

show fras

To display notification that the Frame Relay access support (FRAS) dial backup over data-link switching plus (DLSw+) feature is active, information about the connection state in FRAS, and information about current boundary network node, boundary access node (BAN), and dial backup, use the **show fras** command in privileged EXEC mode.

show fras

Syntax Description

This command has no arguments or keywords.

Command Modes

Privileged EXEC

Command History

Release	Modification
11.1	This command was introduced.

Examples

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

```
Router# show fras

Boundary Network Node (BNN) :
DLCI: 66
  Type  Destination      Int   LSap  RSap  Role  State
  fr    0000.f63a.2f50    To0   4     4     S     ls_reset (Backup is enabled)
  llc   0000.f63a.2f50    To0   4     4     P     ls_contacted
```

[Table 56](#) describes the significant fields shown in the display.

Table 56 *show fras Field Descriptions*

Field	Description
Type	Connection type. The display example shows Logical Link Control (LLC) and Frame Relay.
Destination	Destination MAC address from the perspective of the Cisco IOS software.
Int	Interface on which the connection resides.
LSap	Local service access point (SAP) value.
RSap	Remote SAP value.
Role	Local link station role; P means primary and S means secondary.

Table 56 *show fras Field Descriptions (continued)*

Field	Description
State	<p>Link station protocol machine state. This value may be one of the following states:</p> <ul style="list-style-type: none"> • ls_reset—Initial state. • ls_RqOpnStnSent—TEST frame sent; request to open a connection endpoint. • ls_ExchgXid—exchange identification (XID) negotiation taking place. • ls_ConnRqSent—Set Asynchronous Balanced Mode Extended (SABME) sent (connecting side). • ls_SigStnWait—Waiting for signal to clean up the congestion and respond to polling with an Receiver Not Ready (RNR). • ls_ConnRspWait—Wait for the other connection endpoint to bring up the link. • ls_ConnRspSent—A unnumbered acknowledgement (UA) has been sent and the router is waiting for a Receive Ready (RR) to clear up the flow. • ls_Contacted—Everything is connected • ls_DiscWait—Wait for acknowledge to disconnect request.
Backup is enabled	Notification displayed when the FRAS dial backup feature is configured.

show fras map

To display the mapping and connection state of Frame Relay access support (FRAS), use the **show fras map** command in privileged EXEC mode.

show fras map

Syntax Description

This command has no arguments or keywords.

Command Modes

Privileged EXEC

Command History

Release	Modification
10.3	This command was introduced.

Examples

The following is sample output from the **show fras map** command:

```
Router# show fras map
```

```
Type Destination  Int  LSap  RSap  Role  State
tr   0800.5a8f.8802 tr0   4     4     P     ls_contacted
fr   200                s0   4     4     S     ls_contacted
```

[Table 57](#) describes the significant fields shown in the display.

Table 57 *show fras map Field Descriptions*

Field	Description
Type	Connection type. The display example shows Logical Link Control (LLC) and Frame Relay.
Destination	Destination MAC address from the perspective of the Cisco IOS software.
Int	Interface on which the connection resides.
LSap	Local service access point (SAP) value.
RSap	Remote SAP value.
Role	Local link station role; P means primary and S means secondary.
State	Connection type. The display example shows Logical Link Control (LLC) and Frame Relay.

show fras-host

To display the status of Logical Link Control, type 2 (LLC2) sessions using the Frame Relay access support (FRAS) Host feature, use the **show fras-host** command in user EXEC or privileged EXEC mode.

show fras-host [*interface*] [**dlci** *dlci-num*] [**detail**]

Syntax Description	
<i>interface</i>	(Optional) Only display LLC2 sessions from a specified Frame Relay interface or subinterface.
dlci <i>dlci-number</i>	(Optional) Only display LLC2 sessions from a specified data-link connection identifier (DLCI).
detail	(Optional) Display additional information such as the Routing Information Field (RIF)s and statistics associated with the LLC2 sessions.

Command Modes	
	User EXEC Privileged EXEC

Command History	Release	Modification
	11.2 F	This command was introduced.

Examples The following is sample output from the **show fras-host** command:

```
router# show fras-host

Number of Active Control Blocks = 2
Number of Available Control Blocks in Pool = 126

PortDLCITypeFrRsapFrLSapHostSapVMacHostMac
Se0 16 BNN 04 08 04 4000.ABBA.001E4000.3000.2000
Se1 37 BAN 04 04 04 4000.0223.00194000.3000.2000
```

Table 58 describes the significant fields shown in the display.

Table 58 show fras-host Field Descriptions

Field	Description
Port	Frame Relay interface or subinterface associated with this LLC2 session.
DLCI	DLCI number associated with this LLC2 session
Type	FRAS encapsulation type associated with this LLC2 session
FrRsap	Frame Relay Remote LLC2 service access point (SAP) associated with this LLC2 session. This SAP is the source sap on LLC2 frames sent by the remote Frame Relay access device (FRAD).
FrLSap	Frame Relay Local LLC2 SAP associated with this LLC2 session. This SAP is the destination SAP on LLC2 frames sent by the remote FRAD.

Table 58 *show fras-host Field Descriptions (continued)*

Field	Description
HostSap	Destination SAP on LLC2 frames sent to the Channel Interface Processor (CIP) or LAN-attached AS/400. This SAP is identical to FrLsap unless the hsap keyword is specified on the fras-host bnn command.
VMac	MAC address associated with the remote FRAD for this LLC2 session.
HostMac	MAC address associated with the host for this LLC2 session.

Related Commands

Command	Description
fras-host ban	Enables the FRAS Host function for BAN.
fras-host bnn	Enables the FRAS Host function for boundary network node.
fras-host dlsw-local-ack	Enables LLC2 local termination for FRAS Host connections using the virtual Token Ring.

show interfaces channel

To display information about the Cisco Mainframe Channel Connection (CMCC) adapter interfaces, use the **show interfaces channel** command in privileged EXEC mode. This command displays information that is specific to the interface hardware. The information displayed is generally useful for diagnostic tasks performed by technical support personnel only.

show interfaces channel *slot/port* [**accounting**]

Syntax Description	
<i>slot</i>	Slot number.
<i>port</i>	Port number.
accounting	(Optional) Displays interface accounting information.

Command Modes Privileged EXEC

Command History	Release	Modification
	10.2	This command was introduced.

Examples

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

```
Router# show interfaces channel 3/0

Channel3/0 is up, line protocol is up
Hardware is cxBus IBM Channel
Internet address is 10.92.1.145, subnet mask is 255.255.255.248
MTU 4096 bytes, BW 0 Kb, DLY 0 usec, rely 255/255, load 1/255
Encapsulation CHANNEL, loopback not set, keepalive not set
ECA type daughter card
Data transfer rate 12 Mbytes Number of subchannels 1
Last input never, output never, output hang never
Last clearing of "show interface" counters 0:00:04
Output queue 0/0, 0 drops; input queue 0/75, 0 drops
Five minute input rate 0 bits/sec, 0 packets/sec
Five 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, 0 interface resets, 0 restarts
```

Table 59 describes the fields shown in the display.

Table 59 *show interfaces channel Field Descriptions*

Field	Description
Channel... is up	Indicates whether the interface hardware is active (whether synchronization is achieved on an ESCON channel, or whether operational out is enabled on a parallel channel) and whether it has been taken down by an administrator.
line protocol is up	Indicates whether the software processes that handle the line protocol “think” the line is usable (that is, whether keepalives are successful).
Hardware is	Hardware type.
Internet address is	IP address and 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 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. The calculation uses the value from the bandwidth interface configuration command.
Encapsulation	Encapsulation method assigned to interface.
loopback	Indicates whether loopbacks are set.
keepalive	Indicates whether keepalives are set.
daughter card	Type of adapter card.
Data transfer rate	Rate of data transfer.
Number of subchannels	Number of subchannels.
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 first failed. This counter is updated only when packets are process switched, not when packets are fast switched.
Last output	Number of hours, minutes, and seconds since the last packet was successfully sent by an interface. This counter is updated only when packets are process switched, not when packets are fast switched.
output hang	Number of hours, minutes, and seconds (or never) since the interface was last reset because of data that took too long to send. 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 59 *show interfaces channel Field Descriptions (continued)*

Field	Description
Last clearing	The time at which the counters that measure cumulative statistics (such as number of bytes sent 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. These asterisks (***) indicate 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, 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 sent per second in the last five minutes.
packets input	Total number of error-free packets received by the system.
bytes input	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 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 check (CRC)cyclic redundancy check (CRC)cyclic redundancy check (CRC)cyclic redundancy check (CRC)s, frame, overrun, ignored, and abort counts. Other input-related errors can also increment the count, so that this sum may not balance with the other counts.
CRC	Number of code violation errors seen on the ESCON interface, where a received transmission character is recognized as invalid. On a parallel interface, the number of parity errors seen.
frame	Number of packets received incorrectly having a CRC error and a noninteger number of octets. This value is always 0.
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. This value is always 0.
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 "no buffer" description. Broadcast storms and bursts of noise can cause the ignored count to be incremented.

Table 59 *show interfaces channel Field Descriptions (continued)*

Field	Description
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. This value is always 0.
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	Sum of all errors that prevented the final sending 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.
output errors	Number of output errors.
collisions	Number of collisions detected. This value is always 0.
interface resets	<p>Number of times an interface has been completely reset. This can happen if packets queued for sending were not sent within several seconds. On a serial line, this can be caused by a malfunctioning modem that is not supplying the send 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.</p> <p>On the CMCC adapter, this may occur if the host software is not requesting data.</p>
restarts	Number of times the controller was restarted because of errors.

show llc2

To display the Logical Link Control, type 2 (LLC2) connections active in the router, use the **show llc2** command in privileged EXEC mode.

```
show llc2
```

Syntax Description This command has no arguments or keywords.

Command Modes Privileged EXEC

Command History	Release	Modification
	10.0	This command was introduced.

Examples The following is sample output from the **show llc2** command:

```
Router# show llc2

TokenRing0 DTE=1000.5A59.04F9,400022224444 SAP=04/04, State=NORMAL
V(S)=5, V(R)=5, Last N(R)=5, Local window=7, Remote Window=127
ack-max=3, n2=8, Next timer in 7768
xid-retry timer 0/60000 ack timer 0/1000
p timer 0/1000 idle timer 7768/10000
rej timer 0/3200 busy timer 0/9600
ack-delay timer 0/3200
CMNS Connections to:
Address 1000.5A59.04F9 via Ethernet2
Protocol is up
Interface type X25-DCE RESTARTS 0/1
Timers: T10 1 T11 1 T12 1 T13 1
```

The display includes a Connection-Mode Network Service (CMNS) addendum, indicating the LLC2 is running with CMNS. When LLC2 is not running with CMNS, the **show llc2** command does not display a CMNS addendum.

Table 60 describes the significant fields shown in the display.

Table 60 *show llc2 Field Descriptions*

Field	Description
TokenRing0	Name of interface on which the session is established.
DTE=1000.5A59.04F9, 400022224444	Address of the station to which the router is talking on this session. (The address is the MAC address of the interface on which the connection is established, except when Local Acknowledgment or SDLC Logical Link Control (SDLLC) is used, in which case the address used by the Cisco IOS software is shown as in this example, following the DTE address and separated by a comma.)
SAP=04/04	Other station's and the router's (remote or local) service access point (SAP) for this connection. The SAP is analogous to a "port number" on the router and allows for multiple sessions between the same two stations.

Table 60 *show llc2 Field Descriptions (continued)*

Field	Description
State=NORMAL	<p>Current state of the LLC2 session. The values are:</p> <ul style="list-style-type: none"> • ADM—Asynchronous Disconnect Mode—A connection is not established, and either end can begin one. • SETUP—Request to begin a connection has been sent to the remote station, and this station is waiting for a response to that request. • RESET—A previously open connection has been reset because of some error by this station, and this station is waiting for a response to that reset command. • D_CONN—This station has requested a normal, expected, end of communications with the remote, and is waiting for a response to that disconnect request. • ERROR—This station has detected an error in communications and has told the other station of this. This station is waiting for a reply to its posting of this error. • NORMAL—Connection between the two sides is fully established, and normal communication is occurring. • BUSY—Normal communication state exists, except busy conditions on this station make it such that this station cannot receive information frames from the other station at this time. • REJECT—Out-of-sequence frame has been detected on this station, and this station has requested that the other resend this information. • AWAIT—Normal communication exists, but this station has had a timer expire, and is trying to recover from it (usually by resending the frame that started the timer). • AWAIT_BUSY—A combination of the AWAIT and BUSY states. • AWAIT_REJ—A combination of the AWAIT and REJECT states.
V(S)=5	Sequence number of the next information frame this station will send.
V(R)=5	Sequence number of the next information frame this station expects to receive from the other station.
Last N(R)=5	Last sequence number of this station's sent frames acknowledged by the remote station.
Local window=7	Number of frames this station may send before requiring an acknowledgment from the remote station.
Remote Window=127	Number of frames this station can accept from the remote.
ack-max=3	Maximum number of packets to receive before sending an acknowledgment.
n2=8	Number of times to retry operations.
Next timer in 7768	Number of milliseconds before the next timer, for any reason, goes off.

Table 60 show llc2 Field Descriptions (continued)

Field	Description
xid-retry timer 0/60000	Number of milliseconds to wait for a reply to exchange identification (XID) frames before dropping a session. This timer value is in the form of next-time/time-between, where “next-time” is the next time, in milliseconds, that the timer will wake, and “time-between” is the time, in milliseconds, between each timer wakeup. A “next-time” of zero indicates that the timer is not enabled, and will never wake.
ack timer 0/1000	Number of milliseconds to wait before sending an acknowledgment. This timer value is in the form of next-time/time-between, where “next-time” is the next time, in milliseconds, that the timer will wake, and “time-between” is the time, in milliseconds, between each timer wakeup. A “next-time” of zero indicates that the timer is not enabled, and will never wake.
p timer 0/1000	Number of milliseconds to wait for a final response to a poll frame before resending the poll frame. This timer value is in the form of next-time/time-between, where “next-time” is the next time, in milliseconds, that the timer will wake, and “time-between” is the time, in milliseconds, between each timer wakeup. A “next-time” of zero indicates that the timer is not enabled, and will never wake.
idle timer 7768/10000	Number of milliseconds that can pass with no traffic before the LLC2 station sends a Receiver Ready frame. This timer value is in the form of next-time/time-between, where “next-time” is the next time, in milliseconds, that the timer will wake, and “time-between” is the time, in milliseconds, between each timer wakeup. A “next-time” of zero indicates that the timer is not enabled, and will never wake.
rej timer 0/3200	Number of milliseconds to wait for a resend of a rejected frame before sending a reject command to the remote station. This timer value is in the form of next-time/time-between, where “next-time” is the next time, in milliseconds, that the timer will wake, and “time-between” is the time, in milliseconds, between each timer wakeup. A “next-time” of zero indicates that the timer is not enabled, and will never wake.
busy timer 0/9600	Number of milliseconds to wait before repolling a busy remote station. This timer value is in the form of next-time/time-between, where “next-time” is the next time, in milliseconds, that the timer will wake, and “time-between” is the time, in milliseconds, between each timer wakeup. A “next-time” of zero indicates that the timer is not enabled, and will never wake.
ack-delay timer 0/3200	Number of milliseconds to allow incoming information frames to stay unacknowledged. This timer value is in the form of next-time/time-between, where “next-time” is the next time, in milliseconds, that the timer will wake, and “time-between” is the time, in milliseconds, between each timer wakeup. A “next-time” of zero indicates that the timer is not enabled, and will never wake.
CMNS Connections to:	List of values that affect the interface if CMNS is enabled.
Address 1000.5A59.04F9 via Ethernet2	MAC address of remote station.

Table 60 *show llc2 Field Descriptions (continued)*

Field	Description
Protocol is up	Up indicates that the LLC2 and X.25 protocols are in a state where incoming and outgoing Call Requests can be made on this LLC2 connection.
Interface type X25-DCE	One of X25-DCE, X25-DTE, or X25-DXE (both DTE and DCE).
RESTARTS 0/1	Restarts sent/received on this LLC2 connection.
Timers:	T10, T11, T12, T13 (or T20, T21, T22, T23 for DTE); these are Request packet timers. These are similar in function to X.25 parameters of the same name.

Related Commands

Command	Description
llc2 ack-delay-time	Sets the amount of time the Cisco IOS software waits for an acknowledgment before sending the next set of information frames.
llc2 ack-max	Controls the maximum amount of information frames the Cisco IOS software can receive before it must send an acknowledgment.
llc2 idle-time	Controls the frequency of polls during periods of idle time (no traffic).
llc2 local-window	Controls the maximum number of information frames the Cisco IOS software sends before it waits for an acknowledgment.
llc2 n2	Controls the number of times the Cisco IOS software retries sending unacknowledged frames or repolls remote busy stations.
llc2 t1-time	Controls the amount of time the Cisco IOS software will wait before resending unacknowledged information frames.
llc2 tbusy-time	Controls the amount of time the Cisco IOS software waits until repolling a busy remote station.
llc2 tpf-time	Sets the amount of time the Cisco IOS software waits for a final response to a poll frame before resending the poll frame.
llc2 trej-time	Controls the amount of time the Cisco IOS software waits for a correct frame after sending a reject command to the remote LLC2 station.
llc2 xid-neg-val-time	Controls the frequency of XID transmissions by the Cisco IOS software.
llc2 xid-retry-time	Sets the amount of time the Cisco IOS software waits for a reply to XID frames before dropping the session.

show local-ack

To display the current state of any current local acknowledgment for both Logical Link Control, type 2 (LLC2) and SDLC Logical Link Control (SDLLC) connections, and for any configured pass-through rings, use the **show local-ack** command in privileged EXEC mode.

show local-ack

Syntax Description This command has no arguments or keywords.

Defaults No default behavior or values

Command Modes Privileged EXEC

Command History	Release	Modification
	10.0	This command was introduced.

Examples The following is sample output from the **show local-ack** command:

```
Router# show local-ack

local 1000.5a59.04f9, lsap 04, remote 4000.2222.4444, dsap 04
llc2 = 1798136, local ack state = connected
Passthrough Rings: 4 7
```

[Table 61](#) describes the significant fields shown in the display.

Table 61 *show local-ack Field Descriptions*

Field	Description
local	MAC address of the local Token Ring station with which the route has the LLC2 session.
lsap	Local service access point (LSAP) value of the Token Ring station with which the router has the LLC2 session.
remote	MAC address of the remote Token Ring on whose behalf the router is providing acknowledgments. The remote Token Ring station is separated from the device via the TCP backbone.
dsap	Destination service access point (SAP) value of the Token Ring station on whose behalf the router is providing acknowledgments.
llc2	Pointer to an internal data structure used by the manufacturer for debugging.

Table 61 *show local-ack Field Descriptions (continued)*

Field	Description
local ack state	State of the local acknowledgment for both LLC2 and Synchronous Data Link Control (SDLC) connections. The states are as follows: <ul style="list-style-type: none">• disconnected—No session between the two end nodes.• connected—Full data transfer between the two.• awaiting connect—Cisco IOS software is waiting for the other end to confirm a session establishment with the remote host.
Passthrough Rings	Ring numbers of the virtual rings that have been defined as pass-throughs using the source-bridge passthrough command. If a ring is not a pass-through, it is locally terminated.

show ncia circuits

To display the state of all circuits involving this MAC address as a source and destination, use the **show ncia circuits** command in privileged EXEC mode.

```
show ncia circuits [id-number]
```

Syntax Description

<i>id-number</i>	(Optional) Number assigned to identify the circuit. If no ID number is specified, the command lists information for all circuits.
------------------	---

Command Modes

Privileged EXEC

Command History

Release	Modification
11.2	This command was introduced.

Usage Guidelines

Use the **show ncia client** command to list the active circuits by circuit ID number, then use a specific circuit ID number in the **show ncia circuits** command.

Examples

The following is sample output from the **show ncia circuits** command:

```
Router# show ncia circuits

IP           State           ID           Mac           SAP CW GP
10.2.20.125  START_DL_RCVD  (Client)10000000  1000.0000.0001  4  0  0
              (Server)163D04  4000.1060.1000  4  10  0
```

[Table 62](#) describes the significant fields shown in the display.

Table 62 *show ncia circuits Field Descriptions*

Field	Description
IP	IP address of the client.
State	Communication state of the circuit.
ID	Circuit ID number. The server circuit ID is used by the server to identify a circuit. Use this ID in the show ncia circuits command. The client circuit ID is for information only.
Mac	Client MAC address is the MAC address used by the client; server MAC address is the MAC address used by the host. In a downstream physical unit (DSPU) configuration, the server MAC address is the one defined in the dspu ncia command as <i>server-virtual-mac-address</i> .
SAP	Local address (LSAP), specified in the dspu enable-pu command.
CW	Current window, the number of packets that can be increased or decreased for each Increment or Decrement operation.
GP	Granted packets, the number of packets the client or server is permitted to send to the other.

show ncia client

To display the status of the native client interface architecture (NCIA) client, use the **show ncia client** command in user EXEC or privileged EXEC mode.

```
show ncia client [sap-list] [ip-address]
```

Syntax Description

sap-list	(Optional) Display the service access point (SAP)s supported by the client. If the sap-list option is not specified, the command does not display service access point (SAP) list information.
<i>ip-address</i>	(Optional) Client IP address. If no IP address is specified, the command lists information for all clients.

Command Modes

User EXEC
Privileged EXEC

Command History

Release	Modification
11.2	This command was introduced.

Usage Guidelines

Use the **show ncia server** command to list the active clients by IP address, then use a specific IP address in the **show ncia client** command.

Examples

The following are sample outputs from the **show ncia client** command:

```
Router# show ncia client

IP                State  MacAddr          Flags  Num SAP  PktRxd  PktTxd  Drop
10.2.20.123      4     1000.0000.0011  0x0800  3        27      36      0
  Circuit[1] : 791F8C
10.2.20.126      4     1000.0000.0011  0x0800  1        28      58      0
  Circuit[2] : 793500

Router# show ncia client sap-list 10.2.20.123

IP                Num SAPS  Sap List
10.2.20.123      3         4 8 c
```

[Table 63](#) describes the significant fields shown in the display.

Table 63 show ncia client Field Descriptions

Field	Description
IP	IP address of the client.
State	Communication state of the client. Values are: <ul style="list-style-type: none"> • 0 CLOSED—Read and write pipe closed • 1 OPEN_WAIT—Active open. • 2 CAP_WAIT—Waiting for a cap exchange request. • 3 CAP_NEG—Waiting for a cap exchange req/rsp. • 4 OPENED—Both pipes opened. • 5 BUSY—WAN transport is congested. • 6 CLOSE_WAIT—Close connection. • 7 SHUTDOWN_PENDING—TCP, HOST, or router shutdown.
MacAddr	MAC address of the client.
Flags	Current operational status of the client. Values are: <ul style="list-style-type: none"> • 0x0100—Client is configured. • 0x0200—Client is registered (a client connects to the server to register itself, and then disconnects). • 0x0800—Client is active.
Num SAP	Number of SAPs supported by this client; 0 indicates that this client supports all SAPs.
PktRxd	Number of packets sent downstream from the server toward a client workstation.
PktTxd	Number of packets the server received from a downstream client workstation.
Drop	Number of packets that should have been sent to a downstream client, but were dropped by the server because the TCP connection has failed. Normally, no packets should be dropped.
Circuit[x]	Bracketed decimal indicates the order of the circuit in the list. The hexadecimal circuit ID is used by the server to identify a circuit. The circuit ID can be used to query circuit status in the show ncia circuits command.
SAP List	List of SAPs supported by this client. A client can specify a maximum of 16 SAPs. If the “Num SAP” field is 0, no SAPs are displayed in this field.

show ncia server

To display the state of the native client interface architecture (NCIA) server, use the **show ncia server** command in user EXEC or privileged EXEC mode.

```
show ncia server [server-number]
```

Syntax Description

<i>server-number</i>	(Optional) NCIA server number. If no server number is specified, the command lists information for all servers.
----------------------	---

Command Modes

User EXEC
Privileged EXEC

Command History

Release	Modification
11.2	This command was introduced.

Examples

The following is sample output from the **show ncia server** command:

```
Router# show ncia server

NCIA Server [1]:
  IP address: 10.2.20.4
  Server Virtual MAC address: 4000.3174.0001
  Starting MAC address: 1000.0000.0001
  MAC address range: 128
  Flags: 0x02
  Number of MAC addresses being used: 0
```

show qllc

To display the current state of any Qualified Logical Link Control (QLLC) connections, use the **show qllc** command in privileged EXEC mode.

show qllc

Syntax Description

This command has no arguments or keywords.

Command Modes

Privileged EXEC

Command History

Release	Modification
10.3	This command was introduced.

Examples

The following is sample output from the **show qllc** command.

```
Router# show qllc

QLLC Connections:
Serial2: 1000.5a35.3a4f->1000.5a59.04f9. SAPs 4 4. Rings Src 200, Tgt 100.
State Connect
Remote DTE 1002. QLLC Protocol State NORMAL lci 1 (PVC)
```

In the display, the first two lines of the **show qllc** command show that there is a QLLC session between a Token Ring device and an X.25 remote device. The X.25 device has a virtual MAC address of 100.5a35.3a4f with a service access point (SAP) of 04. It is using a permanent virtual circuit (PVC) with logical channel number 1. The Token Ring device has a MAC address of 1000.5a59.04f9 with a service access point (SAP) of 04. The state of the QLLC session is CONNECTED.

[Table 64](#) describes the fields shown in the display.

Table 64 *show qllc Field Descriptions*

Field	Description
Serial2	Serial interface for the X.25 link.
1000.5a35.3a4f	Virtual MAC address for the X.25 attached device.
1000.5a59.04f9	MAC address of the Token Ring attached device with which the X.25 attached device is communicating. This device might be on a local Token Ring or attached via source-route bridging (SRB) or remote source-route bridging (RSRB).
SAPs 4 4	Source SAP value at the virtual MAC address and destination SAP value at the Token Ring station.
Rings Src 200	Ring number for the source virtual ring defined by the qllc srb command.
Tgt 100	Ring number for the target virtual ring defined by the source-bridge ring-group command.

Table 64 *show qlc Field Descriptions (continued)*

Field	Description
State	<p>State of the QLLC-Logical Link Control, type 2 (LLC2) conversion. This can be any of the following:</p> <ul style="list-style-type: none"> • DISCONNECT—No connection exists. • NET DISC WAIT—X.25 device is disconnecting. The QLLC conversion is waiting for the Token Ring device to disconnect. • QLLC DISC WAIT—The Token Ring device is disconnecting. The QLLC conversion is waiting for the X.25 device to disconnect. • QLLC PRI WAIT—Connection is being established. The Token Ring device is ready to complete the connection, and the Cisco IOS software is establishing the QLLC connection with the X.25 device. • NET CONTACT REPLY WAIT—Remote X.25 device is a front-end processor (FEP), and has made contact with the Cisco IOS software. The software is attempting to reach Token Ring device. • QLLC SEC WAIT—Connection is being established. • NET UP WAIT—Connection is being established. QLLC connection to X.25 device has been established; awaiting completion on the connection to the Token Ring attached device. • Connect—Connections from the software to X.25 and Token Ring devices are established. Data can flow end to end.
Remote DTE 1002	X.121 address of X.25 connected device.
QLLC Protocol State	<p>State of the QLLC protocol between the software and the X.25 attached device. These states are different from the state of the underlying X.25 virtual circuit. Values are as follows:</p> <ul style="list-style-type: none"> • ADM—Asynchronous Disconnected Mode. • SETUP—Cisco IOS software has initiated QLLC connection, awaiting confirmation from the X.25 device. • RESET—Cisco IOS software has initiated QLLC reset, awaiting confirmation from the X.25 device. • DISCONNECTING—Cisco IOS software has initiated QLLC disconnect, awaiting confirmation from the X.25 device. • NORMAL—QLLC connection has been completed. Systems Network Architecture (SNA) data can be sent and received.
lci 1 (PVC)	Logical channel number used on the X.25 interface.

show sdllic local-ack

To display the current state of any current local acknowledgment connections, and any configured pass-through rings, use the **show sdllic local-ack** command in privileged EXEC mode.

show sdllic local-ack

Syntax Description This command has no arguments or keywords.

Command Modes Privileged EXEC

Command History	Release	Modification
	10.0	This command was introduced.

Examples The following is sample output from the **show sdllic local-ack** command:

```
Router# show sdllic local-ack

local 1000.5a59.04f9, lsap 04, remote 4000.2222.4444, dsap 04
llc2 = 1798136, local act state = connected
Passthrough Rings: 4 7
```

In the display, the first two lines of the **show sdllic local-ack** command show that there is a local acknowledgment session between two Token Ring devices. The device on the local ring has a MAC address of 1000.5a59.04f9 with a service access point (SAP) of 04. The remote device has a MAC address of 4000.2222.4444 with a SAP of 04. The state of the local acknowledgment session is connected.

The pass-through rings display is independent of the rest of the **show sdllic local-ack** command. The pass-through rings display indicates that there are two rings, 4 and 7, configured for pass-through. This means that stations on these rings will not have their sessions locally acknowledged but will instead have their acknowledgments end-to-end.

[Table 65](#) describes the significant fields shown in the display.

Table 65 *show sdllic local-ack Field Descriptions*

Field	Description
local	MAC address of the local Token Ring station with which the router has the Logical Link Control, type 2 (LLC2) session.
lsap	Local SAP value of the Token Ring station with which the router has the LLC2 session.
remote	MAC address of the remote Token Ring station on whose behalf the router is providing acknowledgments. The remote Token Ring station is separated from the router via the TCP backbone.
dsap	Destination SAP value of the remote Token Ring station on whose behalf the router is providing acknowledgments.

Table 65 *show sdlc local-ack Field Descriptions (continued)*

Field	Description
llc2	Pointer to an internal data structure used by technical support staff for debugging.
local ack state	Current state. Values are as follows: <ul style="list-style-type: none"> • disconnected—No session between the two end hosts. • connected—Full data transfer between the two end hosts. • awaiting connect—This router is waiting for the other end to confirm a session establishment with the remote host.
Passthrough Rings	Ring number of the start ring and destination ring for the two IBM machines when you do not have local acknowledgment for LLC2 configured for your routers using remote source-route bridging (RSRB).

show sna

To display the status of the Systems Network Architecture (SNA) Service Point feature, use the **show sna** command in privileged EXEC mode.

```
show sna [pu host-name [all]]
```

Syntax Description

pu	(Optional) Name of a host defined in an sna host command.
<i>host-name</i>	(Optional) Name of a host defined in an sna host command.
all	(Optional) Displays detailed status.

Command Modes

Privileged EXEC

Command History

Release	Modification
11.0	This command was introduced.

Examples

The following is sample output from the **show sna** command. It shows a summary of the Systems Network Architecture (SNA) features status.

```
Router# show sna

sna host HOST_NAMEA TokenRing1 PU STATUS active
FRAMES RECEIVED 00450 FRAMES SENT 00010
LUs USED BY DSPU nnn LUs ACTIVE nnn
LUs USED BY API nnn LUs ACTIVE nnn
LUs ACTIVATED BY HOST BUT NOT USED nnn
```

The following is sample output from the **show sna** command with the **pu** keyword:

```
Router# show sna pu putest

sna host PUTEEST TokenRing1 PU STATUS active
RMAC 400000000004 RSAP 04 LSAP 04
XID 05d00001 RETRIES 255 RETRY_TIMEOUT 30
WINDOW 7 MAXIFRAME 1472
FRAMES RECEIVED 0450 FRAMES SENT 0010
LUs USED BY DSPU nnn LUs ACTIVE nnn
LUs USED BY API nnn LUs ACTIVE nnn
LUs ACTIVATED BY HOST BUT NOT USED nnn
```

Because the **all** keyword refers to logical unit (LU)s under the physical unit (PU), this has no significance for the service point host.

show snasw class-of-service

To display the class of service (CoS) definitions predefined to Switching Services (SNASw), use the **show snasw class-of-service** command in privileged EXEC mode.

show snasw class-of-service [brief | detail]

Syntax Description	brief
	(Optional) Indicates a one-line display per displayed resource. The brief version displays CoS name, transmission priority, and number of node and Transmission Group (TG) rows.
detail	(Optional) Indicates a detailed, multiline display of all fields returned for CoS display.

Command Modes Privileged EXEC

Defaults The default display is brief.

Command History	Release	Modification
	12.0(5)XN	This command was introduced.

Examples The following is a truncated example of the **show snasw class-of-service** command:

```
Router# show snasw class-of-service

Number of class of service definitions 7

      SNA Classes of Service
      Name      Trans. Pri.  Node Rows  TG Rows
      -----  -
1> #BATCH      Low           8         8
2> #INTER      High          8         8
3> CPSVCMG     Network       8         8
4> #BATCHSC    Low           8         8
5> #CONNECT    Medium        8         8
6> #INTERSC    High          8         8
7> SNASVCMG    Network       8         8
```

```
Router# show snasw class-of-service detail

Number of class of service definitions 7

1>
Class of service name           #BATCH
Transmission priority           Low
Number of node rows             8
Number of TG rows               8

1.1>Node row weight             5
Congestion min                  No
Congestion max                  No
Route additional resistance min  0
Route additional resistance max  31
```

Related Commands

Command	Description
show snasw mode	Displays the SNASw modes.

show snasw connection-network

To display the connection networks (virtual nodes) defined to the local node, use the **show snasw connection-network** command in privileged EXEC.

show snasw connection-network [brief | detail]

Syntax Description

brief	(Optional) Indicates a one-line display per resource. The brief version displays the connection network name, the number of attached ports, and the port names in the connection network.
detail	(Optional) Indicates a detailed, multiline display of all fields returned for connection-network display.

Command Modes

Privileged EXEC

Defaults

The default display is brief.

Command History

Release	Modification
12.0(5)XN	This command was introduced.

Examples

The following is sample output form the **show snasw connection-network** command:

```
Router# show snasw connection-network

Connection network definitions 1

      SNA Connection Networks
      Resource Name      Attached Ports      Port Name(s)
      -----
1> CISCO.VN              1          TR0

Router# show snasw connection-network detail

Connection network definitions 1

1>
Connection network name          CISCO.VN
Effective capacity                16 Mbps
Cost per connect time            0
Cost per byte                    0
Propagation delay                384 microseconds
User defined parameter 1        128
User defined parameter 2        128
User defined parameter 3        128
Security                        Nonsecure

1.1>Port name                    TR0
```

Related Commands

Command	Description
<code>show snasw link</code>	Displays the Switching Services (SNASw) link objects.

show snasw directory

To display the Switching Services (SNASw) directory entries, use the **show snasw directory** command in EXEC mode.

show snasw directory [*name resource-name-filter*] [**brief** | **detail**]

Syntax Description	name <i>resource-name-filter</i>	(Optional) Indicates the fully qualified name of the resource (1 to 17 characters). Only resource names that match the specified name are displayed.
	brief	(Optional) Indicates a one-line display for each resource. The brief version displays resource name, owning control point (CP) name, network node server name, and entry type.
	detail	(Optional) Indicates a detailed, multiline display of all fields returned for the directory display.

Command Modes EXEC

Defaults The default display is brief.

Command History	Release	Modification
	12.0(5)XN	This command was introduced.

Examples The following is sample output from the **show snasw directory** and **show snasw directory detail** commands:

```
Router# show snasw directory
```

```
Total Directory Entries 2
```

```
SNA Directory Entries
```

Resource Name	Owning CP Name	NN Server	Entry Type
1> CISCO.A	CISCO.A	CISCO.B	Registry
2> CISCO.B	CISCO.B	CISCO.B	Home

```
Router# show snasw directory detail
```

```
Total Directory Entries 2
```

```
1>
Resource name          CISCO.A
NN server name        CISCO.B
Entry type            Registry
Location              Local to this domain
Resource owner's CP name  CISCO.A
Apparent resource owner's CP name
Wildcard              Explicit
```

```
2>
Resource name                CISCO.B
NN server name              CISCO.B
Entry type                   Home
Location                     Local to this node
Resource owner's CP name    CISCO.B
Apparent resource owner's CP name
Wildcard                     Explicit
```

Related Commands

Command	Description
snasw location	Configures the location of a resource.

show snasw dlctrace

To display the captured Data-link control (DLC) trace information to the console, use the **show snasw dlctrace** command.

```
show snasw dlctrace [id recordid] [all | last number-records | next number-records] [brief | detail]
[filter filter-string]
```

Syntax Description

id <i>recordid</i>	(Optional) Indicates that the 1 to 999,999 trace record identifier. Only the frame ID that matches the record specified is displayed.
all	(Optional) Indicates that all records in the dlctrace buffer are displayed.
last <i>number-records</i>	(Optional) Indicates that the last <i>x</i> frames before the record identified in the ID operand (or before the last record in the trace if the ID operand is not coded) are displayed.
next <i>number-records</i>	(Optional) Indicates that the next frames after the record identified in the ID operand (or from the beginning of the trace if the ID operand is not coded) are displayed.
brief	(Optional) Indicates a one-line display per trace entry describing the type of frame traced.
detail	(Optional) Indicates a detailed, multiline display of the frame that displays the brief information plus a hexadecimal dump of the entire frame.
filter <i>filter-string</i>	(Optional) Indicates that a string follows against which the formatted trace output is filtered. Only frames that contain the filter string are displayed.

Command Modes

EXEC

Defaults

If **id** *recordid* is specified, **next** is the default parameter; if not, **last** is the default parameter. The default display is brief.

Command History

Release	Modification
12.0(5)XN	This command was introduced.

Examples

The following is sample output from the **show snasw dlctrace** command:

```
Router# show snasw dlctrace id 2467 next 20
DLC Trace Output

2467 LINKT In sz:43 HPR +Rsp IPM slctd nws:0007
2468 LINKT In sz:212 HPR +Rsp IPM slctd nws:0007
2469 LINKT In sz:52 HPR CP CAPABILITIES
2470 LINKT In sz:221 HPR CP CAPABILITIES
2471 LINKT Out sz:282 HPR MIS
2472 LINKT Out sz:43 HPR +Rsp IPM slctd nws:0007
2473 LINKT In sz:154 HPR Rq Bind CISCO.B CISCO.A
2474 LINKT In sz:323 HPR Rq Bind CISCO.B CISCO.A
```

```

2475 LINKT Out sz:361 HPR MIS
2476 LINKT Out sz:132 HPR +Rsp Bind
2477 LINKT In sz:102 HPR fmh5 CP CAPABILITIES
2478 LINKT In sz:271 HPR fmh5 CP CAPABILITIES
2479 LINKT Out sz:282 HPR MIS
2480 LINKT Out sz:43 HPR +Rsp IPM slctd nws:0007
2481 LINKT Out sz:291 HPR MIS
2482 LINKT Out sz:52 HPR CP CAPABILITIES
2483 LINKT In sz:43 HPR +Rsp IPM slctd nws:0007
2484 LINKT In sz:212 HPR +Rsp IPM slctd nws:0007
2485 LINKT Out sz:45 HPR
2486 LINKT In sz:45 HPR

```

Router# **show snasw dlctrace id 2486 detail**

DLC Trace Output

```

2486 LINKT In sz:45 HPR
10:08:36.14, 14 March 1993
 0000 C60080FF 00000000 00010000 00000400 *F.....*
 0010 0A000000 00000001 7E050E00 00000000 *.....=*
 0020 01000001 7E000000 00000000 00 *.....*

```

Related Commands

Command	Description
snasw dlctrace	Traces frames arriving and leaving SNASw.
snasw dlcfiter	Filters frames being captured.

show snasw dlus

To display the Switching Services (SNASw) Dependent Logical Unit Server (DLUS) objects, use the **show snasw dlus** command.

show snasw dlus [brief | detail]

Syntax Description

brief	(Optional) Indicates that one line per DLUS is displayed. The brief version includes the DLUS name, state (active or inactive), port name, cpname, node type, and number of active physical unit (PU)s on the DLUS.
detail	(Optional) Indicates the detailed, multiline display that shows all fields returned for DLUS displayed.

Command Modes

EXEC

Defaults

The default display is brief.

Command History

Release	Modification
12.0(5)XN	This command was introduced.

Examples

The following is sample output from the **show snasw dlus** command:

```
Router# show snasw dlus

Number of Dependent LU Servers2
SNA Dependent LU Servers
      DLUS Name      Default?  Backup?  Pipe State      PUs
      -----      -
1> NETA.SJMVS3      Yes      No      Active          1
2> NETA.SJMVS4      No      Yes     Inactive        0

Router# show snas dlus detail

Number of Dependent LU Servers2

1>
DLUS name                NETA.SJMVS3
Is this the default DLUS Yes
Is this the backup default DLUS No
Pipe state                Active
Number of active PUs      1
DLUS pipe statistics:
  REQACTPUs sent          1
  REQACTPU responses received 1
  ACTPUs received         1
  ACTPU responses sent    1
  DACTPUs received        0
  DACTPU responses sent   0
  REQDACTPUs sent         0
```

REQDACTPU responses received	0
ACTLUs received	16
ACTLU responses sent	1
DACTLUs received	0
DACTLU responses sent	0
SSCP-PU MUs sent	0
SSCP-PU MUs received	0
SSCP-LU MUs sent	19
SSCP-LU MUs received	3

Related Commands

Command	Description
snasw dlus	Specifies parameters related to DLUR/DLUS functionality.

show snasw ipstrace

To display the interprocess signal (IS) trace on the router console, use the **show snasw ipstrace** command.

show snasw ipstrace [*id recordid*] [**all** | **next** *number-records* | **last** *number-records*] [**filter** *filter-string*]

Syntax Description	Parameter	Description
	id <i>recordid</i>	(Optional) Indicates that the 1 to 999,999 trace record identifier. Only the frame ID that matches the record specified is displayed.
	all	(Optional) Specifies that all records are displayed
	next <i>number-records</i>	(Optional) Displays records from beginning or following record IS.
	last <i>number-records</i>	(Optional) Indicates that the last <i>x</i> frames before the record identified in the ID operand (or before the last record in the trace if the ID operand is not coded) are displayed.
	filter <i>filter-string</i>	(Optional) Indicates that a string follows against which the formatted trace output is filtered. Only frames that contain the filter-string are displayed.

Command Modes EXEC

Defaults No default behaviors or values

Command History	Release	Modification
	12.0(5)XN	This command was introduced.
	12.0(7)T	This command was integrated into Cisco IOS Release 12.0 T.

Examples The following is sample output from the **show snasw ipstrace** command:

```
Router# show snasw ipstrace

423452 : DLC_UI_MU : PC(2350000) -> DLC(2300000) Q 2
03/14/1993 10:11:36.18
00000000 00000000 61BB3F50 00800000 00000000 00000000 00000000 00000000
000000FF 000000FF 00000000 00000000 05010000 000000FF 50130000 002D00D2
02340000 03000000 00000000 61BB3FB0 00140050 0000017E 000100FF 00000000
00000000 01000000 00000000 00000000 0000017E 00000000 00000000 00000000
00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
00000000 00000000 00000000 00000000 00C6C600 80FF0000 00000001 00000000
04000A00 00000000 00017E05 0E000000 01000100 00017E00 00000000 00000000
```

Related Commands	Command	Description
------------------	---------	-------------

snasw ipstrace	Sets up a trace buffer and begins tracing IPS trace elements
snasw ipsfilter	Filters interprocess signal trace elements being traced using the snasw ipstrace or debug snasw ips commands.

show snasw link

To display the Switching Services (SNASw) link objects, use the **show snasw link** command.

show snasw link [**brief** | **detail**] [**cpname** *cp-name-filter*] [**name** *linknamefilter*] [**port** *port-name-filter*] [**rmac** *mac-filter*] [**xid** *xid-filter*]

Syntax Description		
brief	(Optional) Indicates that one line per link is displayed. The brief version includes the link name, state (active or inactive), port name, adjacent control point (CP) name, node type information, number of sessions, and HPR support. The number of sessions does not include HPR sessions.	
detail	(Optional) Indicates that a detailed, multiline display that shows all fields returned for links are displayed.	
cpname <i>cp-name-filter</i>	(Optional) Indicates a fully qualified cpname (1 to 17 characters). Only links with CP names (as known to the router) that match the specified cpname are displayed.	
name <i>linknamefilter</i>	(Optional) Indicates the name of the link to be displayed. Only links matching this name are displayed.	
port <i>port-name-filter</i>	(Optional) Indicates the handle “naming” for the specific port (1 to 8 characters). All links associated with a port matching the filter are displayed.	
rmac <i>mac-filter</i>	(Optional) Indicates a 48-bit MAC address in hexadecimal form. Only links with a remote MAC address matching the MAC address specified are displayed.	
xid <i>xid-filter</i>	(Optional) Indicates a 4-byte exchange identification (XID) (idnum/idblk) specified in hexadecimal form. Only links matching the configured XID are displayed.	

Command Modes EXEC

Defaults The default display is brief.

Command History	Release	Modification
	12.0(5)XN	This command was introduced.
	12.0(7)T	This command was integrated into Cisco IOS Release 12.0 T.

Examples The following is sample output from the **show snasw link** command:

```
Router# show snasw link

Number of links 1

      SNA Links
Link Name      State      Port Name Adjacent CP Name  Node Type      Sess  Sup
-----
```

```
-----  
1> LINKT      Active      TR0          CISCO.B      Network Node  0  Yes
```

Router# **show snasw link detail**

Number of links 1

```

1>
Link name                               LINKT
Port name                                TR0
DLC type                                  Token-ring
Destination DLC Address                  000B.1AA4.9280.04
Link state                                Active
Link substate                             Active
Number of active sessions traversing link 0
Adjacent Node Id                          X'FFF00000'
Max send frame data (BTU) size            4400
Adjacent node CP name                     CISCO.B
Adjacent node type                         Network Node
CP-CP session support                     Yes
Link station role                          Secondary
Transmission group number                 21
Limited resource                           No
Effective capacity                         16 Mbps
Cost per connect time                      0
Cost per byte                              0
Propagation delay                          384 microseconds
User defined parameter 1                   128
User defined parameter 2                   128
User defined parameter 3                   128
Security                                   Nonsecure
Routing Information Field
Primary DLUS Name
Backup DLUS Name
Downstream PU Name
Retry link station                         Yes
Dynamic link station                       No
Adjacent node is a migration node          No
Link station statistics:
  Total XID bytes sent                     466
  Total XID bytes received                  344
  Total XID frames sent                     5
  Total XID frames received                 4
  Total data bytes sent                     752
  Total data bytes received                 685
  Total data frames sent                    8
  Total data frames received                9
  Total session control frames sent         0
  Total session control frames received    0
  Total number of successful XID exchanges  1
  Total number of unsuccessful XID exchanges 0

```

Related Commands

Command	Description
snasw link	Configures upstream links.

show snasw lu

To display the SNA Switching Services (SNASw) dependent logical units (LU)s, use the **show snasw lu** command in user EXEC or privileged EXEC mode.

show snasw lu [**brief** | **detail**] [**name** *lu-name*] [**pu** *pu-name*]

Syntax Description		
brief	(Optional) Indicates that one line per LU is displayed. The brief display includes LU name, physical unit (PU) name, dependent logical unit server (DLUS) name, and primary logical unit (PLU) name.	
detail	(Optional) Indicates that a detailed, multiline display that shows all fields returned for the link is displayed.	
name <i>lu-name</i>	(Optional) Indicates an LU name to filter. Only LUs matching the specified name are displayed.	
pu <i>pu-name</i>	(Optional) Indicates a PU name to filter. Only LUs for the specified name are displayed.	

Defaults The default display is brief.

Command Modes User EXEC
Privileged EXEC

Command History	Release	Modification
	12.0(5)XN	This command was introduced.
	12.0(7)T	This command was integrated into Cisco IOS Release 12.0 T.

Examples The following sample display is from the **show snasw lu** command:

```
Router# show snasw lu

Number of DLUR LUs 49

      SNA DLUR LUs
      LU Name   PU Name   DLUS Name   PLU Name
      -----
1> CWBC0601   CWBC06   NETA.MVSD
2> CWBC0602   CWBC06   NETA.MVSD
```

The following is sample output from the **show snasw lu detail** command:

```
Router# show snasw lu detail

Number of DLUR LUs 49

1>
LU name           CWBC0601
LU status         Active
```

```

SLU status          No session
PU name             CWBC06
DLUS name           NETA.MVSD
Primary LU name
LU location         Downstream
LU FSM history      (00,00)->(01,01)->(02,0E)->(03,03)->04
SLU FSM history     (00,10)->00
    
```

Table 66 describes the significant fields shown in the output.

Table 66 show snasw lu Field Descriptions

Field	Description
LU name	The name of the LU.
PU name	The physical unit this LU is defined to.
DLUS name	Dependent LU server for the PU and LU.
PLU name	The name of the host LU that this LU is in session with. If the LU is not in session, no PLU name will be displayed.
LU status	The state of the system services control points (SSCP)-LU session. States are: <ul style="list-style-type: none"> Active—The SSCP-LU is active and available for LU-LU sessions. Pend ACTLU rsp—The SSCP-LU session is pending activation. Pend DACTLU rsp—The SSCP-LU session is pending deactivation. Reset—The SSCP-LU session is not active.
SLU status	The current state of the LU-LU session. States are: <ul style="list-style-type: none"> In Session—The LU-LU session is active. No Session—The LU-LU session is not active. Pend BIND rsp—The LU-LU session is pending activation. Pend UNBIND rsp—The LU-LU session is pending deactivation.
Primary LU name	The name of the host LU that this LU is in session with. If the LU is not in session, no PLU name will be displayed.
LU location: Downstream	Indicates that the LU resides on a node downstream from this SNASw node.
LU FSM history	A history of the states and actions of the SSCP-LU session for diagnostic use by Cisco technical support.
SLU FSM history	A history of the states and actions of the LU-LU session for diagnostic use by Cisco technical support.

Related Commands

Command	Description
show snasw dlus	Displays the SNASw DLUS objects.
show snasw pu	Displays the SNASw PUs that require or request SSCP-PU services.

show snasw mode

To display the Switching Services (SNASw) modes, use the **show snasw mode** command.

show snasw mode

Syntax Description This command has no arguments or keywords.

Command Modes EXEC

Defaults No default behaviors or values

Command History	Release	Modification
	12.0(5)XN	This command was introduced.

Examples The following is sample output from the **show snasw mode** command:

```
Router# show snasw mode
```

```
Number of modes 8
```

```

      SNA Modes
      Name      Associated COS
      -----
1> #BATCH      #BATCH
2> #INTER      #INTER
3> CPSVCMG    CPSVCMG
4>             #CONNECT
5> #BATCHSC    #BATCHSC
6> #INTERSC    #INTERSC
7> CPSVRMGR    SNASVCMG
8> SNASVCMG    SNASVCMG

```

Related Commands	Command	Description
	show snasw class-of-service	Displays the class of service (CoS) definitions predefined to SNASw.

show snasw node

To display details and statistics of the Switching Services (SNASw) operation, use the **show snasw node** command.

show snasw node

Syntax Description This command has no arguments or keywords.

Command Modes EXEC

Defaults No default behaviors or values

Command History	Release	Modification
	12.0(5)XN	This command was introduced.
	12.0(7)T	This command was integrated into Cisco IOS Release 12.0 T.
	12.1	Additional fields were added to the command output.
	12.2	Additional fields were added to the command output to describe RTP information.
	12.3	The Alert focal point field was added to the command output.

Examples The following is sample output from the **show snasw node** command:

```
Router# show snasw node

Node type                Branch Network Node
Node name                NETA.NODE
CP alias                NODE
Node ID                 X'FFF00000'
Time active              9 days, 11 hrs, 57 mins, 13 secs
Defined LS good XID exchanges 2
Defined LS bad XID exchanges 0
Dynamic LS good XID exchanges 243
Dynamic LS bad XID exchanges 0
Number of active ISR sessions 0
DLUR release level      1
Branch extender architecture version 1
Mode to COS mapping supported No
MS includes Multiple Domain Support Yes
MDS send alert queue size 10
Maximum locates         10000
Directory cache size    10000
Maximum directroy entries (0 is unlimited) 0
Locate timeout in seconds (0 is no timeout) 540
COS cache size          8
Topology database routing tree cache size 8
Topology database routing tree cache use limit 1
Maximum nodes stored in database (0 unlimited) 0
Maximum TGs stored in database (0 unlimited) 0
Maximum allowed ISR sessions 22000
```

```

Maximum receive RU size for ISR sessions      61440
Maximum receive pacing window                7
Storing endpoint RSCVs for debug             Yes
Storing ISR RSCVs for debug                 No
Storing DLUR RSCVs for debug                No
DLUR support                                Yes
HPR support                                  Yes
RTP short request retry limit                6
RTP path switch route attempts              6
RTP path switch time LOW priority            480 seconds
RTP path switch time MEDIUM priority        240 seconds
RTP path switch time HIGH priority           120 seconds
RTP path switch time NETWORK priority        60 seconds
Alert focal point                            NETA.ND
PD log capture level                         Problem level entries
PD log size                                  500 kilobytes
PD log path                                  disk0:
IPS tracing                                  Inactive
DLC tracing                                  Active
DLC trace format                             Detailed
DLC trace size                               500 kilobytes
DLC trace path                              tftp://10.102.16.25/tftp/node.dlct
Number of links                              3
Number of local endpoint sessions            4
Number of non-DLUR intermediate sessions     0
Number of DLUR intermediate sessions        0
Number of DLUR PUs                          0
Number of DLUR LUs                          0

```

Related Commands

Command	Description
show snasw statistics	Displays the SNASw node-wide information.

show snasw pdlog

To display entries in the cyclical problem determination log to the console, use the **show snasw pdlog** command.

```
show snasw pdlog [brief | detail ] [id record-id] [all | next number-records | last number-records]
                [filter filter-string]
```

Syntax Description

brief	(Optional) Indicates that a one-line description for each pdlog entry is returned.
detail	(Optional) Indicates that a multiline display is returned.
id record-id	(Optional) Indicates that the 1 to 99999 trace record identifier. Only the frame ID that matches the record specified is displayed.
all	(Optional) Specifies that all records are displayed.
next number-records	(Optional) Displays records from the beginning, or following a record ID.
last number-records	(Optional) Displays records from the end or prior to the record ID. Indicates that the last x frames before the record identified in the ID operand (or before the last record in the trace if the ID operand is not coded) are displayed.
filter filter-string	(Optional) Indicates that a string follows against which the formatted trace output is filtered. Only frames that contain the <i>filter-string</i> argument are displayed.

Command Modes

EXEC

Defaults

The default display is brief.

Command History

Release	Modification
12.0(5)XN	This command was introduced.

Examples

The following is sample output from the **show snasw pdlog** command:

```
Router# show snasw pdlog

Problem Determination Log Output

**** 00000014 - AUDIT 512:727 (0) ****
CP-CP sessions established
Adjacent CP name = CISCO.A
1015 compliant      = 01
Topology awareness of CP-CP sessions support = 01
CP Capabilities :

      000C12C1 00000000 82844000
>From ../dcl/nssrcctp.c 589 :at 0:10:24, 1 March 93
```

Related Commands

Command	Description
snasw pdlog	Controls message logging to the console and the Systems Network Architecture (SNA) problem determination log cyclic buffer.

show snasw port

To display the Switching Services (SNASw) port objects, use the **show snasw port** command.

show snasw port [**brief** | **detail**] [**name** *port-name-filter*]

Syntax Description	Parameter	Description
	brief	(Optional) Indicates that a one-line description for each port entry is displayed.
	detail	(Optional) Indicates that a multiline display is returned.
	name <i>port-name-filter</i>	(Optional) Indicates the name of the port to filter for which information is displayed. Only ports matching name are displayed.

Command Modes EXEC

Defaults The default display is brief.

Command History	Release	Modification
	12.0(5)XN	This command was introduced.

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

```
Router# show snasw port
```

```
Number of ports 3
```

SNA Ports					
	Name	State	SAP	HPR-SAP	Interface
	-----	-----	---	-----	-----
1>	ETH0	Active	x04	xC8	Ethernet0/0
2>	SER1	Active		xC8	Serial0/0
3>	TR0	Active	x04	xC8	TokenRing0/0

```
Router# show snasw port detail
```

```
Number of ports 3
```

```
1>
Port name                Ethernet0/0
Interface name           Ethernet0/0
DLC name                 ETH0
Port state               Active
SAP                     X'04'
HPR SAP                 X'C8'
Port type               Shared Access Transport Facility
Port number              0
Link station role       Negotiable
Limited resource        No
Max send frame data (BTU) size 1436
Maximum receive BTU size 1436
```

```

Effective capacity                16 Mbps
Cost per connect time            0
Cost per byte                    0
Propagation delay                384 microseconds
User defined parameter 1        128
User defined parameter 2        128
User defined parameter 3        128
Security                        Nonsecure
Total available link stations    3000
Number reserved for inbound link stations 0
Number reserved for outbound link stations 0
HPR support                      No
HPR requires link level error recovery No
Retry link stations              Yes
Maximum activation attempts      0
Implicit links are uplink to End Nodes No
Activation XID exchange limit    9
Non-activation XID exchange limit 5
Target pacing window size       7

```

Related Commands

Command	Description
snasw port	Specifies the DLCs used by SNASw.

show snasw pu

To display the Switching Services (SNASw) physical unit (PU)s that require or request system services control points (SSCP)-PU services, use the **show snasw pu** command.

show snasw pu [**brief** | **detail**] [**dlus** *dlus-filter*] [**name** *pu-name-filter*]

Syntax Description

brief	(Optional) Indicates that one line per PU is displayed. The brief version includes the PU name, PU ID, state, defined Dependent Logical Unit Server (DLUS), and current DLUS.
detail	(Optional) Indicates that a detailed, multiline display that shows all fields returned for a link is displayed.
dlus <i>dlus-filter</i>	(Optional) Indicates the fully qualified DLUS name (1 to 17 characters). Only PUs that are served by the DLUS specified are displayed.
name <i>pu-name-filter</i>	(Optional) Indicates a PU name to filter (1 to 8 characters). Only PUs matching this name are displayed.

Command Modes

EXEC

Defaults

The default display is brief.

Command History

Release	Modification
12.0(5)XN	This command was introduced.

Examples

The following is sample output from the **show snasw pu** command:

```
Router# show snasw pu

Number of DLUR PUs 1
SNA DLUR PUs
  PU Name      PU ID      State      Defined DLUS      Current DLUS
  -----
1> PL9101      19103001  Active      NETA.SJMVS3      NETA.SJMVS3

Router# show snasw pu detail

Number of DLUR PUs 1
1>
PU name                PL9101
Define DLUS name
Backup DLUS name
Active DLUS name       NETA.SJMVS3
PU ID (IDBLK/IDNUM)   X'19103001'
PU location            Downstream
PU status              Active
DLUS session state    Active
```

```

Automatic Network Shutdown support          Stop
DLUS retry timeout (seconds)                0
DLUS retry limit                           0
DLUS pipe PCID                             X'FC0B862E4B1CE8FB'
DLUS pipe CP Name                          NETA.DLUR2

```

Related Commands

Command	Description
show snasw dlus	Displays the SNASw DLUS objects.

show snasw rtp

To display the SNA Switching Services (SNASw) Rapid Transit Protocol (RTP) connections, use the **show snasw rtp** command in user EXEC or privileged EXEC mode.

```
show snasw rtp [brief | detail] [class-of-service cos-name] [cpname netid.cpname] [name
connection-name-filter] [tcid tcid-connection] [history]
```

Syntax Description		
brief	(Optional) Indicates that one-line per RTP is displayed. The brief version of the display includes the RTP name, local transport connection identifier (TCID), remote TCID, remote control point (CP) name, and class of service (CoS).	
detail	(Optional) Indicates that a detailed, multiline display, which shows all the fields for RTP is displayed.	
class-of-service <i>cos-name</i>	(Optional) Shows specific High-Performance Routing (HPR) RTP connections by CoS name.	
cpname <i>netid.cpname</i>	(Optional) Displays specific HPR RTP connections by a fully qualified partner CP name, consisting of both the network ID and the CP name.	
name <i>connection-name-filter</i>	(Optional) Indicates the name of the RTP connection (1 to 8 characters). Only the origins of transmission group (TG) records or destinations that match the specified name or node records appear.	
tcid <i>tcid-connection</i>	(Optional) Displays the specific HPR RTP connection for the local TCID connections.	
history	(Optional) Displays the HPR RTP rate graphs for each RTP connection. These graphs include the last 60 seconds, 60 minutes, and 72 hours for the Adaptive Rate Based (ARB) allowed send rate and actual receive rate. Graphs are not available for RSETUP pipes.	

Defaults The default display is brief.

Command Modes User EXEC
Privileged EXEC

Command History	Release	Modification
	12.0(5)XN	This command was introduced.
	12.0(7)T	This command was integrated into Cisco IOS Release 12.0 T.
	12.2(33)SRA	This command was integrated into Cisco IOS Release 12.2(33)SRA.
	12.4(10)	The history keyword was added to provide the history of HPR RTP rate graphs for each RTP connection.

Usage Guidelines

HPR RTP pipes use a unique flow and congestion control algorithm called ARB flow control. ARB allows HPR pipes to measure the network's level of congestion and dynamically adjust the rate of data input into the network, so that the network is highly utilized and congestion is avoided. If actual losses occur, ARB can also react to those losses.

Examples**show snasw rtp Command Example**

The following is sample output from the **show snasw rtp** command and shows a CP-CP session pipe to CISCO.B:

```
Router# show snasw rtp
```

```
Number of RTP connections 1
```

SNA RTP Connections			
Local TCID (hex)	Remote TCID (hex)	Remote CP Name	COS
-----	-----	-----	-----
1> 0000000001000000	0000000001000000	CISCO.B	CPSVCMG

```
Router# show snasw rtp detail
```

```
Number of RTP connections 1
```

```
1>
```

```
Local NCEID                X'4052303030303031'
Local TCID                  X'0000000001000000'
Remote TCID                  X'0000000001000000'
Remote CP name               CISCO.B
Class of service name       CPSVCMG
Liveness timer               180
Short request timer          704
Number of short request timeouts 0
Total bytes sent              484
Total bytes received          484
Total bytes resent            0
Total bytes discarded         0
Total packets sent            24
Total packets received        25
Total packets resent          0
Total packets discarded       0
Total Session Connector frames sent 2
Total Session Connector frames received 2
Number of invalid SNA frames received 0
Number of gaps detected      0
Minimum send rate             1597
Current send rate             1597
Maximum send rate             1597
Minimum receive rate          0
Current receive rate          0
Maximum receive rate          0
Burst size                    8192
Smoothed round trip delay time 352
Last round trip delay time    8
Number of active sessions     2
Link name of first hop        LINKT
Performing ISR boundary function No
RTP connection type           CP-CP session
RSCV Length                   18
Route                          CISCO.A
                              <-tg21-> CISCO.B
```

Examples

show snasw rtp history Command Example

The following is sample output from the **show snasw rtp history** command.

The **history** keyword displays six histograms that show the output and input data rates with some of the ARB variables that influence the output and input data rates.

- On the Y axis, the rate in kbps is indicated.
- The X axis, indicates the time interval.

ARB variables are displayed as counters in a vertical format under each time interval. Six histograms are displayed in two groups of three. The first histogram in each group covers the previous 60 seconds in 1 second intervals. The second histogram in each group covers the previous 60 minutes in 1 minute intervals and the third histogram in each group covers the previous 72 hours in 1 hour intervals.

```
Router#show snasw rtp name @R000004 history
Total number of RTP connections 6
```

SNA RTP Connections						
RTP Name	Local TCID (hex)	Remote CP Name	State	COS	Sess	
-----	-----	-----	-----	-----	-----	-----
1> @R000004	0000000004002007	NETA.MVSD	Connected	#INTER	1	

The following three histograms show the ARB allowed send rate with three ARB variables that directly influence the allowed send rate. The ARB allowed send rate is the amount of data that the RTP endpoint is allowed to input into the network. The actual send rate is less than or equal to the allowed send rate. The following three ARB variables are included:

- **Nrm**—The number of ARB reply segments received containing a normal rate reduction action (RRA). The ARB receiver sends an ARB reply with a normal RRA when the network congestion is less than the predetermined receiver threshold.
- **Slo**—The number of ARB reply segments received containing an RRA of Slowdown 1 and Slowdown 2. The ARB receiver sends an ARB reply with an RRA of Slowdown 1 or Slowdown 2 when the network congestion is more than the predetermined receiver threshold.
- **Gap**—The number of status segments received indicating that a gap is detected by the ARB receiver when packets are lost.

In the following example, the Y axis shows that the allowed send rate in the last recorded second is a maximum of 4875 kbps.

- There are 10 ARB normal received replies.
- No ARB Slowdown 1 and Slowdown 2 replies are received.
- There are no status segments that indicate gaps.
- 10 seconds previously, (in the 10 column) the maximum allowed send rate is 4240 kbps
- There are 5 ARB normal received replies.
- No slowdowns or gaps are received.

In the following example, the Y axis shows that in the last minute, the maximum receive rate is 4686 kbps, and the average receive rate over the course of increase is approximately 920 kbps.

- 298 ARB normal are sent.
- 10 "Slowdown1" and "Slowdown 2" ARB replies are sent.
- 22 status segments, with the "Gap detected" indicator, are sent.

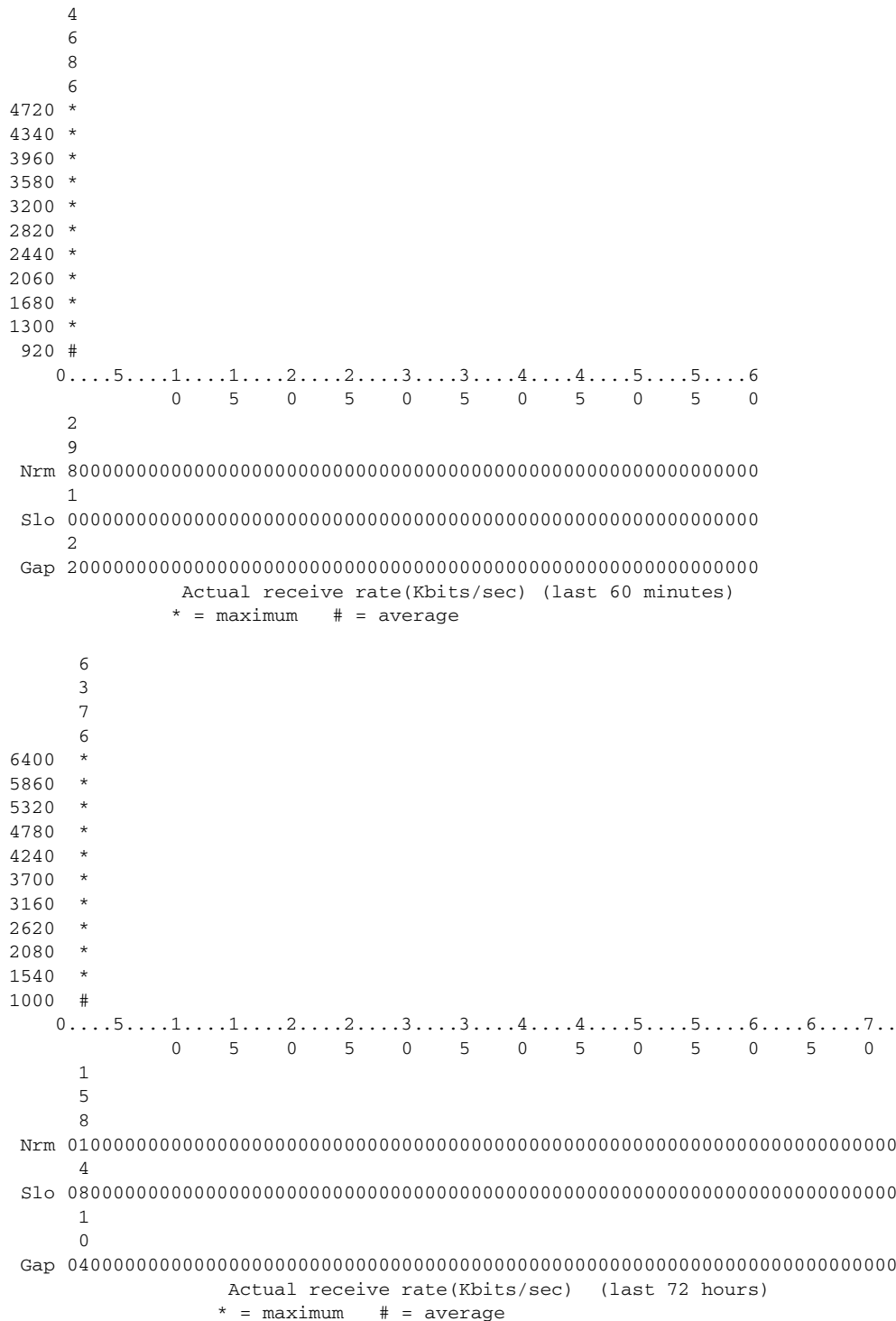


Table 68 describes the significant fields shown in the sample output.

Table 68 *show snaswp rtp—Actual Receive Rate History Field Descriptions*

Field	Description
Nrm	Number of ARB replies sent containing a normal rate adjustment.
Slo	Number of ARB replies sent containing a rate adjustment action of "Slowdown 1" or "Slowdown 2".
Gap	Number of status segments sent, indicating that a gap was detected.

Related Commands

Command	Description
show snasw session	Displays the SNASw session objects.

show snasw session

To display the Switching Services (SNASw) session objects, use the **show snasw session** command.

```
show snasw session [local | dlur | intermediate] [name session-name-filter] [pcid pcid-filter]
[brief | detail | intermediate]
```

Syntax Description		
local	(Optional) Indicates that the scope of the display is limited to the types of sessions indicated. Local sessions are those that terminate on the node. Examples include control point (CP)-CP sessions and Dependent Logical Unit Requestor (DLUR)-Dependent Logical Unit Server (DLUS) sessions.	
dlur	(Optional) Indicates that the scope of the display is limited to the types of sessions indicated. DLUS sessions are logical unit (LU)-LU sessions passing through the node, which are using the DLUR for dependent session.	
intermediate	(Optional) Indicates that the scope of the display is limited to the types of sessions indicated. Intermediate sessions are LU-LU sessions passing through the node and are not DLUR-associated.	
name <i>session-name-filter</i>	(Optional) Indicates the fully qualified name (1 to 17 characters). Only sessions that have a local or remote endpoint LU name matching the supplied name are displayed.	
pcid <i>pcid-filter</i>	(Optional) Indicates an 8-byte procedure correlation identifier (PCID) specified in hexadecimal form. All sessions matching the PCID filter are displayed.	
brief	(Optional) Indicates that one line per session is displayed. The brief version includes PCID, state (active or inactive), session endpoint LU names, and mode.	
detail	(Optional) Indicates that a detailed, multiline display that shows all fields returned for the session is displayed.	

Command Modes EXEC

Defaults The default display is brief.

Command History	Release	Modification
	12.0(5)XN	This command was introduced.

Examples The following is sample output from the **show snasw session** command:

```
Router# show snasw session

Number of local endpoint sessions 4
```

```

SNA Local Endpoint Sessions
  PCID (hex)      Partner LU Name  Link Name  Mode  COS
-----
1> F4276146FE1472AB  CISCO.C        @I000003  CPSVCMG  CPSVCMG
2> F42754959A918058  CISCO.C        @I000003  CPSVCMG  CPSVCMG
3> F4276146FE1472AA  CISCO.A        @R000002  CPSVCMG  CPSVCMG
4> F4276DF74485118B  CISCO.A        @R000002  CPSVCMG  CPSVCMG

Number of intermediate sessions 2

SNA Intermediate Sessions
  PCID (hex)      Primary LU Name  Secondary LU Name  Mode  COS
-----
1> F42754959A918059  CISCO.C        CISCO.A            SNASVCMG  SNASVCMG
2> F42754959A91805A  CISCO.C        CISCO.A            #INTER    #INTER

Number of intermediate DLUR sessions 0

SNA DLUR Assisted Intermediate Sessions
  PCID (hex)      Primary LU Name  Secondary LU Name  Mode  COS
-----

```

The following is sample output from the **show snasw session detail** command:

```

Router# show snasw session detail

Number of local endpoint sessions 4

1>
Partner LU name          CISCO.C
Mode name                CPSVCMG
Class of service name    CPSVCMG
Transmission priority    Network
Carried over a limited resource  No
Polarity                 Primary
Contention               CONWINNER
SSCP ID received in ACTPU X'000000000000'
Session timeout period (ms) 0
Outbound LFSID (SIDH,SIDL,ODAI) X'02',X'00',B'0'
Procedure correlator ID (PCID) X'F4276146FE1472AB'
PCID generator CP name   CISCO.B
FID2 Session ID         X'F4276146FE1472AB'
Link name                @I000003

Session statistics:
Maximum send RU size     1152
Maximum receive RU size  1152
Total data frames sent   3
Total data frames received 1
Total FMD data frames sent 3
Total FMD data frames received 1
Total bytes sent         511
Total bytes received     15
Max send pacing window   7
Max receive pacing window 7
Current send pacing window 7
Current receive pacing window 7

```

Related Commands

Command	Description
show snasw link	Displays SNASw link objects.

show snasw statistics

To display Switching Services (SNASw) node-wide information, use the **show snasw statistics** command.

show snasw statistics

Syntax Description This command has no arguments or keywords.

Command Modes EXEC

Defaults No default behaviors or values

Command History	Release	Modification
	12.0(5)XN	This command was introduced.

Examples The following is sample output from the **show snasw statistics** command:

```
Router# show snasw statistics

SNASw Subsystem Uptime                3 hrs, 19 mins, 36 secs

Directory Statistics:
  Maximum number of cache entries      10000
  Current number of cache entries      0
  Current number of home entries       2
  Current number of registry entries   4
  Total number of entries in directory 6
  Total cache hits                     0
  Total cache misses                   0
  Number of directed locates sent      2
  Number of directed locates returned not found 0
  Number of directed locates received 0
  Number of broadcast locates sent     0
  Number of broadcast locates returned not found 0
  Number of broadcast locates received 0
  Number of locates outstanding        0

Topology Statistics:
  Maximum number of nodes              0
  Current number of nodes               4
  Total number of received TDUs        0
  Total number of sent TDUs            0
  Total received TDUs with lower RSN   0
  Total received TDUs with equal RSN   0
  Total received TDUs with higher RSN  0
  Total received TDUs with higher odd value RSN 0
  Total node state changes requiring TDUs 0
  Total database inconsistencies detected 0
  Total number of timer based TDUs generated 0
  Total number of node records purged 0
```

```

Total received TG updates with lower RSN          0
Total received TG updates with equal RSN          0
Total received TG updates with higher RSN         0
Total received TG updates with higher odd RSN     0
Total TG state changes requiring TG updates       5
Total TG database inconsistencies detected         0
Total number of timer TG updates generated        0
Total number of TG records purged                 0
Total number of routes calculated                 2
Total number of routes rejected                  0
Total number of cache hits in route calculation   0
Total number of cache misses in rte calculation   7
Total number of TDU wars detected                 0
    
```

Number of processes 23

CPU/Memory usage per SNA Switch process

Process Name	CPU Time (ms)	Memory Used (bytes)
1> NOF API	20	20
2> N-Base allocated memory	0	79484
3> Buffer Manager (BM)	12	232
4> Node Operator Facility (NOF)	152	13188
5> Address Space Manager (ASM)	28	1296
6> Address Space (AS)	24	0
7> Session Services (SS)	36	1676
8> Directory Services (DS)	92	55036
9> Configuration Services (CS)	48	9148
10> Management Services (MS)	4	252
11> Multiple Domain Support (MDS)	0	3792
12> Topology & Routing Services (TRS)	24	22368
13> Session Connector Manager (SCM)	12	2232
14> Session Connector (SCO)	0	1232
15> Session Manager (SM)	56	13416
16> Resource Manager (RM)	64	0
17> Presentation Services (PS)	68	0
18> Half Session (HS)	29	0
19> Path Control (PC)	188	50712
20> Data Link Control (DLC)	112	144
21> Dependent LU Requester (DR)	12	7032
22> High Performance Routing (HPR)	12	3632
23> Rapid Transport Protocol (RTP)	116	18460

Related Commands

Command	Description
show snasw node	Displays details and statistics of the SNASw operation.

show snasw summary-ipstrace

To display the continuously running “footprint” summary interprocess signal trace on the router console, use the **show snasw summary-ipstrace** command.

```
show snasw summary-ipstrace [id recordid] [all | next number-records | last number-records]
[filter filter-string]
```

Syntax Description		
id <i>recordid</i>	(Optional) Indicates that the 1 to 99999 trace record identifier. Only the frame ID that matches the record specified is displayed.	
all	(Optional) Specifies that all records are displayed.	
next <i>number-records</i>	(Optional) Displays records from the beginning, or following a record ID.	
last <i>number-records</i>	(Optional) Displays records from the end or prior to the record ID. Indicates that the last <i>x</i> frames before the record identified in the ID operand (or before the last record in the trace if the ID operand is not coded) are displayed.	
filter <i>filter-string</i>	(Optional) Indicates that a string follows against which the formatted trace output is filtered. Only frames that contain the <i>filter-string</i> argument are displayed.	

Command Modes EXEC

Defaults No default behaviors or values

Command History	Release	Modification
	12.0(5)XN	This command was introduced.
	12.0(7)T	This command was integrated into Cisco IOS Release 12.0 T.

Examples The following is sample output from the **show snasw summary-ipstrace** command:

```
Router# show snasw summary-ipstrace

IPS Trace Output

433414 : VERB_SIGNAL : SCM(20E0000) -> TRS(20D0000) Q 1
433415 : VERB_SIGNAL : --(0) -> TRS(20D0000) Q 1
433416 : VERB_SIGNAL : TRS(20D0000) -> SS(2080000) Q 1
433417 : VERB_SIGNAL : --(0) -> SS(2080000) Q 1
433418 : VERB_SIGNAL : SS(2080000) -> CS(20A0000) Q 2
433419 : VERB_SIGNAL : --(0) -> CS(20A0000) Q 2
433420 : VERB_SIGNAL : CS(20A0000) -> --(2040000) Q 1
433421 : VERB_SIGNAL : --(0) -> --(2040000) Q 1
433422 : VERB_SIGNAL : --(0) -> NOF(2050000) Q 80
433423 : VERB_SIGNAL : --(0) -> NOF(2050000) Q 80
433424 : VERB_SIGNAL : NOF(2050000) -> DS(2090000) Q 1
433425 : VERB_SIGNAL : --(0) -> DS(2090000) Q 1
```

```
433426 : VERB_SIGNAL : DS(2090000) -> --(2040000) Q 1
433427 : VERB_SIGNAL : --(0) -> --(2040000) Q 1
433428 : VERB_SIGNAL : --(0) -> NOF(2050000) Q 80
433429 : VERB_SIGNAL : --(0) -> NOF(2050000) Q 80
433430 : VERB_SIGNAL : NOF(2050000) -> TRS(20D0000) Q 1
433431 : VERB_SIGNAL : --(0) -> TRS(20D0000) Q 1
433432 : VERB_SIGNAL : TRS(20D0000) -> --(2040000) Q 1
433433 : VERB_SIGNAL : --(0) -> --(2040000) Q 1
```

Related Commands

Command	Description
snasw dump	Copies problem determination logs and traces from internal buffers to an external file server.

show snasw topology

To display Switching Services (SNASw) topology records, use the **show snasw topology** command.

show snasw topology [*name cp-name-filter*] [**brief** | **detail**]

Syntax Description	
name <i>cp-name-filter</i>	(Optional) Indicates the fully qualified name of the control point (CP) (1 to 17 characters). Only records that match the cpname specified are displayed.
brief	(Optional) Indicates one line per topology record is displayed.
detail	(Optional) Indicates that a detailed, multiline display of topology information.

Command Modes EXEC

Defaults The default display is brief.

Command History	Release	Modification
	12.0(5)XN	This command was introduced.

Examples The following is sample output from the **show snasw topology** command:

```
Router# show snasw topology

Number of topology entries 2

      SNA Topology Entries
      Dest. Node Name  Type  TG#    TG Type          TG Status
      -----
1> NETA.MVSD          Intr  21  Uplink          CP-CP sessions active
2> NETA.BERNIEPU     Enpt   0  Downlink        Active
```

The following is sample output from the **show snasw topology detail** command:

```
Router# show snasw topo detail
Number of topology entries 2

1>
Destination node name          NETA.MVSD
Destination node type          Intermediate
Transmission Group Number     21
Destination address
Resource Sequence Number      0
TG status                      CP-CP sessions active
Active CP-CP sessions for this TG  Yes
Is this a branch TG           No
Branch link type              Uplink
Effective capacity            16 Mbps
Cost per connect time         196
Cost per byte                 196
Propagation delay             384 microseconds
User defined parameter 1      128
```

```

User defined parameter 2          128
User defined parameter 3          128
Security                          Nonsecure

2>
Destination node name             NETA.BERNIEPU
Destination node type             Endpoint
Transmission Group Number        0
Destination address
Resource Sequence Number         0
TG status                        Active
Active CP-CP sessions for this TG No
Is this a branch TG              No
Branch link type                  Downlink
Effective capacity                16 Mbps
Cost per connect time            196
Cost per byte                     196
Propagation delay                 384 microseconds
User defined parameter 1         128
User defined parameter 2         128
User defined parameter 3         128
Security                          Nonsecure

```

Related Commands

Command	Description
show snasw link	Displays SNASw link objects.

show stun

To display the current status of serial tunnel (STUN) connections, use the **show stun** command in privileged EXEC mode.

```
show stun [group stun-group-number] [address address-list]
```

Syntax Description	group <i>stun-group-number</i>	(Optional) STUN group number. Valid numbers are decimal integers in the range from 1 to 255.
	address <i>address-list</i>	(Optional) List of poll addresses.

Command Modes Privileged EXEC

Command History	Release	Modification
	10.0	This command was introduced.
	12.2(11)T	The group and address keywords were added.

Examples

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

```
Router# show stun

This peer: 10.108.10.1
Serial0 -- 3174 Controller for test lab (group 1 [sdlc])
      state  rx-pkts  tx-pkts  drops  poll
  7[1] IF Serial1  open    20334   86440    5    8P
 10[1] TCP 10.108.8.1  open     6771    7331     0
all[1] TCP 10.108.8.1  open   612301 2338550 1005
```

In the display, the first entry reports proxy that polling is enabled for address 7 and that serial 0 is running with modulus 8 on the primary side of the link. The link has received 20,334 packets, sent 86,440 packets, and dropped 5 packets.

[Table 69](#) describes the significant fields shown in the output.

Table 69 *show stun* Field Descriptions

Field	Description
This peer	Lists the peer name or address. The interface name (as defined by the description command), its STUN group number, and the protocol associated with the group are shown on the header line.
STUN address	Address or the word <i>all</i> if the default forwarding entry is specified, followed by a repeat of the group number given for the interface.
Type of link	Description of link, either a serial interface using serial transport (indicated by IF followed by interface name), or a TCP connection to a remote router (TCP followed by IP address).

Table 69 *show stun Field Descriptions (continued)*

Field	Description
state	State of the link: open is the normal, working state; direct indicates a direct link to another line, as specified with the direct keyword in the stun route command.
rx-pkts	Number of received packets.
tx-pkts	Number of sent packets.
drops	Number of packets that for whatever reason had to be dropped.
poll	Report of the proxy poll parameters, if any. P indicates a primary and S indicates a secondary node. The number before the letter is the modulus of the link.

show txconn connection

To display a list of all of the router's Cisco Transaction Connection (CTRC) connections to Customer Information Control System (CICS) clients, a list of a specified CTRC server's connections to CICS clients, or detailed status information for a specific CTRC connection to a CICS client, use the **show txconn connection** command in user EXEC or privileged EXEC mode.

show txconn connection [*connection-id* | **server** *server-name*]

Syntax Description		
<i>connection-id</i>	(Optional) Specifies a CTRC connection to a CICS client for which to display detailed status information.	
server <i>server-name</i>	(Optional) Specifies a CTRC server for which to list connections to CICS clients.	

Defaults If neither the *connection-id* nor *server-name* argument is specified, a list of all of the current router's CTRC connections to CICS clients is displayed.

Command Modes User EXEC
Privileged EXEC

Command History	Release	Modification
	12.0(5)XN	This command was introduced.

Examples The following example displays information about a CICS client connections for the current router:

```
Router# show txconn connection
```

```
Server          ConnID      State      #Transact.  IP Address      Port  Bytes
-----
CICSB           6241464C   receiving  20           10.147.235.88   1365  2.89K
AMELIA          625443BC   receiving  0            10.147.235.88   1371  15.60K
```

The following example displays information about a specified CICS client connection:

```
Router# show txconn connection 6241464C
```

```
connection: 6241464C
server: CICSB
state: receiving
transactions: 2
ip address: 10.147.235.88
port: 1365
total transactions: 20
connect timestamp: 06:04:26
idle time: 06:17:34
total bytes received: 2963
total bytes sent: 28121 (2.89K)
idle timeout: 0 (none)
```

Table 70 describes the significant fields shown in the display.

Table 70 show txconn connection Field Descriptions

Field	Description
Connection	Unique identifier for the CICS client connection.
server	CTRC txconn server process that is handling the connection.
state	Status of the connection. Values are: <ul style="list-style-type: none"> • closing indicates that the connection is of closing. • halt indicates that the connection has been manually cleared and is releasing resources. • receiving indicates that the connection is receiving data from the client. • reset indicates that the connection has just opened or just closed.
transaction	Number of CICS transactions in progress for the connection.
ip address	IP address of the CICS client that is using the connection.
port	Port of the CICS client that is using the connection.
total transactions	Total number of CICS transactions performed using the connection.
connect timestamp	Amount of time elapsed since the connection was first established. Values of less than 24 hours are displayed in hours, minutes, and seconds. Longer periods are displayed in days and hours.
idle time	Amount of time that the connection has been idle.
total bytes received	Number of bytes received from the CICS client via this connection.
total bytes sent	Number of bytes sent to the CICS client via this connection.
idle timeout	Number of minutes after which the connection will be automatically closed if there is no activity. A value of zero (0) indicates that the connection will not be closed for lack of activity.

Related Commands

Command	Description
clear txconn connection	Clears a CTRC connection to a CICS client, and all associated transactions.
show txconn transaction	Displays a list of all the CTRC transactions of the current router with CICS, transactions of a specified CTRC server, or transactions of a specified CICS client connection.

show txconn destination

To display a list of all of the current router's Customer Information Control System (CICS) destinations for Cisco Transaction Connection (CTRC), or to display detailed status information for a specified CTRC CICS destination, use the **show txconn destination** command in user EXEC or privileged EXEC mode.

show txconn destination [*destination-name*]

Syntax Description	<i>destination-name</i>	(Optional) CTRC destination for which to display detailed status information. A destination is defined by a unique remote logical unit (LU) and mode pair.
--------------------	-------------------------	--

Defaults	If the <i>destination-name</i> argument is omitted, a list of all CTRC destinations for the current router is displayed.
----------	--

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

Command History	Release	Modification
	12.0(5)XN	This command was introduced.

Examples The following examples show the CTRC destinations for CICS communications that are available on the current router and information specifically about the destination GEN:

Router# **show txconn destination**

Name	Remote LU	Mode	Hits
CICSB	CICSB	IBMRDB	31
GEN	CICSB	IBMRDB	50
	CICSC	IBMRDB	51
GUAVA	GUAVA	IBMRDB	0
CICSC	CICSC	IBMRDB	7

Router# **show txconn destination GEN**

Name	Remote LU	Mode	Hits
GEN	CICSB	IBMRDB	50
	CICSC	IBMRDB	51

The Hits column displays the number of times the router has routed transactions or pings to each destination since the last time the router was started up.

Related Commands

Command	Description
txconn destination	Configures CICS destinations for CTRC.

show txconn license

To show the status of licenses used for Cisco Transaction Connection (CTRC), use the **show txconn license** command in user EXEC or privileged EXEC mode.

show txconn license

Syntax Description This command has no arguments or keywords.

Defaults No default behavior or values

Command Modes User EXEC
Privileged EXEC

Command History	Release	Modification
	12.0(5)XN	This command was introduced.

Usage Guidelines This command produces the same result as the **show dbconn license** command because CTRC licenses are shared between DATABASE2 (DB2) connections and Customer Information Control System (CICS) conversations.

Examples The following is sample output for a CTRC router that is licensed to allow up to 4990 connections for an unlimited time period:

```
Router# show txconn license
```

```
CTRC is licensed for 4990 connections, 2850 licensed connections in use
This is a permanent license
```

Related Commands	Command	Description
	dbconn license	Configures CTRC licenses for connections to DB2 or CICS.
	show dbconn license	Displays the status of CTRC licenses for DB2 communications.
	txconn license	Configures CTRC licenses for connections to CICS or DB2.

show txconn route

To display a list of all Cisco Transaction Connection (CTRC) routes defined for specified Customer Information Control System (CICS) transaction IDs, or to display a particular CTRC server's routes to CICS, use the **show txconn route** command in user EXEC or privileged EXEC mode.

```
show txconn route [server server-name]
```

Syntax Description

server <i>server-name</i>	(Optional) Server for which you wish to display routing information. If not specified, a list of all CICS communications routes for CTRC servers on the current router is displayed.
----------------------------------	--

Defaults

If a value for the *server-name* argument is not specified, a list of all CICS communications routes for CTRC servers on the current router is displayed.

Command Modes

User EXEC
Privileged EXEC

Command History

Release	Modification
12.0(5)XN	This command was introduced.

Examples

The following examples show information about all the CTRC routes to CICS that are available on the current router and information about the route for CTRC server CICSB&C. A <default> entry in the SERVER column indicates a global route that is used by all txconn servers on the router. A <default> entry in the TranID column indicates the default route for the listed txconn server.

```
Router# show txconn route
```

Server	TranID	Destination
CICSC	<default>	CICSC
CICSB	<default>	CICSB
CICSB&C	<default>	GEN
GUAVA	<default>	GUAVA
<default>	CPMI	CICSC
CICSB	CPMI	CICSB

```
Router# show txconn route server CICSB&C
```

Server	TranID	Destination
CICSB&C	<default>	GEN

Related Commands

Command	Description
txconn route	Configures CTRC routes to CICS for specified transaction IDs.

show txconn server

To display information about the current router's Cisco Transaction Connection (CTRC) servers for Customer Information Control System (CICS) communications, or to display detailed status information for a single CTRC server, use the **show txconn server** command in user EXEC or privileged EXEC mode.

```
show txconn server [server-name]
```

Syntax Description

<i>server-name</i>	(Optional) CTRC server for which to display detailed status information. When omitted, a list of CTRC servers is displayed.
--------------------	---

Defaults

When a value for the *server-name* argument is not specified, a list of the current router's CTRC servers that communicate with CICS is displayed.

Command Modes

User EXEC
Privileged EXEC

Command History

Release	Modification
12.0(5)XN	This command was introduced.

Examples

The following example shows summary information about the CTRC servers for CICS communications that are available on the current router:

```
Router# show txconn server
```

Server	Port	IP Address	Dest	State	NumConn
AMELIA	1436	0.0.0.0	AMELIA	enabled	0
CICSB	1444	0.0.0.0	CICSB	enabled	0
CICSC	1434	0.0.0.0	CICSC	enabled	0
TEST	1446	0.0.0.0	CICSC	enabled	0

You can specify the name of a particular txconn server to display detailed information about it, as shown in the following example for the CTRC server named CICSB.

```
Router# show txconn server CICSB
```

```

      server: CICSB
      destination: CICSB
      server state: enabled (accepting connections)
      ip address: 0.0.0.0
      port: 1444
      client timeout: 0 (none)
      host timeout: 1 minute
      window size: 4096 bytes
      fold program name: on
      ccsid: 273

```

```

number of connections: 178
number of transactions: 20
      client type: cics

```

If this example had been for a Microsoft COMTI client, the client type value would be comti rather than cics. [Table 71](#) describes the significant information shown for each server, in the order it appears.

Table 71 *show txconn server Field Descriptions*

Field	Description
server	Name of the txconn server.
destination	Default destination for the server.
server state	Status of the server process. Values are: <ul style="list-style-type: none"> disabled (unable to accept connections) indicates that CICS client connections will be rejected. enabled (accepting connections) indicates that the server is ready to accept connections from CICS clients.
ip address	TCP/IP address for which the server accepts connections. A value of 0.0.0.0 indicates that the server accepts connections for any IP address that is configured on the router.
port	TCP/IP port number on which the server listens.
client timeout	Number of minutes a CICS client can remain idle before it is automatically disconnected. A value of zero (0) indicates that the server does not disconnect clients for inactivity.
host timeout	Number of minutes a CICS host may remain idle before it is automatically disconnected. A value of zero (0) indicates that the server does not disconnect hosts for inactivity.
window size	TCP/IP receive window size.
fold	CTRC folds the CICS program name to upper case. Options are off or on. Default is on.
ccsid	The Coded Character Set Identifier.
number of connections	Number of active CICS client connections to the server.
number of transactions	Number of active CICS transactions being handled by the server.
client type	Displays whether the server provides connectivity for Microsoft COMTI clients or for IBM CICS Universal Client or TXSeries clients.

Related Commands

Command	Description
show txconn destination	Displays the CICS destinations configured for the current CTRC router.
show txconn route	Displays the CTRC routes defined for specific CICS transaction IDs.
txconn server	Configures CTRC servers for CICS communications.

show txconn statistic

To display information about the current router's Cisco Transaction Connection (CTRC) communications with Customer Information Control System (CICS), use the **show txconn statistic** command in user EXEC or privileged EXEC mode.

```
show txconn statistic [kind {histogram | summary}] name {activeconnections |
activetransactions | allocatetime | clientreceived | clientsent | clientturnaround | dump |
hostreceived | hostresponse | hostsent | latency | maxconnections | maxtransactions |
totalconnections | totaltransactions}
```

Syntax Description

kind {**histogram** |
summary}

(Optional) Desired format for the statistics to be displayed. Valid values are:

- **histogram**—Displays the named statistic in a graphical format. You cannot use the histogram format when displaying all the statistics (in other words, in conjunction with the **name dump** parameter).
- **summary**—Displays the named statistic in a tabular format.

If you do not specify the **kind** keyword, the statistics are displayed in **summary** format (tabular). See the “Usage Guidelines” for a description of time periods in the summary statistics.

name {**activeconnections** |
activetransactions |
allocatetime |
clientreceived | **clientsent** |
clientturnaround | **dump** |
hostreceived |
hostresponse | **hostsent** |
latency | **maxconnections** |
maxtransactions |
totalconnections |
totaltransactions}

Specific statistic to display. Valid values are:

- **activeconnections**—Displays the number of connections to CICS clients active.
- **activetransactions**—Displays the number of CICS transactions being processed.
- **allocatetime**—Displays the average time in seconds spent waiting for the Advanced Program-to-Program Communication (APPC) allocate operation to complete.
- **clientreceived**—Displays the total number of bytes received from CICS clients during the indicated time period.
- **clientsent**—Displays the total number of bytes sent to CICS clients during the indicated time period.
- **clientturnaround**—Displays the average time in seconds from receiving a request from a CICS client to sending that client a response during the indicated time period.
- **dump**—Displays a compact statistics summary, in tabular format, for the last 24 hours. The statistics include all the individual statistics you can specify with the name parameter except the activeconnections and activetransactions data.
- **hostreceived**—Displays the total number of bytes received from hosts for CICS connections during the indicated time period.
- **hostresponse**—Displays the average host response time in seconds for CICS connections during the indicated time period.

-
- **hostsent**—Displays the total number of bytes sent to hosts for CICS connections during the indicated time period. **hostresponse** displays the average host response time in seconds for CICS connections during the indicated time period.
 - **hostsent**—Displays the total number of bytes sent to hosts for CICS connections during the indicated time period.
 - **latency**—Displays the average amount of time in seconds used by the txconn server per CICS client request (**clientturnaround** value minus **hostresponse** value).
 - **maxconnections**—Displays the maximum number of concurrent connections to CICS clients during the indicated time period.
 - **maxtransactions**—Displays the maximum number of concurrent CICS transactions during the indicated time period.
 - **totalconnections**—Displays the total number of connections to CICS clients used during the indicated time period.
 - **totaltransactions**—Displays the total number of CICS transactions processed during the indicated time period.
-

Defaults

If the kind of statistics display is not specified, **summary** is used.

Command Modes

EXEC

Command History

Release	Modification
12.0(5)XN	This command was introduced.

Usage Guidelines

Summary statistics are displayed by time period, where:

- [24] indicates statistics for the hour in progress.
- [00] through [23] indicate statistics for the preceding 24 hours, with [00] always corresponding to the last midnight-to-1 a.m. period and [23] always corresponding to the last 11 p.m.-to-midnight period, regardless of the current time.
- At the top of each hour, the statistics for the current period are moved from [24] to the appropriate period, [00] through [23], and [24] is reset to 0.

In the following example, at 3 a.m. the statistics for the current period are moved to [02], overwriting the old statistics for that period, and [24] is reset to 0:

At 2:59 a.m.:

```
[24]=228
[00]=217[01]=352[02]=209[03]=313[04]=156. . .
Mid-1 am1-2 a.m.2-3 a.m.3-4 a.m.4-5 a.m. . .
02-24-200102-24-200102-24-200102-23-200102-23-2001. . .
```

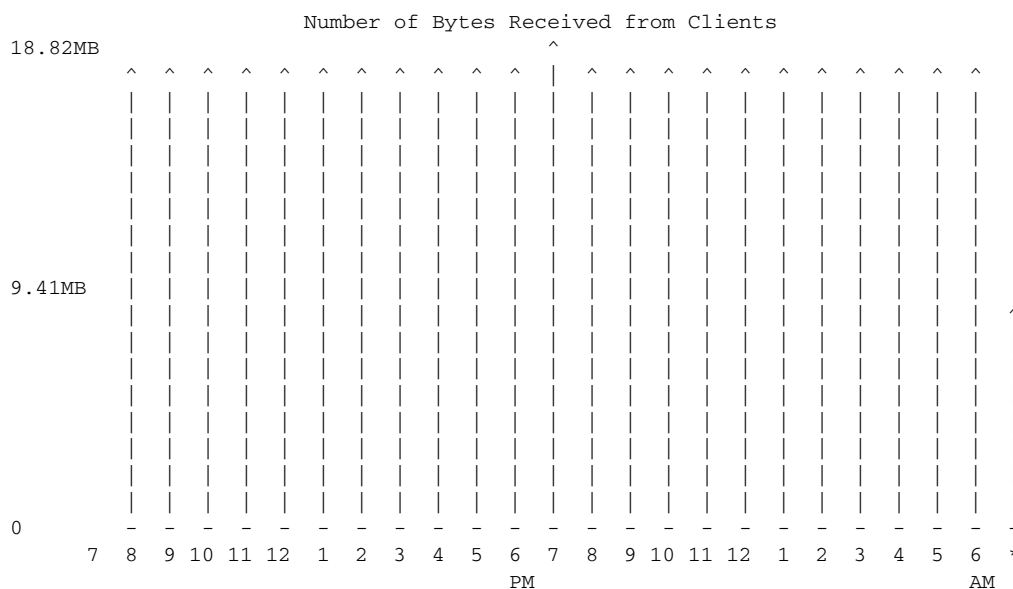
At 3 a.m.:

```
[24]=0
[00]=217[01]=352[02]=228[03]=313[04]=156. . .
Mid-1 am1-2 a.m.2-3 a.m.3-4 a.m.4-5 a.m. . .
02-24-200102-24-200102-24-200102-24-200102-23-2001. . .
```

Examples

The following examples show histogram and summary displays of the **clientreceived** statistic:

Router# **show txconn statistic kind histogram name clientreceived**



Router# **show txconn statistic name clientreceived**

Number of Bytes Received from Clients

---hour---	yesterday ----AM----	yesterday ----PM----	today ----AM----
12:00-12:59		19728481	19727299
01:00-01:59		19732711	19727299
02:00-02:59		19722903	19727382
03:00-03:59		19728398	19731695
04:00-04:59		19729497	19726200
05:00-05:59		19730596	19733893
06:00-06:59		19722986	19708616
07:00-07:59	0	19734992	8736034 *
08:00-08:59	19726283	19725101	
09:00-09:59	19725101	19728398	
10:00-10:59	19726283	19727382	
11:00-11:59	19729497	19730596	

24-hour total: 453731589 (excludes hour in progress *)

Related Commands

Command	Description
show txconn connection	Displays a list of all of the CTRC connections of the router to CICS clients.
show txconn destination	Displays a list of all of the CICS destinations of the current router for CTRC, or displays detailed status information for a specified CTRC CICS destination.
show txconn license	Displays the status of licenses used for CTRC.
show txconn route	Displays a list of all CTRC routes defined for specified CICS transaction IDs, or displays the server routes of a particular CTRC server to CICS.
show txconn server	Displays information about CTRC servers that communicate with CICS.
show txconn transaction	Displays a list of all the CTRC transactions of the current router with CICS, transactions of a specified CTRC server, or transactions of a specified CICS client connection.

show txconn transaction

To display a list of all the current router's Cisco Transaction Connection (CTRC) transactions with Customer Information Control System (CICS), a specified CTRC server's transactions, or a specified CICS client connection's transactions, use the **show txconn transaction** command in user EXEC or privileged EXEC mode.

show txconn transaction [**server** *server-name* | **connection** *connection-id* | *transaction-id*]

Syntax Description		
server <i>server-name</i>	(Optional) Specifies a CTRC server for which to display a list of transactions.	
connection <i>connection-id</i>	(Optional) Specifies a CICS client connection to CTRC for which to display a list of transactions.	
<i>transaction-id</i>	(Optional) Specifies an individual transaction for which to display detailed status information.	

Defaults If no arguments are specified, all the CICS transactions for the current router are listed.

Command Modes User EXEC
Privileged EXEC

Command History	Release	Modification
	12.0(5)XN	This command was introduced.

Examples The following example shows information about all the CICS transactions being handled by the current router:

```
Router# show txconn transaction
```

```
Transaction ID Server      Conn ID   State      TP Name   User ID
-----
6246ECD8      CICSB     62494598  receiving CPMI     QAUSER
62476188      CICSB     62494598  receiving CPMI     QAUSER
623130D4      CICSB     62494598  receiving CPMI     QAUSER
6229E88C      CICSB     62494598  receiving CPMI     QAUSER
```

You can specify a particular transaction ID to display details about it, as shown in the following example:

```
Router# show txconn transaction 6246ECD8
      transaction: 6246ECD8

      server: CICSB
      connection id: 62494598
      state: receiving
      tp name: CPMI
      user id:

      session RU address (OAF+DAF): 6
      idle time: 1788
```

```

--- Transaction Totals ---
number of transactions executed: 1
number of bytes received from client: 1099
number of bytes received from host: 0
    
```

Table 72 describes the significant information shown for each transaction in the order it appears in the display.

Table 72 show txconn transaction Field Descriptions

Field	Description
transaction	Unique identifier for the transaction.
server	CTRC txconn server process that is handling the transaction.
connection id	Unique identifier for the CICS client connection associated with the transaction.
state	Status of the transaction. Values are: <ul style="list-style-type: none"> • closing—Indicates that the Systems Network Architecture (SNA) session is closing. • exception—Indicates that an error has occurred. An error indication will be sent to the client and the host session will be terminated. • exc. resp.—Indicates that the router has sent an error indication to the client. • opening—Indicates that the SNA session is about to open. • parsing FMH—Indicates that the SNA session has received the first portion of a function management (FM) header. • parsing FMH5—Indicates that CTRC is about to establish a SNA session with the host. • parsing FMH7—Indicates that the router just received an error from the CICS client. • parsing DFC—Indicates that the SNA session is about to close. • receiving—Indicates that the SNA session is receiving data from the host. • reset—Indicates that the SNA session is idle, waiting for a new transaction request from the CICS client. • sending—Indicates that the SNA session is sending data to the host. • waiting—Indicates that the SNA session is waiting for data from the client.
tp name	CICS transaction program name.
user id	CICS user ID associated with the transaction.
session RU address	SNA architected address that allows multiple sessions to share one connection.
idle time	Time in milliseconds that the SNA session has been idle.
number of transactions executed	Number of CICS transactions executed by the current SNA session.

Table 72 *show txconn transaction Field Descriptions (continued)*

Field	Description
number of bytes received from client	Number of bytes received from the CICS client during the current SNA session.
number of bytes received from host	Number of bytes received from the CICS host during the current SNA session.

Related Commands

Command	Description
show txconn connection	Displays a list of all of the CTRC connections of the router to CICS clients.
show txconn destination	Displays a list of all of the CICS destinations of the current router for CTRC, or displays detailed status information for a specified CTRC CICS destination.
show txconn server	Displays information about CTRC servers that communicate with CICS.