tail=0
 txring=0x1913740, txr shadow=0x604CA398, tx_head=138, tx_tail=138, tx_count=0
 PHY link up
 CSR0=0xFE024882, CSR3=0x1912F00, CSR4=0x1913740, CSR5=0xFC660000
 CSR6=0x320CA002, CSR7=0xFFFFA261, CSR8=0xE0000000, CSR9=0xFFFDC3FF
 CSR11=0xFFFE0000, CSR12=0xFFFFFF09, CSR15=0xFFFFFEC8
 DEC21140 PCI registers:
  bus_no=0, device_no=1
  CFID=0x00091011, CFCS=0x02800006, CFRV=0x02000022, CFLT=0x0000FF00
  CBIO=0x00000001, CBMA=0x48000000, CFIT=0x28140100, CFDA=0x00000000
 MII registers:
```

```
  Register 0x00:   FFFF  FFFF  FFFF  FFFF  FFFF  FFFF  FFFF  FFFF
  Register 0x08:   FFFF  FFFF  FFFF  FFFF  FFFF  FFFF  FFFF  FFFF
  Register 0x10:   FFFF  FFFF  FFFF  FFFF  FFFF  FFFF  FFFF  FFFF
   Register 0x18:   FFFF  FFFF  FFFF  FFFF  FFFF  FFFF  FFFF  FFFF
 throttled=0, enabled=0, disabled=0
 rx_fifo_overflow=0, rx_no_enp=0, rx_discard=0
 tx_underrun_err=0, tx_jabber_timeout=0, tx_carrier_loss=0
 tx_no_carrier=0, tx_late_collision=0, tx_excess_coll=0
 tx_collision_cnt=0, tx_deferred=0, fatal_tx_err=0, tbl_overflow=0
 HW addr filter: 0x604CABC4, ISL Disabled
  Entry= 0:  Addr=FFFF.FFFF.FFFF
  Entry= 1:  Addr=FFFF.FFFF.FFFF
  Entry= 2:  Addr=FFFF.FFFF.FFFF
  Entry= 3:  Addr=FFFF.FFFF.FFFF
  Entry= 4:  Addr=FFFF.FFFF.FFFF
  Entry= 5:  Addr=FFFF.FFFF.FFFF
  Entry= 6:  Addr=FFFF.FFFF.FFFF
  Entry= 7:  Addr=FFFF.FFFF.FFFF
  Entry= 8:  Addr=FFFF.FFFF.FFFF
  Entry= 9:  Addr=FFFF.FFFF.FFFF
  Entry=10:  Addr=FFFF.FFFF.FFFF
  Entry=11:  Addr=FFFF.FFFF.FFFF
  Entry=12:  Addr=FFFF.FFFF.FFFF
  Entry=13:  Addr=FFFF.FFFF.FFFF
  Entry=14:  Addr=FFFF.FFFF.FFFF
  Entry=15:  Addr=0008.26B7.B008

Interface DSI-Rx-FastEthernet1
Hardware is DEC21140A
dec21140_ds=0x604DDA4C, registers=0x3C000800, ib=0x1A01FC0
rx ring entries=128, tx ring entries=256
 rxring=0x1A020C0, rxr shadow=0x604DDBF4, rx_head=55, rx_tail=0
 txring=0x1A02900, txr shadow=0x604DDE20, tx_head=2, tx_tail=2, tx_count=0
 PHY link up
 CSR0=0xFE024882, CSR3=0x1A020C0, CSR4=0x1A02900, CSR5=0xFC660000
 CSR6=0x320CA202, CSR7=0xFFFFA261, CSR8=0xE0000000, CSR9=0xFFFDC3FF
 CSR11=0xFFFE0000, CSR12=0xFFFFFF09, CSR15=0xFFFFFEC8
 DEC21140 PCI registers:
  bus_no=0, device_no=2
  CFID=0x00091011, CFCS=0x02800006, CFRV=0x02000022, CFLT=0x0000FF00
  CBIO=0x00000001, CBMA=0x48000800, CFIT=0x28140100, CFDA=0x00000000
 MII registers:
  Register 0x00:   FFFF  FFFF  FFFF  FFFF  FFFF  FFFF  FFFF  FFFF
  Register 0x08:   FFFF  FFFF  FFFF  FFFF  FFFF  FFFF  FFFF  FFFF
  Register 0x10:   FFFF  FFFF  FFFF  FFFF  FFFF  FFFF  FFFF  FFFF
  Register 0x18:   FFFF  FFFF  FFFF  FFFF  FFFF  FFFF  FFFF  FFFF
 throttled=0, enabled=0, disabled=0
 rx_fifo_overflow=0, rx_no_enp=0, rx_discard=0
 tx_underrun_err=0, tx_jabber_timeout=0, tx_carrier_loss=0
 tx_no_carrier=0, tx_late_collision=0, tx_excess_coll=0
 tx_collision_cnt=0, tx_deferred=0, fatal_tx_err=0, tbl_overflow=0
 HW addr filter: 0x604DE64C, ISL Disabled
  Entry= 0:  Addr=FFFF.FFFF.FFFF
  Entry= 1:  Addr=FFFF.FFFF.FFFF
  Entry= 2:  Addr=FFFF.FFFF.FFFF
  Entry= 3:  Addr=FFFF.FFFF.FFFF
  Entry= 4:  Addr=FFFF.FFFF.FFFF
  Entry= 5:  Addr=FFFF.FFFF.FFFF
  Entry= 6:  Addr=FFFF.FFFF.FFFF
  Entry= 7:  Addr=FFFF.FFFF.FFFF
  Entry= 8:  Addr=FFFF.FFFF.FFFF
  Entry= 9:  Addr=FFFF.FFFF.FFFF
  Entry=10:  Addr=FFFF.FFFF.FFFF
  Entry=11:  Addr=FFFF.FFFF.FFFF
```

```
Entry=12:  Addr=FFFF.FFFF.FFFF
Entry=13:  Addr=FFFF.FFFF.FFFF
Entry=14:  Addr=FFFF.FFFF.FFFF
Entry=15:  Addr=0008.26B7.B008
```

Table 80 describes the fields shown in the **show dsi** display.

Table 80 show dsi Command Output Fields

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

Table 80 show dsi Command Output Fields (continued)

Field	Description
Last clearing	Time at which the counters that measure cumulative statistics (such as number of bytes transmitted and received) shown in this report were last reset to zero. Note that variables that might affect routing (for example, load and reliability) are not cleared when the counters are cleared. *** indicates the elapsed time is too large to be displayed. 0:00:00 indicates the counters were cleared more than 2^{31}ms (and less than 2^{32}ms) ago.
Output queue, input queue, drops	Number of packets in output and input queues. Each number is followed by a slash, the maximum size of the queue, and the number of packets dropped due to a full queue.
5 minute input rate, 5 minute output rate	Average number of bits and packets transmitted per second in the last 5 minutes. If the interface is not in promiscuous mode, it senses network traffic it sends and receives (rather than all network traffic). The 5-minute input and output rates should be used only as an approximation of traffic per second during a given 5-minute period. These rates are exponentially weighted averages with a time constant of 5 minutes. A period of four time constants must pass before the average will be within two percent of the instantaneous rate of a uniform stream of traffic over that period.
packets input	Total number of error-free packets received by the system.
bytes	Total number of bytes, including data and MAC encapsulation, in the error free packets received by the system.
no buffer	Number of received packets discarded because there was no buffer space in the main system. Compare with ignored count. Broadcast storms on Ethernets and bursts of noise on serial lines are often responsible for no input buffer events.
Received ... broadcasts	Total number of broadcast or multicast packets received by the interface.
runts	Number of packets that are discarded because they are smaller than the medium's minimum packet size. For instance, any Ethernet packet that is less than 64 bytes is considered a runt.
giants	Number of packets that are discarded because they exceed the medium's maximum packet size. For example, any Ethernet packet that is greater than 1,518 bytes is considered a giant.
input errors	Includes runts, giants, no buffer, CRC, frame, overrun, and ignored counts. Other input-related errors can also cause the input errors count to be increased, and some datagrams may have more than one error; therefore, this sum may not balance with the sum of enumerated input error counts.

Table 80 show dsi Command Output Fields (continued)

Field	Description
CRC	Cyclic redundancy checksum generated by the originating LAN station or far-end device does not match the checksum calculated from the data received. On a LAN, this usually indicates noise or transmission problems on the LAN interface or the LAN bus itself. A high number of CRCs is usually the result of collisions or a station transmitting bad data.
frame	Number of packets received incorrectly having a CRC error and a noninteger number of octets. On a LAN, this is usually the result of collisions or a malfunctioning Ethernet device.
overrun	Number of times the receiver hardware was unable to hand received data to a hardware buffer because the input rate exceeded the receiver's ability to handle the data.
ignored	Number of received packets ignored by the interface because the interface hardware ran low on internal buffers. These buffers are different than the system buffers mentioned previously in the buffer description. Broadcast storms and bursts of noise can cause the ignored count to be increased.
abort	Number of packets whose receipt was aborted.
watchdog	Number of times watchdog receive timer expired. It happens when receiving a packet with length greater than 2048.
multicast	Number of multicast packets received.
input packets with dribble condition detected	Dribble bit error indicates that a frame is slightly too long. This frame error counter is incremented just for informational purposes; the router accepts the frame.
packets output	Total number of messages transmitted by the system.
bytes	Total number of bytes, including data and MAC encapsulation, transmitted by the system.
underruns	Number of times that the transmitter has been running faster than the router can handle. This may never be reported on some interfaces.
output errors	Sum of all errors that prevented the final transmission of datagrams out of the interface being examined. Note that this may not balance with the sum of the enumerated output errors, as some datagrams may have more than one error, and others may have errors that do not fall into any of the specifically tabulated categories.
collisions	Number of messages retransmitted due to an Ethernet collision. This is usually the result of an overextended LAN (Ethernet or transceiver cable too long, more than two repeaters between stations, or too many cascaded multiport transceivers). A packet that collides is counted only once in output packets.

Table 80 show dsi Command Output Fields (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 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.
no carrier	Number of times the carrier was not present during the transmission.
output buffer failures	Number of failed buffers and number of buffers swapped out.

1. Single Cell Input
2. Command Bus

Related Commands

Command	Description
execute-on	Executes commands on a line card.
show dsip	Displays all information about the Distributed System Interconnect Protocol (DSIP) on a Cisco AS5800.
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** EXEC command.

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.

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 transport, show dsip clients**, **show dsip ports**, **show dsip queue**, **show dsip nodes**, 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
 Shelf1 : Slot7 : 0007.5387.4838, Status=remote
 Shelf1 : Slot8 : 0007.5387.4840, Status=remote
 Shelf1 : Slot9 : 0007.5387.4848, Status=remote
 Shelf1 : Slot11: 0007.5387.4858, Status=remote
 Shelf1 : Slot12: 0007.4b67.8260, Status=remote

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

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

Dsip Remote Ports:
------------------
Client:Portname             Portid    Out-Msgs  Bytes     Last-o/p  Last-act
Clock:Slave1                101005F   1         24        00:24:21  00:24:21
Trunk:Slave1                1010061   12        1776      00:24:21  00:24:21
Modem:Slave5                1050050   96        2148      00:23:56  00:24:19
Modem:Slave6                1060050   105       2040      00:24:00  00:24:22
```

```
Modem:Slave7                1070050   106       2188      00:23:56  00:24:20
Modem:Slave8                1080050   112       2212      00:24:13  00:24:35
Modem:Slave9                1090050   115       2224      00:24:09  00:24:35
Modem:Slave11               10B0050   107       2192      00:24:09  00:24:32
Clock:Slave12               10C000D   1         24        00:24:37  00:24:37
Dial shelf manager:Slave12  10C000E   28        4752      00:00:49  00:24:35
DSIP Test:Slave12            10C000F   0         0         never  00:24:35

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


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

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

All DS slots are running DSIP versions compatible with RS

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

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

Related Commands

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 IPC messages in the DSIP transmission queue.
show dsip tracing	Displays DSIP media header information logged using the debug dsip trace command.

Command	Description
show dsip transport	Displays information about the DSIP transport statistics for the control/data and IPC packets and registered addresses.
show dsip version	Displays Distributed System Interconnect Protocol (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** EXEC command.

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.

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** doesn't show any Trunk port among its local ports though all other client ports show up. The problem might be that the Trunk client didn't even register with DSIP. To confirm this, use the **show dsip clients** command.

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 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 IPC messages in the DSIP transmission queue.
show dsip tracing	Displays DSIP media header information logged using the debug dsip trace command.

Command	Description
show dsip transport	Displays information about the DSIP transport statistics for the control/data and IPC packets and registered addresses.
show dsip version	Displays Distributed System Interconnect Protocol (DSIP) version information.

show dsip nodes

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

show dsip nodes

Syntax Description

This command has no arguments or keywords.

Command Modes

EXEC

Command History

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

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  Last
                                                           Sent  Heard
   10000 Local      IPC Master                               0      0
 1130000 DSIP       Dial Shelf:Slave12                       12     12
 1080000 DSIP       Dial Shelf:Slave1                        1      1
 10A0000 DSIP       Dial Shelf:Slave3                        1      1
 10C0000 DSIP       Dial Shelf:Slave5                        1      1
 10D0000 DSIP       Dial Shelf:Slave6                        1      1
 10E0000 DSIP       Dial Shelf:Slave7                        1      1
 10F0000 DSIP       Dial Shelf:Slave8                        1      1
 1100000 DSIP       Dial Shelf:Slave9                        1      1
```

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

Table 81 show dsip nodes Command Output Fields

Field	Description
ID	DSIP uses Cisco's IPC (Inter Process Communication) module for non-data related (client control messages etc.) traffic. A seat or node is a computational element, such as a processor, that can be communicated with using IPC services. A seat is where entities and IPC ports reside. The IPC maintains a seat table which contains the seatids of all the seats in the system. Normally this seatid is a function of the slot number.
Type	Local: Local node DSIP: Remote DSIP node
Name	Each seat (node) has a name to easily identify it. There is only one master node and rest are slave nodes. The master node name is “IPC Master” and the slave node name is “Seat:Slave X", where “X” is the slot number of the node.
Last Sent/Last Heard	Each node maintains two sequence numbers for the last sent and last heard.
Last Sent	Whenever a message is sent out 'last sent' counter is updated.
Last Heard	Whenever a message is received from a remote node, 'last heard' is updated.

Related Commands

Command	Description
show dsip clients	Lists the clients registered with DSIP on a system.
show dsip ports	Displays information about local and remote DSIP ports.
show dsip queue	Displays the number of IPC messages in the DSIP transmission queue.
show dsip tracing	Displays DSIP media header information logged using the debug dsip trace command.
show dsip transport	Displays information about the DSIP transport statistics for the control/data and IPC packets and registered addresses.
show dsip version	Displays Distributed System Interconnect Protocol (DSIP) version information.

show dsip ports

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

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

Syntax Description

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

Defaults

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

Command Modes

EXEC

Command History

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

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 end-point for communication between two IPC clients.

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

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

Examples

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

```
router# show dsip ports

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

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

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

Table 82 Show DSIP Ports Command Output

Field	Description
Client:Portname	Client name and port name. Port Name. The port names can be determined because they are based on a uniform naming convention that includes the following elements: • client name • master/slave status • slot number Any client can derive the portname of the other client it wants to talk to once it knows its physical location, using the following formula: Master/Slave Status — Port Name Syntax Master — *Client-Name***:Master,** for example, **Console:Master** Slave — *Client-Name***:Slave***Slot*, for example, Clock:Slave1
Portid	Port ID. The Portid is a 32-bit identifier comprised of **seatid** and the **port-number**. The IPC maintains a seat table which contains the seatids of all the seats in the system. A seat is where clients and ports reside. The seatid is a function of the slot number. Port-number is the sequential number of the port that is being created on a particular seat, for example: 0,1, 2, etc.
In-Msgs/	The total number of input messages that were received on a particular port.

Table 82 Show DSIP Ports Command Output (continued)

Field	Description
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 IPC messages in the DSIP transmission queue.
show dsip tracing	Displays DSIP media header information logged using the debug dsip trace command.
show dsip transport	Displays information about the DSIP transport statistics for the control/data and IPC packets and registered addresses.
show dsip version	Displays Distributed System Interconnect Protocol (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** EXEC command.

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.

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 DSIP ports.
show dsip tracing	Displays DSIP media header information logged using the debug dsip trace command.
show dsip transport	Displays information about the DSIP transport statistics for the control/data and IPC packets and registered addresses.
show dsip version	Displays Distributed System Interconnect Protocol (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** EXEC command.

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

Syntax Description

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

Command Modes

EXEC

Command History

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

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 trace** 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
```

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

Table 83 Show DSIP Tracing Command Output

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

Related Commands

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 transport

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

show dsip transport

Syntax Description

This command has no arguments or keywords.

Command Modes

EXEC

Command History

Release	Modification
11.3(2)AA	This commandwas introduced.

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#
```

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

Table 84 Show DSIP Transport Command Output

Field	Description
DSIP Transport Statistics:	There are basically three kinds of communication channels between the DSIP modules running on two processors: 1. IPC: DSIP IPC-based reliable/best-effort channel 2. CNTL: Control packet channel for DSIP modules to communicate between themselves. For example, keepalive messages and initial handshake messages between two DSIP modules are exchanged over this channel. 3. DATA: DSIP fast data packet channel.
input msgs/output msgs	The number of input/output packets on a particular channel
bytes	input bytes. The number of input bytes on a particular channel Number of bytes of messages received or sent.
total consumed ipc msgs	The total number of IPC messages consumed so far from the IPC buffer pool.
total freed ipc msgs	The total number of IPC messages returned to the IPC buffer pool so far.
transmit contexts in use	DSIP for each active reliable connection to a remote port keeps a transmit context. This context holds all the important information pertaining to the remote connection, such as, destination portid, port name, number of message and bytes sent to that port etc. This is created when first time a connection is opened to a remote port and is reused for all subsequent communication to that port.
free	Free transmit contexts in available
zombie	When DSIP tears down a connection to a remote slot, all the transmit contexts to that slot should return to the free pool. But instead of immediately returning to the free pool, all such contexts first end up on a zombie queue, spend their last few seconds here and then eventually return to the free queue.
invalid	Each transmit context has a magic number. While returning contexts to the free queue, if any transmit context is found to be corrupted, then it is marked as invalid and is not returned to the free queue.
ipc getmsg failures	Number of times we failed to get an ipc message.
ipc timeouts	The retry timeouts of the reliable DSIP transport stack.
core getbuffer failures	The number of times DSIP transport layer has failed to allocate buffers for the IPC transport.
aip getbuffer failures	The number of times DSIP transport has failed to allocate buffers while preparing to transmit data received from the clients.
dsip test msgs received/sent	The DSIP test messages received and sent by invoking received/sent the “DSIP Test” client.

Table 84 Show DSIP Transport Command Output (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: Shelf*X*: Master | Slot*Y* : *MAC Address* : 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 IPC messages in the DSIP transmission queue.
show dsip tracing	Displays DSIP media header information logged using the debug dsip trace command.
show dsip version	Displays Distributed System Interconnect Protocol (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** EXEC command.

show dsip version

Syntax Description

This command has no arguments or keywords.

Command Modes

EXEC

Command History

Release	Modification
11.3(2)AA	This commandwas introduced.

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 which 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 IPC messages in the DSIP transmission queue.

Command	Description
show dsip tracing	Displays DSIP media header information logged using the debug dsip trace command.
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 redundancy

To display current or historical status and related information on redundant Dial Shelf Controller (DSC), use the **show redundancy** privileged EXEC console command.

show redundancy [**history**]

Syntax Description

history	(Optional) This optional keyword displays a log of past status and related information on the redundant DSCs.

Defaults

This command is issued on a per use basis.

Command Modes

Privileged EXEC

Command History

Release	Modification
11.3(6)AA	This command was introduced.

Usage Guidelines

This command is issued from the router shelf console. The command is issued on a once-each-time basis and therefore does not have to be turned off.

Examples

The following is an example output of the **show redundancy** command:

```
Router# show redundancy

DSC in slot 12:

Hub is in 'active' state.
Clock is in 'active' state.

DSC in slot 13:

Hub is in 'backup' state.
Clock is in 'backup' state.

Router#
```

The following is an example output of the **show redundancy history** command:

```
Router# show redundancy history
DSC Redundancy Status Change History:

981130 18:56 Slot 12 DSC: Hub, becoming active - RS instruction
981130 19:03 Slot 12 DSC: Hub, becoming active - D13 order
```

Related Commands

Command	Description
hw-module	Enables the router shelf to stop a DSC or to restart a stopped DSC.
debug redundancy	Displays information used for troubleshooting dual (redundant) DSC cards.