

SNA Switching Services

This feature module describes the SNA Switching Services (SNASw) feature and includes the following major sections:

- Feature Overview
- Supported Platforms
- Supported MIBs, RFCs, and Standards
- Configuration Tasks
- Verifying SNASw
- Monitoring and Maintaining SNASw
- Troubleshooting Tips
- Configuration Examples
- Command Reference
- Debug Commands
- Error Messages
- Glossary

Feature Overview

Note SNA Switching Services functionality supersedes all functionality previously available in the APPN feature in the Cisco IOS software. SNASw configuration will not accept the previous APPN configuration commands. Previous APPN users should use this chapter to configure APPN functionality using the new SNASw commands.

SNASw provides an easier way to design and implement networks with Systems Network Architecture (SNA) routing requirements. Previously, this network design was accomplished using Advanced Peer-to-Peer Networking (APPN) with full network node (NN) support in the Cisco router. This type of support provided the SNA routing functionality needed, but was inconsistent with the trends in Enterprise networks today. The corporate intranet is replacing the SNA WAN. Enterprises are replacing their traditional SNA network with an IP infrastructure that supports traffic from a variety of clients, using a variety of protocols, requiring access to applications on a variety of platforms, including SNA applications on Enterprise servers.

While SNA routing is still required when multiple servers must be accessed, the number of nodes required to perform this function is decreasing as the IP infrastructure grows and as the amount of native SNA traffic in the network decreases.

SNASw enables an enterprise to develop their IP infrastructure, while meeting SNA routing requirements.

The number of NNs in the network and the amount of broadcast traffic are reduced. Configuration is simplified, and SNA data traffic can be transported within the IP infrastructure. The following features provide this functionality:

- HPR Capable SNA Routing Services
- Branch Extender
- Enterprise Extender (HPR/IP)
- Usability Features
- Management Enhancements
- LAN and IP-Focused Connection Types

HPR Capable SNA Routing Services

SNASw provides the following SNA routing functions:

- Routes SNA sessions between clients and target SNA data hosts.
- Supports full SNA class of service (COS) features.
- Controls SNA traffic in a multiprotocol environment in conjunction with other Cisco IOS quality of service (QoS) features.
- Supports networks with a high proportion of SNA traffic and multiple enterprise servers, especially those that continue to support the traditional SNA endstation platform and new client types.
- Supports all types of SNA application traffic including traditional 3270 and peer LU 6.2.
- Supports an OS/390 Parallel Sysplex configuration, working in conjunction with the IBM Communications Server for S/390 (formerly VTAM) and the MVS Workload Manager, to provide higher availability in the data center using the High Performance Routing (HPR) feature.
- Supports System Services Control Point (SSCP) services to downstream SNA devices using the Dependent LU Requester (DLUR) feature.
- Provides dynamic link connectivity using connection networks (CNs), which eliminates much of the configuration required in networks with numerous data hosts.

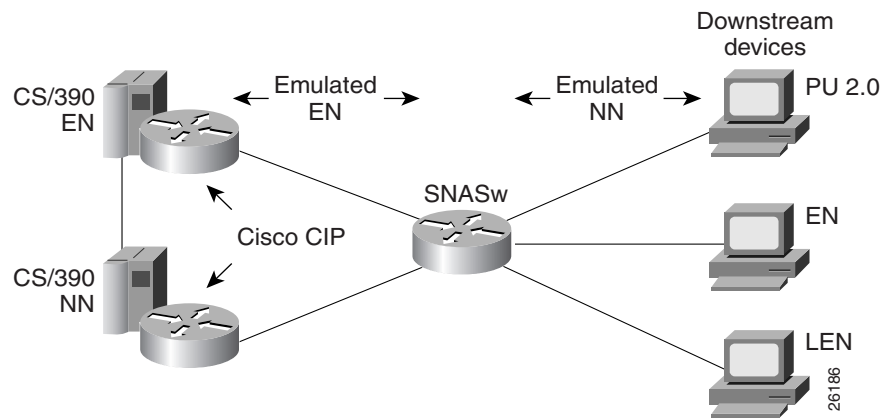
Branch Extender

SNASw features use branch network nodes (BrNNs). The Branch Extender (BX) function enhances scalability and reliability of SNA routing nodes by eliminating topology updates and broadcast directory storms that can cause network instability. BX appears as an NN to downstream end node (EN), low-entry networking (LEN) node, and PU 2.0 devices, while also appearing as an EN to upstream devices. The BX function eliminates APPN topology and APPN broadcast search flows between SNASw nodes and the SNA data hosts in the network. This feature is key to providing a reliable turn-key installation because the network administrator no longer needs to develop in-depth

knowledge of the level and characteristics of broadcast directory search and topology update traffic in the network. Such knowledge and analysis was commonly required to build successful networks utilizing NN technology without BX.

Figure 1 illustrates the BX functionality.

Figure 1 BX Functionality

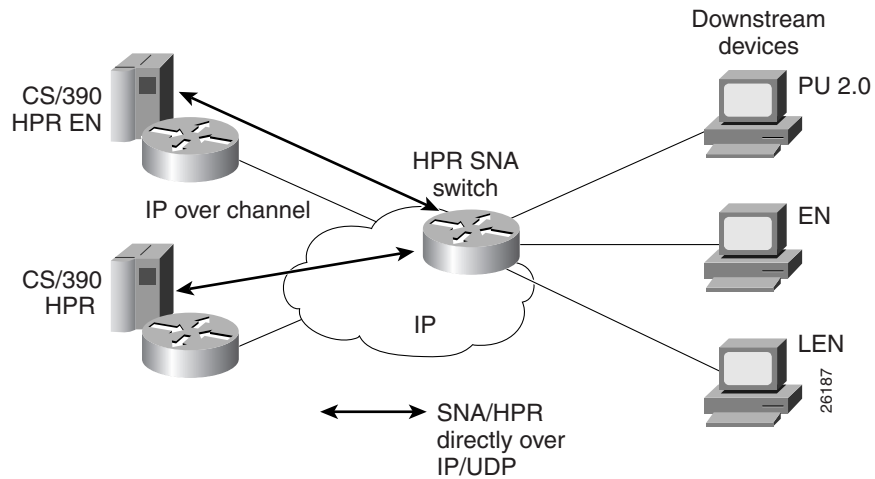


Enterprise Extender (HPR/IP)

SNASw also supports the Enterprise Extender (EX) function. EX offers SNA HPR support directly over IP networks. EX also uses connectionless User Datagram Protocol (UDP) transport. SNA COS and transmission priority are maintained by mapping the transmission priority to the IP precedence and by mapping transmission priority to separate UDP port numbers, allowing the IP network to be configured based on these elements. Cisco's IP prioritization technologies, such as weighted fair queuing (WFQ), prioritize the traffic through the IP network. EX support on the IBM Communications Server for S/390 allows users to build highly reliable SNA routed networks that run natively over an IP infrastructure directly to the Enterprise servers. These network designs reduce points of failure in the network and provide reliable SNA networks.

Figure 2 illustrates the EX functionality.

Figure 2 EX Functionality



Usability Features

SNASw contains the following usability features designed to make SNA networks easier to design and maintain:

- Dynamic CP Name Generation Support
- Dynamic SNA BTU Size
- Responsive Mode Adaptive Rate-Based Flow Control
- User-Settable Port Limits

Dynamic CP Name Generation Support

When scaling the SNASw function to hundreds or thousands of nodes, many network administrators find that defining a unique control point (CP) name on each node provides unnecessary configuration overhead. Dynamic CP name generation offers the ability to use the Cisco IOS hostname as the SNA CP name or to generate a CP name from an IP address. These facilities reuse one SNASw configuration across many routers and eliminate the specific configuration coordination previously required to configure a unique CP name for each SNA node in the network. However, the ability to explicitly configure each CP name still exists.

Dynamic SNA BTU Size

SNASw analyzes the maximum transmission unit (MTU) size of router interfaces configured for native LAN interfaces such as Token Ring, Ethernet and FDDI, and dynamically assigns the best MTU values for that specific port. For other interface types, SNASw provides the maximum BTU parameter in the port configuration. For server-dependent PU 2.0 devices, SNASw uses the downstream MAXDATA value from the host and then dynamically sets the SNA BTU for that device to the MAXDATA value.

DLUR Connect-Out

SNASw can receive connect-out instructions from the IBM Communications Server for S/390. This function allows the system to dynamically connect-out to devices that are configured on the host with the appropriate connect-out definitions. This feature allows connectivity to SNA devices in the network that were traditionally configured for connect-out from the host.

Note DLUR connect-out can be performed over any supported data-link type.

Responsive Mode Adaptive Rate-Based Flow Control

Early HPR implementations failed to perform well in environments subject to packet loss (for example, Frame Relay, IP transport) and performed poorly when combined with other protocols in multiprotocol networks. SNASw implements the second-generation HPR flow control architecture, called Responsive Mode Adaptive Rate-Based (ARB) architecture. Responsive Mode ARB addresses all the drawbacks of the earlier ARB implementation, providing faster ramp-up, better tolerance of lost frames, and better tolerance of multiprotocol traffic.

User-Settable Port Limits

SNASw offers full control over the number of devices supported by a specific node. The max-links configuration on the SNASw port controls the number of devices that are served by this node. When the max-links limit is reached, SNASw no longer responds to explorers attempting to establish new connections. SNASw allows load sharing among different SNASw nodes that offer service to the same SNA MAC addresses.

Management Enhancements

SNASw contains the following enhanced tools for managing SNA networks:

- Console Message Archiving
- Data-Link Tracing
- Interprocess Signal Tracing
- Trap MIB Support for Advanced Network Management Awareness

Console Message Archiving

Messages issued by SNASw are archived in a buffer log that is queried and searched on the console or transferred to a file server for analysis. Each message has a single line that identifies the nature of the event that occurred. The buffer log also maintains more detailed information about the message issued.

Data-Link Tracing

SNA frames entering or leaving SNASw are traced to the console or to a cyclic buffer. These frames are analyzed at the router or transferred to a file server for analysis. The trace is sent to a file server in a SNA-formatted text file or in binary format readable by existing traffic analysis applications. SNASw also captures record frames natively, eliminating the need for network analyzers to capture network events for analysis.

Interprocess Signal Tracing

The SNASw internal information is traced in binary form, offering valuable detailed internal information to Cisco support personnel. This information helps diagnose suspected defects in SNASw.

Trap MIB Support for Advanced Network Management Awareness

SNASw supports the APPN Trap MIB, which proactively sends traps with information about changes in SNA resource status. This implementation reduces the frequency of SNMP polling necessary to manage SNA devices in the network.

LAN and IP-Focused Connection Types

SNASw supports several connection types to serve all SNA connectivity options, including the following types:

- Token Ring, Ethernet, and FDDI
- Virtual Token Ring
- Virtual Data-Link Control
- Native IP Data-Link Control (HPR/IP)

Token Ring, Ethernet, and FDDI

SNASw natively supports connectivity to Token Ring, Ethernet, and FDDI networks. In this configuration mode, the MAC address used by SNASw is the local configured or default MAC address of the interface.

Virtual Token Ring

Using virtual Token Ring allows SNASw access to source-route bridging (SRB), which allows the following configuration:

- Attachment to Local LANs
- Connection to Frame Relay Transport Technologies

- Connection to Channel Interface Processor and Channel Port Adapter

Attachment to Local LANs

Virtual Token Ring allows you to connect to local LAN media through SRB technology. Because there is no limit to the number of virtual Token Ring interfaces that can connect to a specific LAN, this technology allows configuration of multiple MAC addresses, which respond to SNA requests over the same LAN. When using native LAN support, SNASw responds only to requests that target the MAC address configured on the local interface. Virtual Token Ring and SRB allow SNASw to respond to multiple MAC addresses over the same physical interface.

Connection to Frame Relay Transport Technologies

Virtual Token Ring and SRB connect SNASw to a SNA Frame Relay infrastructure. FRAS host and SRB Frame Relay are configured to connect virtual Token Ring interfaces that offer SNASw support for Frame Relay boundary access node (BAN) or boundary network node (BNN) technology.

Connection to Channel Interface Processor and Channel Port Adapter

Virtual Token Ring and SRB can be used to connect SNASw to the Channel Interface Processor (CIP) or Channel Port Adapter (CPA) in routers that support those interfaces.

Virtual Data-Link Control

SNASw uses Virtual Data-Link Control (VDLC) to connect to DLSw+ transport and local switching technologies. VDLC is used for a number of connectivity options, including the following two:

- Transport over DLSw+ Supported Media
- DLC Switching Support for Access to SDLC and QLLC

Transport over DLSw+ Supported Media

Using VDLC, SNASw gains full access to the DLSw+ transport facilities, including DLSw+ transport over IP networks, DLSw+ transport over direct interfaces, and DLSw+ support of direct Frame Relay encapsulation (without using IP).

DLC Switching Support for Access to SDLC and QLLC

Through VDLC, SNASw gains access to devices connecting through SDLC and QLLC. This access allows devices connecting through SDLC and QLLC access to SNASw.

Native IP Data-Link Control (HPR/IP)

SNASw support for the EX function provides direct HPR over UDP connectivity. This support is configured for any interface that has a configured IP address. HPR/IP uses the interface IP address as the source address for IP traffic originating from this node.

Benefits

Scalable APPN Networks

With the BX function, the number of network nodes and the amount of broadcast traffic are reduced.

IP Infrastructure Support

Limiting SNASw routers to the data center and using the BX function eliminates SNA broadcasts from the IP network. With EX, SNA traffic is routed using the IP routing infrastructure while maintaining end-to-end SNA services.

Reduced Configuration Requirements

By eliminating NNs and using the BX function, configuration tasks are minimized. Additionally, Cisco has enhanced its auto-configuration capability to eliminate previously required commands.

Network Design Simplicity

By placing all SNA routers in the data center, few SNA routers are required, and they can be easily configured using virtually identical configurations.

Improved Availability

By adding Cisco-unique capabilities to connect-out and distribute traffic across multiple ports, access to resources is improved and traffic can be distributed across multiple ports. Additionally, by supporting the newest HPR ARB flow control algorithm, bandwidth management for SNA traffic is improved.

Increased Management Capabilities

Two new traces, interprocess and data-link, provide an easier way to view SNASw activity. The APPN Trap MIB allows the user to notify the operator in event of a debilitating problem. Console message archiving provides better tracking of network activity. The ability to format traces in a format so that they are readable by other management products simplify network management because results are more readily available.

Architectural Compliance

Even though SNASw is easier to use and SNASw networks are easier to design, SNASw interfaces with APPN implementations on the market: ENs, NNs, and LEN nodes. It also provides full DLUR support to allow older resources to take advantage of the APPN architecture.

Restrictions

Memory Requirements

SNASw requires sufficient memory to perform properly. Table 1 describes the SNASw memory requirements.

Table 1 SNASw Memory Requirements

Platform	Flash	Memory
Cisco 2500	16 MB	16 MB minimum, 2 MB I/O memory
Cisco 2600 and 3600	8 MB	64 MB (shared between processor and I/O memory)
Cisco 4500 and 4700	8 MB	64 MB processor memory, 16 MB I/O memory
Cisco 7200 and 7500 and Catalyst 5000 RSM	8 MB	<p>The following list details the memory requirements for this platform:</p> <ul style="list-style-type: none"> • 64 MB (shared between processor and I/O memory) for lightly loaded installations. • 128 MB recommended for moderate to heavy loaded installations • 256 MB recommended for heaviest loaded installations and maximum failover/backup capacity.

Supported Platforms

SNASw features are supported on the following platforms:

- Cisco 2500 series
- Cisco 2600 series
- Cisco 3600 series
- Cisco 4000 series
- Cisco 7200 series
- Cisco 7500 series
- Catalyst 5000 series running route switch modules

Supported MIBs, RFCs, and Standards

MIBs

- RFC Standard 2155 APPN MIB with Branch Extender Extensions
- RFC Standard 2232 DLUR MIB
- AIW Standard APPN Trap MIB

For descriptions of supported MIBs and how to use MIBs, see the Cisco MIB web site on CCO at <http://www.cisco.com/public/sw-center/netmgmt/cmtk/mibs.shtml>.

RFCs

- RFC 2353 APPN/HPR in IP Networks

Standards

- AIW Standard Branch Extender and Enterprise Extender implementation

Configuration Tasks

To configure SNASw in your network, perform the tasks discussed in the following sections. Because of the hierarchical nature of SNASw definitions, configure SNASw in the order specified. Definition of an SNASw cpname and at least one SNASw port are required. The other tasks are optional. Depending on your network, they may need to be configured.

- Defining a SNASw Control Point Name
- Configuring a DLUS (Optional)
- Configuring DLC Support (Optional)
- Defining a SNASw Port
- Defining a SNASw Link (Optional)
- Defining a SNASw Partner LU Location (Optional)
- Starting SNASw and SNASw Ports and Links (Optional)
- Stopping SNASw and SNASw Ports and Links (Optional)

Defining a SNASw Control Point Name

A SNASw CP definition is required to use SNASw. This definition adds the fully qualified CP name for the node. The fully qualified CP name for the node is a combination of a network identifier and a CP name. The network identifier is typically configured to match the identifier configured in the SNA hosts in the network. The CP name identifies this node uniquely within the particular subnetwork.

To define a SNASw CP name, use the following command in global configuration mode:

Command	Purpose
Router# snasw cpname <i>netid.cpname</i> [hostname] [ip-address <i>interface-name</i>]	Defines an SNASw CP name.

Note Configuring a CP name activates SNASw. Conversely, removing a CP name definition deactivates it.

Configuring a DLUS

If you plan to use DLUR to provide services for dependent LUs connected to this SNASw node, you must configure at least one primary DLUS. In addition, you can configure node-wide defaults for the DLUS and backup DLUS that this node contacts.

To specify DLUR or DLUS services for this CP name, use the following command in SNASw control point configuration mode:

Command	Purpose
Router# snasw dlus <i>primary-dlus-name</i> [backup <i>backup-dlus-name</i>] [prefer-active] [retry <i>interval count</i>]	Specifies the parameters related to DLUR/DLUS functionality.

Configuring DLC Support

There are several ways that SNASw enables connectivity over different interface types. In the simplest cases, using automatically configured real LAN interfaces enables default interface definitions. SNASw is also capable of connecting to virtual interfaces that are not preconfigured on the router.

Virtual Token Ring interfaces are useful for connections to a CIP/CPA in the same router and for connectivity to Frame Relay transport solutions via SRB. Multiple virtual Token Ring interfaces allow SNASw to respond to multiple MAC addresses through the same real router LAN interface. Use the following commands to configure a virtual interface:

Step	Command	Purpose
1	Router# interface Virtual-TokenRing <i>number</i>	Configures a virtual Token Ring interface to connect to an SRB infrastructure.
2	Router# source-bridge <i>vring bridge ring-group</i>	Associates a virtual Token Ring interface with a source-route bridge group.
3	Router# source-bridge <i>spanning</i>	Indicates this interface should respond to spanning-tree explorers.
4	Router# mac-address <i>mac-address</i>	Configures a MAC address on a real or virtual LAN interface.

Defining a SNASw Port

A SNASw port definition associates SNA capabilities with a specific interface that SNASw will use. Each interface that is used for SNASw communications requires an SNASw port definition statement.

Note SNASw ports do not dynamically adjust to interface configuration changes that are made when SNASw is active. For example, if you change an interface MAC address or MTU, SNASw may not recognize the new value. If you want to make changes to an interface and want SNA Switch to adjust to the new interface changes, you may need to either delete and redefine the port that is using that interface or stop and restart SNASw.

A port may also be associated with the VDLC or HPR/IP features. The VDLC feature enables SNASw to send and receive traffic to other Cisco IOS software features such as DLSw+. If a port is associated with a VDLC interface, that port does not take an interface name as generally required by the **snasw port** command.

The HPR/IP feature establishes SNASw links over IP networks. If a port is associated with an HPR/IP interface, then you must configure HPR/IP first, followed by the interface name.

Defining a SNASw Link

To associate a port with a specific interface, use the following command in global configuration mode:

Command	Purpose
Router# snasw port <i>portname</i> [hpr-ip vdlc vring mac mac-address] [<i>interfacename</i>] [conntype nohpr len dyncplen] [dlus-required] [hpr-sap hpr-sap-value] [max-links link-limit-value] [sap sap-value] [vname virtual-node-name] [nostart]	Specifies the DLCs used by SNASw.

Note The interface must be defined before the ports that use them are defined and activated.

Note SNASw analyzes the maximum transmission unit (MTU) size of router interfaces configured for native LAN interfaces such as Token Ring, Ethernet and FDDI, and dynamically assigns the best MTU values for that specific port. For other interface types, SNASw provides the maximum BTU parameter in the port configuration. For server-dependent PU 2.0 devices, SNASw uses the downstream MAXDATA value from the host and then dynamically sets the SNA BTU for that device to the MAXDATA value.



Warning Changing active SNASw interfaces might interrupt SNASw connections.

Defining a SNASw Link

In many cases, if the partner node is initiating the connection, a link definition is not necessary. A link definition is built dynamically when the partner node initiates the connection. Links typically need to be defined for upstream connectivity. Downstream devices initiate connectivity into SNASw; therefore, a link definition is not necessary to downstream devices.

In SNASw link configuration, you must associate the link with the SNASw port that it will use. For all traditional links, the **snasw link** command must be associated with a remote MAC address. The MAC address identifies the partner address to which SNASw attempts to establish a link. For all HPR/IP links, the command is associated with a remote IP address. The IP address identifies the partner address to which SNASw attempts to establish a link.

To define a SNASw logical link, use the following command in global configuration mode:

Command	Purpose
Router# snasw link <i>linkname</i> port portname [rmac mac-address ip-dest ip-address] [rsap sap-value] [nns] [tgp [high low medium]] [nostart]	Defines a SNASw logical link.

Defining a SNASw Partner LU Location

The SNASw directory stores names of resources and their owners. Usually this information is learned dynamically using Locate searches. You might wish to manually define the location of specific resources. SNASw is known for its dynamic capabilities, not its need for system definition. For this reason, and for easier management, define location names only when necessary.

When a LEN node is attached to a SNASw node, all destination resources that reside on the LEN node must be defined to SNASw if the resource is to be the target of a session request. This definition enables the LEN node resources to be reached through SNASw.

To define a resource location, use the following command in global configuration mode:

Command	Purpose
Router# snasw location <i>resource-name</i> owning-cp <i>cpname</i>	Configures the location of a resource.

Note You must configure an owning CP for each partner LU configured. The owning CP is the CP name for the LEN node, EN, or NN on which the resource resides.

Starting SNASw and SNASw Ports and Links

SNASw starts automatically when a CP name is configured. SNASw ports and links are also automatically started once they are configured. If stopped, they can be restarted using one of the following privileged EXEC commands:

Command	Purpose
Router# snasw start	Starts SNASw.
Router# snasw start link <i>linkname</i>	Activates the specified SNASw link.
Router# snasw start port <i>portname</i>	Activates the specified SNASw port.

Stopping SNASw and SNASw Ports and Links

Unless otherwise defined with the **nostart** operand, SNASw and SNASw port and link definitions are started automatically when SNASw starts. To stop SNASw or to stop SNASw ports and links when making configuration changes or when resetting the ports or links, use one of the following commands in privileged EXEC mode:

Command	Purpose
Router# snasw stop	Deactivates SNASw.
Router# snasw stop link <i>linkname</i>	Deactivates the specified SNASw link.
Router# snasw stop port <i>portname</i>	Deactivates the specified SNASw port.

Note Removing a CP name definition stops SNASw.

Verifying SNASw

To verify that you have SNA connectivity between the router and each host system, enter the **ping sna** command, specifying the mode and the link name:

```
ping sna -m IBMRDB STARW.BUDDHA
```

Monitoring and Maintaining SNASw

You can monitor the status and configuration of SNASw by issuing any of the following commands in privileged EXEC mode:

Command	Purpose
Router# ping sna <i>netidid.remotelocationname</i>	Initiates APPC session and executes the APING transaction program.
Router# show snasw class-of-service [brief detail]	Displays the predefined COS definitions
Router# show snasw connection-network [brief detail]	Displays the connection networks (virtual nodes) currently known to SNASw.
Router# show snasw directory [name <i>resourcenamefilter</i>] [brief detail]	Displays the SNASw directory entries.
Router# show snasw dlus [brief detail]	Displays the SNASw DLUS objects.
Router# show snasw link [brief detail] [cpname <i>cpnamefilter</i>] [name <i>linknamefilter</i>] [port <i>portnamefilter</i>] [rmac <i>macfilter</i>] [xid <i>xidfilter</i>]	Displays the SNASw link objects.
Router# show snasw lu [brief detail] [host-pu <i>puname</i>] [name <i>luname</i>] [pu <i>puname</i>]	Displays the SNASw dependent LUs.
Router# show snasw mode	Displays modes predefined to SNASw.
Router# show snasw node	Displays details of the SNASw operation.
Router# show snasw port [brief detail] [name <i>portnamefilter</i>]	Displays the SNASw port objects.
Router# show snasw pu [brief detail] [dlus <i>dlusfilter</i>] [host-pu <i>hostpufilter</i>] [name <i>punamefilter</i>]	Displays the SNASw PUs.
Router# show snasw rtp [brief detail] [class-of-service <i>cosname</i>] [name <i>connectionnamefilter</i>] [tcid <i>tcidconnection</i>]	Displays the SNASw RTP connections.

Troubleshooting Tips

You can troubleshoot SNASw by issuing any of the following commands in privileged EXEC mode:

Command	Purpose
Router# ping sna <i>netidid.remotelocationname</i>	Initiates LU6.2 sessions with a named partner node.
Router# show snasw dlctrace [all last next] [brief detail] [filter <i>filter-string</i>] [id <i>recordid</i>]	Displays the captured DLC trace information to the console.
Router# show snasw ipstrace [all next last] [filter <i>filterstring</i>] [id <i>recordid</i>]	Displays interprocess signal trace on the router console.
Router# show snasw pdlog [brief detail] [all] [last] [next] [filter <i>filterstring</i>] [id <i>recordid</i>]	Displays entries in the cyclical problem determination log to the console.
Router# show snasw summary-ipstrace [id <i>recordid</i>] [last <i>number-records</i>] [filter <i>number-records</i>] [all next last]	Displays the special “footprint” summary interprocess signal trace on the router console.
Router# snasw dump	Initiates file transfer of SNASw trace files from internal buffers to a file server.

You can also troubleshoot SNASw by issuing any of the following commands in global configuration mode:

Command	Purpose
Router# snasw dlcfiler [<i>link linkname</i>] [<i>port portname</i>] [<i>rmac mac-address-value</i>] [<i>rtp rtpname</i>] [[<i>type cls</i>] [<i>hpr-cntl</i>] [<i>hpr-data</i>] [<i>isr</i>] [<i>xid</i>]] [<i>session session address</i>]	Filters frames captured by the snasw dlctrace or debug snasw dlc commands.
Router# snasw dlctrace [<i>buffer-size buffer-size-value</i>] [<i>file filename</i>] [<i>frame-size frame-size-value</i>] [<i>format brief detail</i>] <i>analyzer</i>]	Traces frames arriving at and leaving SNASw.
Router# snasw event [<i>cpcp</i>] [<i>defined-ls</i>] [<i>dlc</i>] [<i>implicit-ls</i>] [<i>port</i>]	Indicates which events are logged to the console or trap-mib.
Router# snasw ipsfilter [<i>as</i>] [<i>asm</i>] [<i>bm</i>] [<i>ch</i>] [<i>cpc</i>] [<i>cs</i>] [<i>di</i>] [<i>dlc</i>] [<i>dma</i>] [<i>dr</i>] [<i>ds</i>] [<i>es</i>] [<i>ha</i>] [<i>hpr</i>] [<i>hs</i>] [<i>lm</i>] [<i>mds</i>] [<i>ms</i>] [<i>nof</i>] [<i>pc</i>] [<i>ps</i>] [<i>pu</i>] [<i>px</i>] [<i>rm</i>] [<i>rtp</i>] [<i>ru</i>] [<i>scm</i>] [<i>sco</i>] [<i>sm</i>] [<i>spc</i>] [<i>ss</i>] [<i>trs</i>]	Filters interprocess signal trace elements being traced via the snasw ipstrace or debug snasw ips commands.
Router# snasw ipstrace [<i>buffer-size buffer-size-value</i>] [<i>file filename</i>]	Sets up a trace buffer and begins tracing IPS trace elements.
Router# snasw pdlog [<i>problem error info</i>] [<i>buffer-size</i> <i>buffer-size-value</i>] [<i>file filename</i>]	Controls logging of messages to the console and the SNA problem determination log cyclic buffer.

Configuration Examples

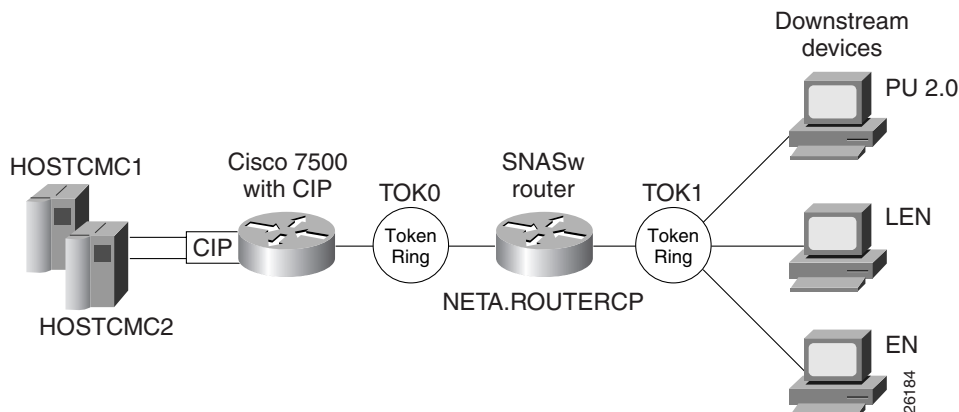
This section provides the following configuration examples:

- SNASw over Token Ring without HPR Configuration Example
- SNASw over Token Ring with HPR Configuration Example
- SNASw Connecting to a CIP over VirtualToken Ring with SRB Configuration Example
- SNASw over HPR/IP Configuration Example
- SNASw using Local Switching with QLLC Configuration Example
- SNASw using Local Switching with SDLC Configuration Example
- SNASw with Ethernet LAN Emulation over ATM Configuration Example
- SNASw with SRB Frame Relay (Frame Relay BAN Support) Configuration Example
- SNASw with FRAS Host (Downstream Frame Relay BNN Support) Configuration Example

SNASw over Token Ring without HPR Configuration Example

Figure 3 illustrates a basic SNASw link over Token Ring without HPR. In this figure, Port TOK0 is used for upstream links toward the host, and Port TOK1 is used for downstream devices connecting to SNASw. These devices are configured to connect to 4000.1234.abcd.

Figure 3 SNASw over Token Ring without HPR



The configuration for SNASw over Token Ring without HPR is as follows:

```
interface TokenRing0/0
no ip address
no ip directed-broadcast
no ip route-cache
no ip mroute-cache
ring-speed 16

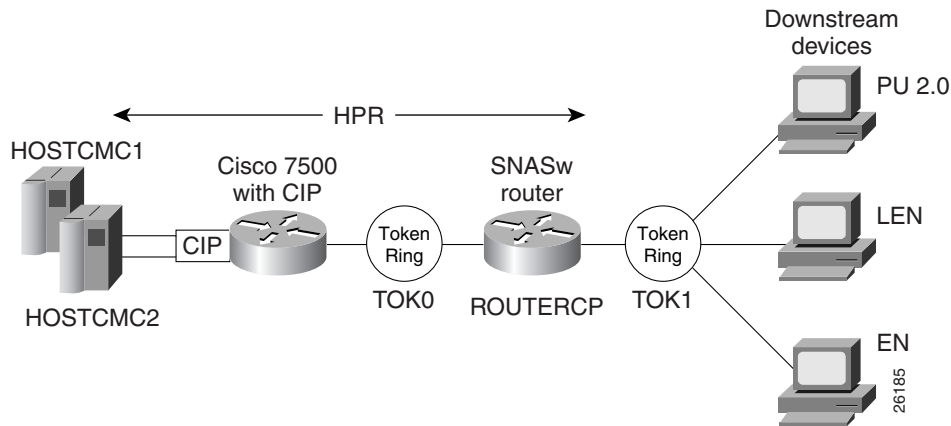
interface TokenRing0/1
mac-address 4000.1234.abcd
no ip address
no ip directed-broadcast
no ip route-cache
no ip mroute-cache
ring-speed 16

snasw cname NETA.ROUTERCP
snasw dlus NETA.HOSTCMC1 backup NETA.HOSTCMC2
snasw port TOK0 TokenRing0/0 conntype nohpr
snasw port TOK1 TokenRing0/1 conntype nohpr
snasw link HOSTCMC1 port TOK0 rmac 4000.aaaa.cccc
snasw link HOSTCMC2 port TOK0 rmac 4000.aaaa.dddd
```

SNASw over Token Ring with HPR Configuration Example

Figure 4 illustrates a basic SNASw link over Token Ring with HPR support. In this figure, Port TOK0 is used for upstream links toward the host, and Port TOK1 is used for downstream devices connecting to SNASw. These devices are configured to connect to 4000.1234.abcd.

Figure 4 SNASw over Token Ring with HPR



The configuration for SNASw over Token Ring without HPR is as follows:

```
interface TokenRing0/0
  no ip address
  no ip directed-broadcast
  no ip route-cache
  no ip mroute-cache
  ring-speed 16

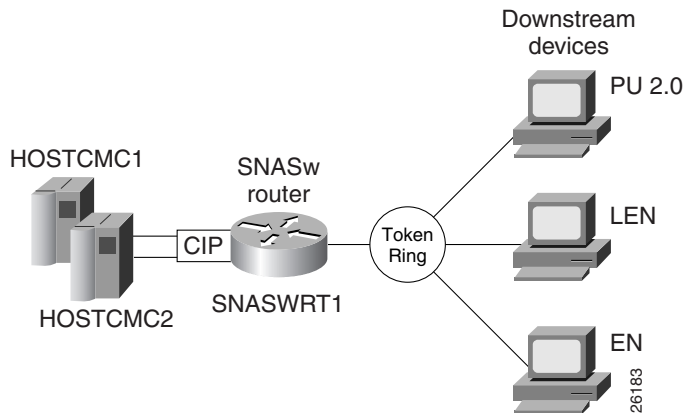
interface TokenRing0/1
  mac-address 4000.1234.abcd
  no ip address
  no ip directed-broadcast
  no ip route-cache
  no ip mroute-cache
  ring-speed 16

snasw cpname NETA.ROUTERCP
snasw dlus NETA.HOSTCMC1 backup NETA.HOSTCMC2
snasw port TOK0 TokenRing0/0
snasw port TOK1 TokenRing0/1
snasw link HOSTCMC1 port TOK0 rmac 4000.aaaa.cccc
snasw link HOSTCMC2 port TOK0 rmac 4000.aaaa.dddd
```

SNASw Connecting to a CIP over VirtualToken Ring with SRB Configuration Example

In Figure 5, SNASw co-exists with CSNA CIP channel support in the same router. Two adapters are opened on the CIP, one from HOSTCMC1 on adapter 1 and one from HOSTCMC2 on adapter2. SNASw is configured to connect these two hosts through port CIP via the SRB infrastructure. In addition, SNASw has two ports configured for downstream devices to connect. Using this configuration, SNASw responds to downstream clients connecting to 4000.1234.1088 and 4000.1234.1089 through a single Token Ring interface (Token Ring 0/0). The router's hostname is used to derive an SNASw CP name, which is NETA.SNASWRT1.

Figure 5 SNASw Connecting to a CIP over VirtualToken Ring with SRB



The configuration for SNASw connecting to a CIP over virtual Token Ring with SRB is as follows:

```

hostname snaswrt1
!
source-bridge ring-group 100
source-bridge ring-group 200
!
interface Channel2/1
no ip address
no keepalive
csna E040 70
csna E020 72
!
interface Channel2/2
no ip address
no keepalive
lan TokenRing 0
source-bridge 101 1 100
adapter 0 4000.0000.cccc
adapter 1 4000.0000.dddd
!
interface TokenRing0/0
no ip address
ring-speed 16
source-bridge 201 1 200
source-bridge spanning
!
interface Virtual-TokenRing0
no ip address
no ip directed-broadcast
ring-speed 16
source-bridge 102 1 100
source-bridge spanning
!
interface Virtual-TokenRing1
mac-address 4000.1234.1088
no ip address
no ip directed-broadcast
ring-speed 16
source-bridge 202 1 200
source-bridge spanning
!
interface Virtual-TokenRing2
mac-address 4000.1234.1089
no ip address
no ip directed-broadcast
    
```

```

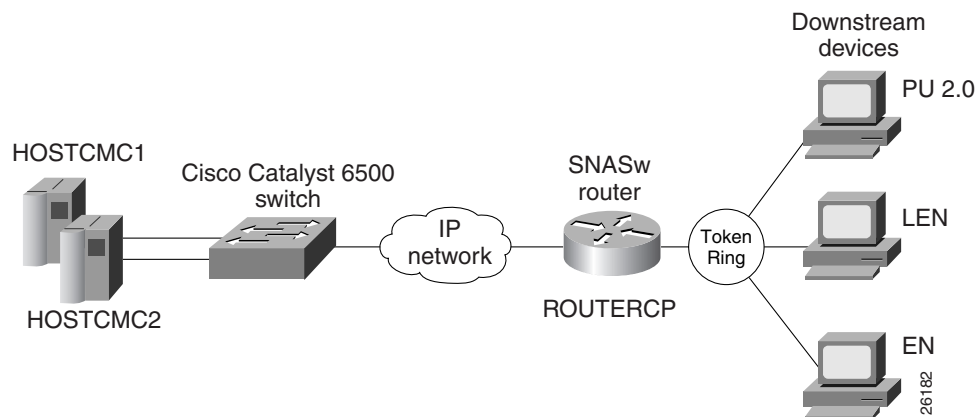
ring-speed 16
source-bridge 203 1 200
!
snasw cpname NETA hostname
snasw dlius NETA.HOSTCMC1 backup NETA.HOSTCMC2
snasw port CIP Virtual-TokenRing0
snasw port DOWNSTRM Virtual-TokenRing1 conntype no-hpr
snasw port DOWNSTRM Virtual-TokenRing2 conntype no-hpr
snasw link HOSTCMC1 port CIP rmac 4000.0000.cccc
snasw link HOSTCMC2 port CIP rmac 4000.0000.dddd

```

SNASw over HPR/IP Configuration Example

Figure 6 illustrates a basic SNASw link over HPR/IP on the upstream connections to the host. The downstream devices connect through Token Ring 0/0.

Figure 6 SNASw over HPR/IP



The configuration for SNASw over HPR/IP is as follows:

```

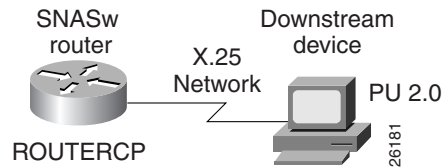
interface Ethernet1/0
ip address 172.18.49.28 255.255.255.0
no ip directed-broadcast
no ip route-cache
no ip mroute-cache
!
interface TokenRing0/0
mac-address 4000.1234.1088
no ip address
no ip directed-broadcast
no ip route-cache
no ip mroute-cache
ring-speed 16
!
snasw cpname NETA.ROUTERCP
snasw dlius NETA.HOSTCMC1 backup NETA.CMCHOST2
snasw port HPRIP hpr-ip Ethernet1/0
snasw port TOK0 TokenRing0/0
snasw link HOSTCMC1 port HPRIP ip-dest 172.18.51.1
snasw link HOSTCMC2 port HPRIP ip-dest 172.18.51.2

```

SNASw using Local Switching with QLLC Configuration Example

Figure 7 illustrates a basic SNASw link using local switching with QLLC.

Figure 7 SNASw using Local Switching with QLLC



Note This figure and example show only the configuration related to the downstream QLLC device. Upstream connectivity is not shown in this configuration segment.

The configuration for SNASw link using Local Switching with QLLC is as follows:

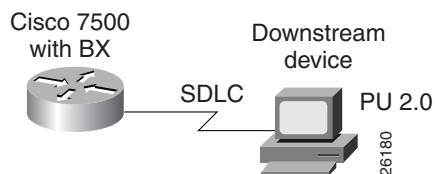
```

!
source-bridge ring-group 70
dlsw local-peer
!
interface Serial4/0
no ip address
no ip directed-broadcast
encapsulation x25
no ip mroute-cache
no keepalive
qllc accept-all-calls
clockrate 19200
qllc dlsw vmacaddr 4000.1111.1111 partner 4000.2222.2222
!
snasw cpname NETA.ROUTERCP
snasw port VDLCP vdlc 70 mac 4000.2222.2222 conntype nohpr
    
```

SNASw using Local Switching with SDLC Configuration Example

Figure 8 illustrates a basic SNASw link using local switching with SDLC.

Figure 8 SNASw using Local Switching with SDLC



Note This figure and example show only the configuration related to the downstream SDLC device. Upstream connectivity is not shown in this configuration segment.

The configuration for SNASw link using local switching with SDLC is as follows:

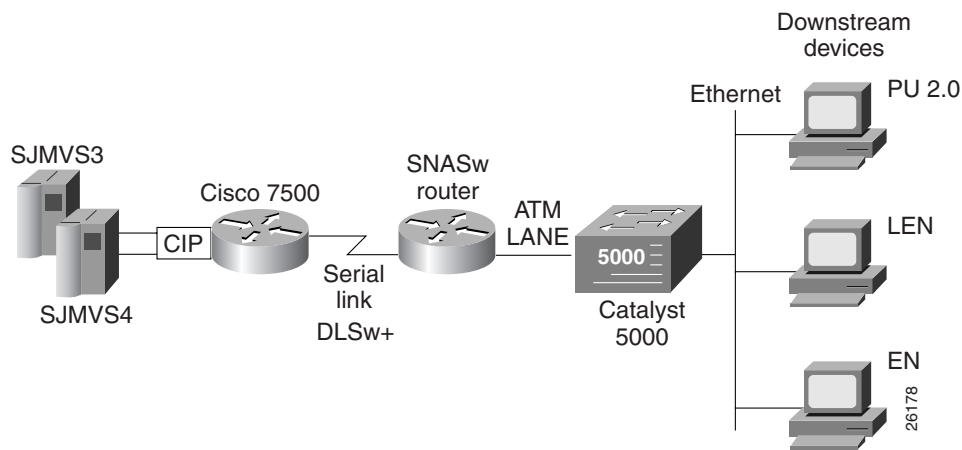
```

!
source-bridge ring-group 1689
dlsw local-peer
!
interface Serial1
no ip address
no ip directed-broadcast
encapsulation sdlc
no ip route-cache
no ip mroute-cache
no keepalive
clockrate 9600
sdlc role primary
sdlc vmac 4000.3174.0000
sdlc address C2
sdlc sdlc-largest-frame C2 521
sdlc xid C2 05DABBBA
sdlc partner 4000.4500.00f0 C2
sdlc dlsw C2
!
snasw cpname NETA.ROUTERCO
snasw port SDLC vdlc 1689 mac 4000.4500.00f0
    
```

SNASw with Ethernet LAN Emulation over ATM Configuration Example

In Figure 9, downstream stations connect in SNASw over ATM (Ethernet LANE). Upstream connectivity is achieved using DLSw+ for connections to the host systems. Downstream devices connect to the standby MAC address on the ATM sub-interface.

Figure 9 SNASw with Ethernet LANE over ATM



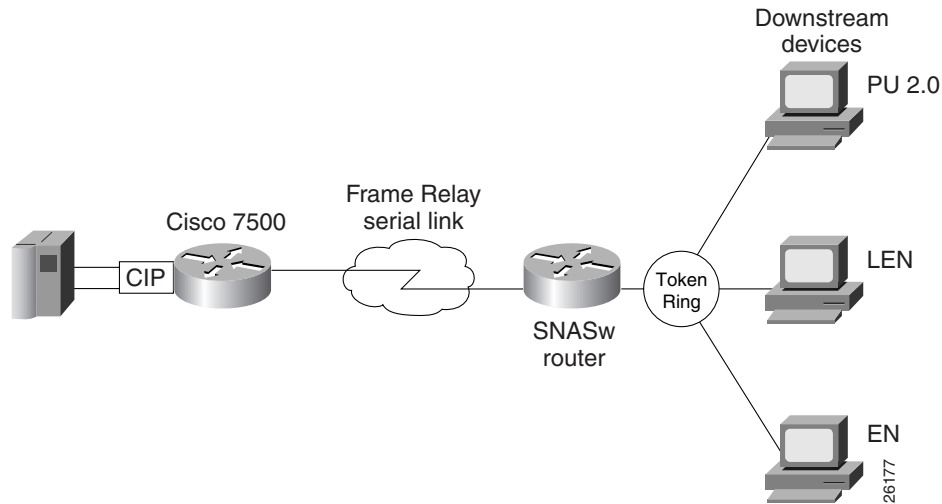
The configuration for SNASw with Ethernet LANE over ATM is as follows:

```
!  
source-bridge ring-group 111  
dlsw local-peer peer-id 10.56.56.1 keepalive 10 promiscuous  
dlsw remote-peer 0 tcp 10.56.56.2  
!  
interface ATM2/0  
  mtu 1500  
  no ip address  
  no ip directed-broadcast  
  atm clock INTERNAL  
  atm pvc 1 0 5 qsaal  
  atm pvc 2 0 16 ilmi  
  atm pvc 60 1 36 aal5nlpid  
  no atm ilmi-keepalive  
!  
interface ATM2/0.1 multipoint  
  no ip directed-broadcast  
  lane client ethernet RED  
  no cdp enable  
!  
interface ATM2/0.2 multipoint  
  ip address 10.10.50.60 255.255.255.0  
  no ip redirects  
  no ip directed-broadcast  
  lane client ethernet BLUE  
  no cdp enable  
  standby 1 priority 200 preempt  
  standby 1 authentication xxxx  
  standby 1 mac-address 000b.e291.0000  
  standby 1 ip 10.10.50.70  
!  
interface Serial3/1  
  ip address 10.56.56.1 255.255.255.0  
  no ip directed-broadcast  
  encapsulation ppp  
  no keepalive  
  no fair-queue  
  clockrate 56000  
!  
snasw cpname NETA.ROUTERCP  
snasw dlus NETA.SJMVS3 backup NETA.HOSTCMC2  
snasw port ATM202 ATM2/0.2 conntype nohpr  
snasw port DLSWP vdlc 111 mac 4000.0189.0016 conntype nohpr  
snasw link HOSTCMC1 port DLSWP rmac 4000.aaaa.cccc  
snasw link HOSTCMC2 port DLSWP rmac 4000.aaaa.dddd  
!
```

SNASw with SRB Frame Relay (Frame Relay BAN Support) Configuration Example

Figure 10 illustrates how to combine SNASw and SRB over Frame Relay functionality to provide native RFC 1490 connectivity over Frame Relay BAN. The host is configured to respond to 4000.aaaa.cccc through the Frame Relay connection over Serial1. Downstream would be configured to connect into VirtualTokenRing0.

Figure 10 SNASw with SRB Frame Relay (Frame Relay BAN Support)



The configuration for SNASw with SRB Frame Relay (Frame Relay BAN Support) is as follows:

```

source-bridge ring-group 100
source-bridge ring-group 200
!
interface TokenRing0
no ip address
no ip directed-broadcast
ring-speed 16
source-bridge 202 1 200
!
interface Virtual-TokenRing0
mac-address 4000.1234.1001
no ip address
no ip directed-broadcast
ring-speed 16
source-bridge 201 1 200
!
interface Serial1
encapsulation frame-relay
!
interface serial 1.1 point-to-point
frame-relay interface-dlci 30 ietf
source-bridge 101 1 100
!
interface Virtual-TokenRing1
mac-address 4000.1111.2222
no ip address
no ip directed-broadcast
ring-speed 16
source-bridge 102 1 100
source-bridge spanning
!
snasw cpname NETA.ROUTERCP
snasw port frame virtual tokenring 1 conntype nohpr
snasw link HOSTFRAM port FRAME rmac 4000.aaaa.cccc
    
```

On the CIP router, configure the following:

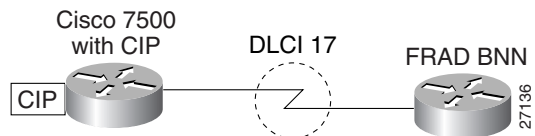
```

source-bridge ring-group 300
interface serial 1/0
 encapsulation frame-relay
 !
interface serial 1/0.1 point-to-point
 frame-relay interface 30 left
 source-bridge 101 1 300
 !
interface channel 2/1
 no ip-address
 no keep alive
 csna E040 70
 !
interface serial channel 2/2
 no ip-address
 no keep alive
 lan tokenring 0
 source-bridge 301 1 300
 adapter 0 4000.aaaa.cccc
    
```

SNASw with FRAS Host (Downstream Frame Relay BNN Support) Configuration Example

Figure 11 illustrates how to connect a downstream Frame Relay BNN device (FRAD) over native RFC 1490 in SNASw.

Figure 11 SNASw with FRAS Host (Downstream Frame Relay BNN Support)



Note This figure and example show only the configuration related to downstream Frame Relay BNN Support. Upstream connectivity is not shown in this configuration segment.

The configuration SNASw with FRAS Host (Downstream Frame Relay BNN Support) is as follows:

```

source-bridge ring-group 200
interface serial 1/2
 no ip-address
 encapsulation frame-relay letf
 frame-relay map llc2 17
 !
interface virtual-tokenring 0
 mac-address 4000.1234.1001
 ring-speed 16
 source-bridge 201 1 200
 !
interface virtual-tokenring 1
 ring-speed 16
 source-bridge 202 1 200
 fras-host bnn serial 1/2 fr-lsap 04 umac 4000.1234.2002 hmac 4000.1234.1001
    
```

Command Reference

This section documents the new commands that configure the SNASw feature.

- **ping sna**
- **show snasw class-of-service**
- **show snasw connection-network**
- **show snasw directory**
- **show snasw dltrace**
- **show snasw dlus**
- **show snasw ipstrace**
- **show snasw link**
- **show snasw lu**
- **show snasw mode**
- **show snasw node**
- **show snasw pdlog**
- **show snasw port**
- **show snasw pu**
- **show snasw rtp**
- **show snasw session**
- **show snasw statistics**
- **show snasw summary-ipstrace**
- **show snasw topology**
- **snasw cpname**
- **snasw dlfilter**
- **snasw dltrace**
- **snasw dlus**
- **snasw dump**
- **snasw event**
- **snasw ipsfilter**
- **snasw ipstrace**
- **snasw link**
- **snasw location**
- **snasw pathswitch**
- **snasw pdlog**
- **snasw port**
- **snasw start**
- **snasw start cp-cp**

- **snasw start link**
- **snasw start port**
- **snasw stop**
- **snasw stop cp-cp**
- **snasw stop link**
- **snasw stop port**
- **snasw stop session**

In Cisco IOS Release 12.0(1)T or later, you can search and filter the output for **show** and **more** commands. This functionality is useful when you need to sort through large amounts of output, or if you want to exclude output that you do not need to see.

To use this functionality, enter a **show** or **more** command followed by the “pipe” character (`|`), one of the keywords **begin**, **include**, or **exclude**, and an expression that you want to search or filter on:

```
command | {begin | include | exclude} regular-expression
```

Following is an example of the **show atm vc** command in which you want the command output to begin with the first line where the expression “PeakRate” appears:

```
show atm vc | begin PeakRate
```

For more information on the search and filter functionality, refer to the Cisco IOS Release 12.0(1)T feature module titled *CLI String Search*.

ping sna

To initiate an APPC session with a named partner node and to run the APING transaction program to check network integrity and timing characteristics, use the **ping sna** privileged EXEC command.

```
ping sna [-1] [-c consecutive packets] [-i number-iterations] [-m mode] [-n] [-r] [-s size]
          [-t tpname] [-u userid] destination
```

Syntax Description

-1	(Optional) Sends data from client to server only (no echo).
-c <i>consecutive packets</i>	(Optional) Specifies the number of consecutive packets sent.
-i <i>number-iterations</i>	(Optional) Specifies number of iterations.
-m <i>mode</i>	(Optional) Specifies APPN mode to use.
-n	(Optional) Skips any security (SECURITY=NONE).
-r	(Optional) Shows route taken by APPC PING.
-s <i>size</i>	(Optional) Specifies the size of the of the data to be transmitted.
-t <i>tpname</i>	(Optional) Specifies TP to start on the server.
-u <i>userid</i>	(Optional) Specifies USERID.
<i>destination</i>	Specifies the fully qualified name of the partner logical unit or control point with which an APING transaction should be initiated.

Defaults

No default behaviors or values.

Command Modes

Privileged EXEC

Command History

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

Usage Guidelines

The **ping sna** command requires the destination to support the APING transaction program for the ping to succeed.

ping sna

Examples

The following is an example of the **ping sna** command contact the destination NETA.CP001:

```
ping sna NETA.CP001
```

Related Commands

Command	Description
show snasw session	Displays SNASw session information.

show snasw class-of-service

To display the COS definitions predefined to SNASw, use the **show snasw class-of-service** command.

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

Syntax Description

brief	(Optional) Indicates a one-line display per displayed resource. For COS entries the brief version displays COS name, transmission priority, and number of node and TG rows.
detail	(Optional) Indicates a detailed, multiline display of all fields returned for COS display.

Defaults

No default behaviors or values.

Command History

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

Examples

The following is an example of the **show snasw class-of-service** command:

```
show snasw class-of-service
```

This command provides the following output:

```
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

r2612a52#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
```

show snasw class-of-service

Congestion max	No
Route additional resistance min	0
Route additional resistance max	31

Related Commands

Command	Description
show snasw mode	Displays SNASw modes.

show snasw connection-network

To display the connection networks (virtual nodes) currently known to SNASw, use the **show snasw connection-network** command.

```
show snasw connection-network [brief | detail]
```

Syntax Description

brief	(Optional) Indicates a one-line display per resource. For connection-network entries, 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.

Defaults

No default behaviors or values.

Command History

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

Examples

The following is an example of the **show snasw connection-network** command:

```
show snasw connection-network
```

This command provides the following output:

```
Connection network definitions 1

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

r3620a52#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
show snasw link	Displays the SNASw link objects.

show snasw directory

To display the SNASw directory entries, use the **show snasw directory** command.

```
show snasw directory [name resourcenamefilter] [brief | detail]
```

Syntax Description

name <i>resourcenamefilter</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. For directory entries, the brief version displays resource name, owning CP name, network node server name, and entry type.
detail	(Optional) Indicates a detailed, multiline display of all fields returned for the directory display.

Defaults

No default behaviors or values.

Command History

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

Examples

The following is an example of the **show snasw directory** command:

```
show snasw directory
```

This command provides the following output:

```
Total Directory Entries 2

      SNA Directory Entries
      Resource Name      Owing CP Name      NN Server      Entry Type
      -----
1> CISCO.A              CISCO.A            CISCO.B        Registry
2> CISCO.B              CISCO.B            CISCO.B        Home

r2612a52#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>
```

show snasw directory

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	Defines locations of SNASw resources.

show snasw dlctrace

To display the captured DLC trace information to the console, use the **show snasw dlctrace** command.

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

Syntax Description

all	(Optional) Indicates that all records in the dlctrace buffer are displayed.
last <i>number-records</i>	(Optional) Indicates the last <i>n</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 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 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 are filtered. Only frames that contain the filter-string are displayed.
id <i>recordid</i>	(Optional) Indicates the 1 to 999,999 trace record identifier. Only the frame ID that matches the record specified is displayed.

Defaults

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

Command History

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

Examples

The following is an example of the **show snasw dlctrace** command:

```
show snasw dlctrace id 2467 next S/B next 20
```

show snasw dlctrace

This command provides the following output:

```
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
```

r3620a52#**show snasw dlctrace 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 dlfilter	Filters frames captured by the snasw dlctrace or debug snasw dlc debug commands.

show snasw dlus

To display the SNASw 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. For dlus, the brief version includes the DLUS name, state (active or inactive), port name, cpname, node type, and number of active PUs on the DLUS.
detail	(Optional) Indicates the detailed, multiline display that shows all fields returned for DLUS displayed.

Defaults

No default behaviors or values.

Command History

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

Examples

The following is an example of the **show snasw dlus** command:

```
show snasw dlus
```

This command provides the following output:

```
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

dlur2#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
```

show snasw dlus

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 trace on the router console, use the **show snasw ipstrace** command.

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

Syntax Description

all	(Optional) Specifies all records are displayed
last <i>number-records</i>	(Optional) Indicates that the last <i>n</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) Displays records from beginning or following record IS.
filter <i>filter-string</i>	(Optional) Indicates that a string follows against which the formatted trace output is filtered. Only frames which contain the filter-string are displayed.
id <i>recordid</i>	(Optional) Indicates the 1 to 999,999 trace record identifier. Only the frame ID that matches the record specified are displayed.

Defaults

No default behaviors or values.

Command History

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

Examples

The following is an example of the **show snasw ipstrace** command:

```
show snasw ipstrace
```

This command provides the following output:

```
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 ipfilter	Filters interprocess signal trace elements being traced via the snasw ipstrace or debug snasw ips commands.

show snasw link

To display the SNASw link objects, use the **show snasw link** command.

```
show snasw link [brief | detail] [cpname cpnamefilter] [name linknamefilter]
[port portnamefilter] [rmac macfilter] [xid xidfilter]
```

Syntax Description

brief	(Optional) Indicates that one line per link is displayed. For links, the brief version should include the link name, state (active or inactive), port name, cpname, and node type information.
detail	(Optional) Indicates that a detailed, multiline display that shows all fields returned for links displayed.
cpname <i>cpnamefilter</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>portnamefilter</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>macfilter</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>xidfilter</i>	(Optional) Indicates a 4-byte XID (idnum/idblk) specified in hexadecimal form. Only links matching the configured XID are displayed.

Defaults

No default behaviors or values.

Command History

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

Examples

The following is an example of the **show snasw link** command:

```
show snasw link
```

This command provides the following output:

Number of links 1

SNA Links							HPR
Link Name	State	Port Name	Adjacent CP Name	Node Type	Sess	Sup	
-----	-----	-----	-----	-----	-----	---	---
1> LINKT	Active	TR0	CISCO.B	Network Node	0	Yes	

r3620a52#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 SNASw dependent LUs, use the **show snasw lu** command.

show snasw lu [**brief** | **detail**] [**name** *luname*] [**pu** *puname*]

Syntax Description

brief	(Optional) Indicates that one line per link is displayed. For LU, the brief display includes LU name, PU name, DLUS name, and PLU name.
detail	(Optional) Indicates that a detailed, multiline display that shows all possible fields returned for the link is displayed.
name <i>luname</i>	(Optional) Indicates an LU name to filter. Only LUs matching the specified name are displayed.
pu <i>puname</i>	(Optional) Indicates a PU name to filter. Only LUs for the specified name PU are displayed.

Defaults

No default behaviors or values.

Command History

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

Examples

The following is an example of the **show snasw lu** command:

```
show snasw lu
```

This command provides the following output:

```
Number of DLUR LUs 1
SNA DLUR LUs
      LU Name      PU Name      DLUS              PLU Name
      -----      -
1> LL910101      PL9101      NETA.SJMVS3      NETA.ITPECHOS

dlur2#show snasw lu detail
Number of DLUR LUs 1

1>
LU name              LL910101
PU name              PL9101
DLUS name            NETA.SJMVS3
Primary LU name      NETA.ITPECHOS
LU location          Downstream
```

Related Commands

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

show snasw mode

To display modes predefined to SNASw, use the **show snasw mode** command.

show snasw mode

Syntax Description

There are no keywords or arguments for this command.

Defaults

No default behaviors or values.

Command History

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

Examples

The following is an example of the **show snasw mode** command:

show snasw mode

This command provides the following output:

```
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 SNASw COS information.

show snasw node

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

show snasw node

Syntax Description

There are no keywords or arguments for this command.

Defaults

No default behaviors or values.

Command History

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

Examples

The following is an example of the **show snasw node** command:

show snasw node

This command provides the following output:

```

Node type                Branch Network Node
Node name                 CISCO.A
CP alias                  CISCO
Node ID                   X'FFF00000'
Time active               12 mins, 57 secs

Defined LS good XID exchanges      1
Defined LS bad XID exchanges       0
Dynamic LS good XID exchanges      0
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 directory entries (0 is unlimited) 0
Locate timeout in seconds (0 is no timeout) 0
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

```

show snasw node

HPR support

Yes

Related Commands

Command	Description
<code>show snasw statistics</code>	Displays various node-wide SNASw statistics.

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] [all | next number-records | last number-records]
  [filter filterstring] [id recordid]
```

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.
all	(Optional) Specifies 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) Indicates that the last <i>n</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>filterstring</i>	(Optional) Shows output filtered on a specific string.
id <i>recordid</i>	(Optional) Indicates the 1 to 99999 trace record identifier. Only the frame ID that matches the record specified is displayed.

Defaults

No default behaviors or values.

Command History

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

Examples

The following is an example of the **show snasw pdlog** command:

```
show snasw pdlog
```

show snasw pdlog

This command provides the following output:

```
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/nssrctcp.c 589 :at 0:10:24, 1 March 93
```

Related Commands

Command	Description
snasw pdlog	Controls logging of messages to the console and the SNA problem determination log cyclic buffer.

show snasw port

To display the SNASw port objects, use the **show snasw port** command.

```
show snasw port [brief | detail] [name portnamefilter]
```

Syntax 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>portnamefilter</i>	(Optional) Indicates the name of the port to filter for which information is displayed. Only ports matching name are displayed.

Defaults

No default behaviors or values.

Command History

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

Examples

The following is an example of the **show snasw port** command:

```
show snasw port
```

This command provides the following output:

```
Number of ports 3

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

r3620a52#show snasw port detail
Number of ports 3

1>
```

show snasw port

Port name	ETH0
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
<code>snasw port</code>	Specifies the DLCs used by SNASw.

show snasw pu

To display the SNASw PUs that require or request SSCP-PU services, use the **show snasw pu** command.

```
show snasw pu [brief | detail] [dlus dlusfilter] [name punamefilter]
```

Syntax Description

brief	(Optional) Indicates that one-line per PU is displayed. For PU, the brief version includes the PU name, PU ID, state, defined DLUS, and current DLUS.
detail	(Optional) Indicates that a detailed, multiline display that shows all possible fields returned for a link is displayed.
dlus <i>dlusfilter</i>	(Optional) Indicates the fully qualified DLUS name (1 to 17 characters). Only PUs that are currently served by the DLUS specified are displayed.
name <i>punamefilter</i>	(Optional) Indicates the handle “naming” of the PU (1 to 8 characters). Only links matching this name are displayed.

Defaults

No default behaviors or values.

Command History

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

Examples

The following is an example of the **show snasw pu** command:

```
show snasw pu
```

This command provides the following output:

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

```
dlur2#show snasw pu detail
```

```
Number of DLUR PUs 1
1>
PU name                PL9101
Define DLUS name
```

show snasw pu

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 SNASw RTP connections, use the **show snasw rtp** command.

```
show snasw rtp [brief | detail] [class-of-service cosname] [name connectionnamefilter]
  [tcid tcidconnection]
```

Syntax Description

brief	(Optional) Indicates that one-line per RTP is displayed. For RTP, the brief version includes the RTP name, local TCID, remote TCID, remote cpname, and COS.
detail	(Optional) Indicates a detailed, multiline display with all fields returned for RTP is displayed.
class-of-service <i>cosname</i>	(Optional) Shows specific HPR RTP connections by COS name.
name <i>connectionnamefilter</i>	(Optional) Indicates the name of the RTP connection (1 to 8 characters). Only TG records origins or destinations that match the specified name or node records are displayed.
tcid <i>tcidconnection</i>	(Optional) Shows the specific HPR RTP connection for the local TCID connections.

Defaults

No default behaviors or values.

Command History

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

Examples

The following is an example of the **show snasw rtp** command:

```
show snasw rtp
```

This command provides the following output:

```
Number of RTP connections 1

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

r3620a52#show snasw rtp detail
Number of RTP connections 1
1>
Local NCEID                X'4052303030303031'
Local TCID                  X'0000000001000000'
Remote TCID                  X'0000000001000000'
```

show snasw rtp

```
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
```

Related Commands

Command	Description
show snasw session	Displays the SNASw session objects.

show snasw session

To display the SNASw session objects, use the **show snasw session** command.

```
show snasw session [local | dlur | intermediate] [name sessionnamefilter] [pcid pcidfilter]
[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 CP-CP sessions and DLUR-DLUS sessions.
dlur	(Optional) Indicates that the scope of the display is limited to the types of sessions indicated. DLUS sessions are 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>sessionnamefilter</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>pcidfilter</i>	(Optional) Indicates an 8-byte PCID specified in hexadecimal form. All sessions matching the PCID filter are displayed.
brief	(Optional) Indicates that one-line per session is displayed. For sessions, the brief version includes PCID, state (active or inactive), session endpoint LU names, and mode
detail	(Optional) Indicates a detailed, multiline display that shows all fields returned for the session is displayed.

Defaults

No default behaviors or values.

Command History

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

Examples

The following is an example of the **show snasw session** command:

```
show snasw session
```

show snasw session

This command provides the following output:

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

r2612a52#**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 the SNASw node-wide information, use the **show snasw statistics** command.

show snasw statistics

Syntax Description

There are no keywords or arguments for this command.

Defaults

No default behaviors or values.

Command History

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

Examples

The following is an example of the **show snasw statistics** command:

show snasw statistics

This command provides the following output:

```
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	550036
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 node-wide SNASw information.

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 [all | next number-records | last number-records] [id recordid]
    [filter filter-string]
```

Syntax Description

all	(Optional) Specifies all records are displayed
last <i>number-records</i>	(Optional) Displays records from the end or prior to the record ID.
next <i>number-records</i>	(Optional) Displays records from the start or starting with the record ID.
id <i>recordid</i>	(Optional) Indicates a 1 to 999,999 trace record identifier.
last <i>number-records</i>	(Optional) Indicates that the last <i>n</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> are displayed.

Defaults

No default behaviors or values.

Command History

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

Examples

The following is an example of the **show snasw summary-ipstrace** command:

```
show snasw summary-ipstrace
```

This command provides the following output:

```
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	Dumps problem determination buffers to a file server.

show snasw topology

To display the SNASw topology records, use the **show snasw topology** command.

show snasw topology [*name cpnamefilter*] [**brief** | **detail**]

Syntax Description

name <i>cpnamefilter</i>	(Optional) Indicates the fully qualified name of the 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 a detailed, multiline display of topology information.

Defaults

No default behaviors or values.

Command History

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

Examples

The following is an example of the **show snasw topology** command:

```
show snasw topology
```

This command provides the following output:

```
Number of topology entries 3

      SNA Topology Entries
      Dest. Node Name  Type  TG#    TG Type                TG Status
      -----
1> CISCO.A            EN   21   Downlink to BrNN      CP-CP sessions active
2> CISCO.C            EN   21   Downlink to BrNN      CP-CP sessions active
3> CISCO.VN          VRN   1    Neutral link           Active

r2612a52#show snasw topology detail
Number of topology entries 3

1>
Destination node name                CISCO.A
Destination node type                 End Node
Transmission Group Number            21
Destination address
Resource Sequence Number              6
TG status                             CP-CP sessions active
Active CP-CP sessions for this TG     Yes
Is this a branch TG                  Yes
Branch link type                      Downlink to BrNN
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

Related Commands

Command	Description
show snasw link	Displays SNASw link objects.

snasw cpname

To define a control point name for SNASw, use the **snasw cpname** global configuration command. Use the **no** form of this command to deactivate SNASw and remove the control point definition.

snasw cpname *netid.name* | *netid* [**hostname**] [**ip-address** *interface-name*]

no snasw cpname

Syntax Description

<i>netid.name</i>	Fully qualified CP name for this node, consisting of both network ID and cpname.
<i>netid</i>	Partial CP name, which consists of only a network ID. If this option is selected, the hostname or IP address operands must also be configured to complete the fully qualified cpname.
hostname	(Optional) Indicates a CP name built using the hostname configured on the router. When configuring this operand, code a netid only. The last eight characters of the hostname are used to complete the CP name.
ip-address <i>interface-name</i>	(Optional) Indicates the CP name built by deriving the cpname from the IP address on the interface indicated in the <i>interface-name</i> . When configured, this operand requires a netid operand. In addition, a portion of the cpname may be configured. The remaining characters of the cpname that are not configured are generated from the IP address indicated. The generated characters are derived from a hexadecimal format of the IP address for the interface specified.

Defaults

No default behavior or values.

Command Modes

Global configuration

Command History

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

Usage Guidelines

You can also deactivate SNASw without removing the **snasw cpname** definition using the **snasw stop** privileged EXEC command.

Coding of a cpname is required for SNASw. Only one **snasw cpname** command is allowed at a time. The **snasw cpname** command cannot be changed without first deleting the previous definition using the **no** form of the command. If SNASw is active, the **no** form deactivates it. If it is inactive, **snasw cpname** activates it.

Examples

The following are examples of how to configure the **snasw cpname** command:

```
snasw cpname NETA.BRANCH5
snasw cpname NETBANK2.DLUR0005
snasw cpname NETWORKA hostname
snasw cpname NETA.CP ip-address Loopback0
```

Related Commands

Command	Description
snasw start	Starts SNASw via the privileged EXEC command.
snasw stop	Shuts down SNASw via the privileged EXEC command.

snasw dlcfiler

To filter frames being captured, use the **snasw dlcfiler** global configuration command. Use the **no** form of this command to disable the filtering of frames arriving and leaving SNASw.

```
snasw dlcfiler [link linkname [session session address]] [port portname]
  [rmac mac-address-value [session session address]] [rtp rtpname]
  [[type] [cls] [hpr-cntl] [hpr-data] [isr] [xid]]
```

```
no snasw dlcfiler
```

Syntax Description

link <i>linkname</i> [session <i>session address</i>]	(Optional) Specifies the link name upon which the DLC trace is filtered (one to eight characters). All incoming and outgoing frames matching this link are traced.
port <i>portname</i>	(Optional) Specifies the port name upon which the port is filtered (one to eight characters). All incoming and outgoing frames matching this port are traced.
rmac <i>mac-address-value</i> [session <i>session address</i>]	(Optional) Indicates the MAC address upon which the DLC trace is filtered. All incoming and outgoing frames matching this MAC address are traced.
rtp <i>rtp-name</i>	(Optional) Specifies the RTP name upon which the RTP is filtered (one to eight characters). All incoming and outgoing frames matching this RTP connection name are traced.
type	(Optional) Indicates that a frame type filter follows. Use the type operand to further refine the filter to specify frame types.
cls	(Optional) Indicates that commands to the local DLC are traced.
hpr-cntl	(Optional) Indicates that the HPR format identifier 5 (FID5), which does not carry an SNA data payload, is traced.
hpr-data	(Optional) Indicates that the HPR format identifier 5 (FID5), which carry an SNA data payload, is traced.
isr	(Optional) Indicates that the SNA and APPN format identifier 2 (FID2) are traced.
xid	(Optional) Indicates that the XID frames are traced.

Defaults

This command defaults to no filtering, and all frames are traced.

Command Modes

Global configuration

Command History

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

Usage Guidelines

The **snasw dlcfilter** command is typically used to limit the output of the **snasw dlctrace** command to a manageable amount of trace data. Running the **snasw dlctrace** consumes CPU and memory. Using the **snasw dlcfilter** command limits the CPU and memory consumption to only the frames that are targeted for tracing.

Examples

The following are examples of how to configure the **snasw dlcfilter** command:

```
snasw dlcfilter link cmc1link
snasw dlcfilter rmac 4001.1234.1001
snasw dlcfilter type xid
```

Related Commands

Command	Description
snasw dlctrace	Traces frames arriving and leaving SNASw.
debug snasw dlc	Displays real-time DLC trace data to the console.
snasw dump	Dumps trace and problem determination logs to a file server.

snasw dlctrace

To trace frames arriving and leaving SNASw, use the **snasw dlctrace** global configuration command. Use the **no** form of this command to deactivate the capture of frame data and frees the storage buffer used to capture the data.

```
snasw dlctrace [buffer-size buffer-size-value] [file filename]  
                [frame-size frame-size-value] [format brief | detail | analyzer]
```

```
no snasw dlctrace
```

Syntax Description

buffer-size <i>buffer-size-value</i>	(Optional) Specifies the size of the DLC trace buffer requested. The minimum buffer size is 100, while the maximum is 16000. If <i>buffer-size-value</i> is not specified, then the default is 500, creating a 500 K byte buffer.
file <i>filename</i>	(Optional) Specifies the file name for the DLC trace buffer file when writing this file to the file server. Use the following format: protocol://host/path/filename.
frame-size <i>frame-size-value</i>	(Optional) Indicates the size of the frame that is traced within the DLC trace. All data beyond the size value are truncated and are not included in the trace. The default is that the entire frame is traced.
format	(Optional) Indicates the format the DLC trace is written to when writing to a file server.
brief	(Optional) Indicates a text file is written with a one-line-per-frame summary for each frame.
detail	(Optional) Indicates a text file is written with a frame summary line followed by a complete hexadecimal dump of the frame.
analyzer	(Optional) Indicates a binary file is generated that is readable by several popular network analyzer products. This format uses the Network Associates® Sniffer® file format.

Defaults

Tracing is off.

Command Modes

Global configuration

Command History

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

Usage Guidelines

Use the **snasw dlctrace** command when directed by service personnel or when analysis of frame data entering and leaving SNASw is necessary.

The **snasw dlctrace** command copies frames into a memory buffer, which can degrade router performance. Therefore, care should be taken when using this command. When issued on a highly used system, the **snasw dlfilter** command should be used in conjunction with the **snasw dlctrace** command to limit the output of the trace.

Use the **snasw dump** command to dump the trace data to a file server or the **show snasw dlctrace** command to display captured frames on the console.

Examples

The following are examples of how to configure the **snasw dlctrace** command:

```
snasw dlctrace
snasw dlctrace buffer-size 5000 file tftp://171.69.120.21/dlcfiles/dlc/trc
```

Related Commands

Command	Description
snasw dlfilter	Filters frames being captured using the snasw dlctrace or debug snasw dlc commands.
snasw dump	Dumps the trace to a file server.
show snasw dlctrace	Displays the captured DLC trace information on the console.

snasw dlus

To specify parameters related to DLUR/DLUS functionality, use the **snasw dlus** global configuration command. Use the **no** form of this command to remove the data specified in a previous **snasw dlus** command.

snasw dlus *primary-dlus-name* [**backup** *backup-dlus-name*] [**prefer-active**]
 [**retry** *interval* \ *count*]

no snasw dlus

Syntax Description

<i>primary-dlus-name</i>	Specifies the fully qualified name of the primary DLUS (3 to 17 characters).
backup <i>backup-dlus-name</i>	(Optional) Indicates configuration of a backup DLUS. A backup DLUS is used when the primary DLUS is unreachable or cannot service a specific downstream device. The fully qualified name of the backup DLUS is 3 to 17 characters in length.
prefer-active	(Optional) Indicates that if an active DLUS/DLUR connection was established, an incoming PU will retry exclusively on the active DLUS connection and will not attempt to connect to a different DLUS.
retry <i>interval</i> \ <i>count</i>	(Optional) Indicates that the DLUR retry parameters follow this statement. Interval indicates the time period between attempts to connect a DLUS if one is not serving a specific PU. Retry indicates the number of times the current or primary DLUS is retried before attempting to connect to a backup or currently nonactive DLUS.

Defaults

If the **prefer-active** argument is not specified, each connected downstream station will attempt to connect to the primary DLUS or backup DLUS until the device receives DLUS services.

Command Modes

Global configuration

Command History

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

Usage Guidelines

Only one **snasw dlus** command is allowed at a time. The **snasw dlus** command cannot be changed without first deleting the previous definition using the **no** form of the command. DLUS configuration is required if dependent LUs are to be supported by SNASw.

Examples

The following are examples of how to configure the **snasw dlus** command:

```
snasw dlus NETA.HOST1 backup NETA.HOST2
snasw dlus NETBANK2.CDERM34 prefer-active retry 30 3
```

Related Commands

Command	Description
show snasw dlus	Displays the SNASw DLUS objects.

snasw dump

To copy problem determination logs and traces from internal buffers to an external file server, use the **snasw dump** privileged EXEC command.

snasw dump all | dlctrace | ipstrace | summary-ipstrace | pdlog

Syntax Description

all	Indicates all configured trace and problem determination buffers should be transferred. The file operand must be configured on the enabling configuration command for the buffers to be dumped. Traces that run but do not have the file operand coded are not transferred.
dlctrace	Indicates the DLC trace buffer is transferred to a file server. If file is configured on the snasw dlctrace command, the URL specified is used for transferring the DLC trace file. If file is not configured on the snasw dlctrace command, the transfer protocol will default to TFTP, and the user is prompted for the remote host and file name for the transferred file.
ipstrace	Indicates the IPS trace buffer is transferred to a file server. If file is configured on the snasw ipstrace command, the URL specified is used for transferring the ipstrace file. If file is not configured on the snasw ipstrace command, the transfer protocol will default to TFTP, and the user is prompted for the remote host and file name for the transferred file.
summary-ipstrace	Indicates the summary IPS trace buffer is transferred to a file server. If file is coded on the snasw summary-ipstrace command, the URL specified is used for transferring the summary ipstrace file. If file is not coded on the snasw ipstrace command, the transfer protocol will default to TFTP, and the user is prompted for the remote host and file name for the transferred file.
pdlog	Indicates the problem determination log buffer is transferred to a file server. If file is coded on the snasw pdlog command, the URL specified is used for transferring the pdlog file. If file is not coded, the transfer protocol will default to TFTP, and the user is prompted for the remote host and file name for the transferred file.

Defaults

No default behavior or values.

Command Modes

Privileged EXEC

Command History

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

Usage Guidelines

The **snasw dump** command is used for gathering trace files for diagnosis by Cisco personnel or onsite trace analysis.

Examples

The following are examples of how to configure the **snasw dump** command:

```
snasw dump all
snasw dump dlctrace
```

Related Commands

Command	Description
snasw dlctrace	Traces frames arriving and leaving SNASw.
snasw ipstrace	Traces internal interprocess signal information within SNASw.
snasw pdlog	Controls logging of messages to the console and the SNA problem determination log cyclic buffer.

snasw event

To indicate which normal events are logged to the console, use the **snasw event** global configuration command. Use the **no** form of this command to return the events to their default state.

```
snasw event [cpcp] [defined-ls] [dlc] [implicit-ls] [port]
```

```
no snasw event
```

Syntax Description

cpcp	(Optional) Indicates that an event is issued for CP-CP session state changes.
defined-ls	(Optional) Indicates that an event is issued for state changes on defined links.
dlc	(Optional) Indicates DLC state changes.
implicit-ls	(Optional) Indicates state change on implicit links.
port	(Optional) Indicates that an event is issued for port state changes.

Defaults

The following events are sent to the pdlog/console:

- Defined links
- DLUS events

Command Modes

Global configuration

Command History

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

Examples

The following example shows how to configure the **snasw event** command:

```
snasw event defined-ls implicit-ls
```

snasw ipsfilter

To filter interprocess signal trace elements being traced via **snasw ipstrace** or **debug snasw ips**, use the **snasw ipsfilter** global configuration command. Use the **no** form of this command to remove all filtering.

```
snasw ipsfilter [as] [asm] [bm] [ch] [cpc] [cs] [di] [dlc] [dma] [dr] [ds]
                [es] [ha] [hpr] [hs] [lm] [mds] [ms] [nof] [pc] [ps] [pu] [px] [rm] [rtp]
                [ru] [scm] [sco] [sm] [spc] [ss] [trs]
no snasw ipsfilter
```

Syntax Description

as	(Optional) Specifies a filter on the Address Space component.
asm	(Optional) Specifies a filter on the Address Space Manager component.
bm	(Optional) Specifies a filter on the Buffer Management component.
ch	(Optional) Specifies a filter on the CH component.
cpc	(Optional) Specifies a filter on the CPIC component.
cs	(Optional) Specifies a filter on the Configuration Services component.
di	(Optional) Specifies a filter on the DI component.
dlc	(Optional) Specifies a filter on the Data Link Control component.
dma	(Optional) Specifies a filter on the DMA component.
dr	(Optional) Specifies a filter on the DLUR component.
ds	(Optional) Specifies a filter on the Directory Services component.
es	(Optional) Specifies a filter on the ES component.
ha	(Optional) Specifies a filter on the HA component.
hpr	(Optional) Specifies a filter on the HPR component.
hs	(Optional) Specifies a filter on the Half Session component.
lm	(Optional) Specifies a filter on the LU Manager component.
mds	(Optional) Specifies a filter on the Management Data Stream component.
ms	(Optional) Specifies a filter on the Management Services component.

nof	(Optional) Specifies a filter on the Node Operator Facility component.
pc	(Optional) Specifies a filter on the Path Control component
ps	(Optional) Specifies a filter on the Presentation Services component.
pu	(Optional) Specifies a filter on the PU Manager component.
px	(Optional) Specifies a filter on the PU Concentration component.
rm	(Optional) Specifies a filter on the Resource Manager component.
rtp	(Optional) Specifies a filter on the RTP component
ru	(Optional) Specifies a filter on the Request Unit Interface component.
scm	(Optional) Specifies a filter on the Session Connect Manager component.
sco	(Optional) Specifies a filter on the SCO component.
sm	(Optional) Specifies a filter on the Session Manager component.
spc	(Optional) Specifies a filter on the SPC component.
ss	(Optional) Specifies a filter on the Session Services component.
trs	(Optional) Specifies a filter on the Topology Routing Services component.

Defaults

No default behavior or values.

Command Modes

Global configuration

Command History

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

Usage Guidelines

The command defaults to no IPS trace filtering.

Examples

The following is an example of how to configure the **snasw ipsfilter** command:

```
snasw ipsfilter ds ss
```

Related Commands

Command	Description
snasw ipstrace	Traces internal interprocess signal information within SNASw.
show snasw ipstrace	Displays captured ipstrace information to the console.
debug snasw ips	Displays realtime ipstrace information to the console.

snasw ipstrace

To set up a trace buffer and begin tracing IPS trace elements, use the **snasw ipstrace** global configuration command. Use the **no** form of this command to turn off the capture of trace elements and to free the trace buffer.

```
snasw ipstrace [buffer-size buffer-size-value] [file filename]
```

```
no snasw ipstrace
```

Syntax Description

buffer-size *buffer-size-value* (Optional) Indicates that this trace command controls the size of the buffer used for storing ipstrace elements (in kilobytes). The default is 500 (500 KB). The minimum buffer size is 10 KB; the maximum is 16000 KB.

file *filename* (Optional) Specifies the file name for the IPS trace buffer file when writing this file to the server.

Defaults

This command defaults to no tracing with no cyclic buffer allocated.

Command Modes

Global configuration

Command History

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

Usage Guidelines

Use the **snasw ipstrace** command when directed by SNASw personnel.

The **snasw ipstrace** command copies frames into a memory buffer, which can affect router performance. Therefore, care should be taken when using this command.

The ipstrace information is stored in a cyclic buffer allocated out of main processor memory. Use the **snasw dump** command to dump the binary trace information to a file server or the **show snasw ipstrace** command to display captured IPS trace information to the console. The IPS trace is a low-level internal trace.

Examples

The following is an example of how to configure the **snasw ipstrace** command:

```
snasw ipstrace buffer-size 1000 file tftp://myhost/path/file
```

Related Commands

Command	Description
snasw ipsfilter	Filters interprocess signal trace elements being traced via the snasw ipstrace or debug snasw ips commands.
debug snasw ips	Traces internal interprocess signal information within SNASw.
show snasw ipstrace	Displays interprocess signal trace on the router console.
debug snasw ips	Displays realtime IPS trace information to the console.

snasw link

To configure upstream links, use the **snasw link** global configuration command. Use the **no** form of this command to remove the configuration of upstream links.

```
snasw link linkname port portname rmac mac-address | ip-dest ip-address
    [rsap sap-value] [nns] [tgp [high | low | medium]] [nostart]
no snasw link linkname
```

Syntax Description

<i>linkname</i>	Indicates the one to eight character local name for this link. This name is used to identify the link in show and privileged EXEC commands.
port <i>portname</i>	Specifies the SNASw port from which this link will connect.
rmac <i>mac-address</i>	Specifies the 48-bit MAC address of the destination station. Either this operand or ip-dest is required. RMAC is required for all links associated with ports that are not HPR/IP ports.
ip-dest <i>ip-address</i>	Indicates the IP address or DNS name of the destination stations. Either this operand or rmac is required. For all links associated with HPR/IP ports, ip-dest is required.
rsap <i>sap-value</i>	(Optional) Indicates the destination SAP value, which defaults to 4.
nns	(Optional) Configures the adjacent link as a preferred network node server.
tgp	(Optional) Configures a TG characteristic profile for route calculation.
high	(Optional) Prefers this link over links with TG profile of medium or low.
low	(Optional) Prefers this link when links with a TG profile of high or medium is not available.
medium	(Optional) Prefers this link when links with a TG profile of low is not available.
nostart	(Optional) Indicates that the link will not start automatically when defined.

Defaults

The destination SAP value defaults to 4.

Command Modes

Global configuration

Command History

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

Usage Guidelines

Use the **snasw link** command to configure upstream connections to SNA data hosts, services, and DLUS nodes. Do not use this command to connect to client workstations and devices serviced by the SNA switch. Client workstations and devices should be configured to connect into the SNA switch by configuring an outbound connection on these devices which specifies the MAC address of a port active on SNASw.

Examples

The following are examples of how to configure the **snasw link** command:

```
snasw link LINKCMC1 port TOKENO rmac 4000.333.4444 rsap 8
snasw link HOSTIP port HPRIP ip-dest 172.18.3.44
```

Related Commands

Command	Description
show snasw link	Shows the SNASw link information.

snasw location

To configure the location of a resource, use the **snasw location** global configuration command. Use the **no** form of this command to disable the location of a resource.

snasw location *resource-name* **owning-cp** *cpname*

no snasw location *resource-name*

Syntax Description

<i>resource-name</i>	Indicates the fully qualified name of the resource for which location information is being configured (3 to 17 characters).
owning-cp <i>cpname</i>	Indicates the fully qualified cpname where the resource resides.

Defaults

No default behaviors or values.

Command Modes

Global configuration

Command History

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

Usage Guidelines

The **snasw location** command is typically used when a LEN node link is established with a partner node. The **snasw location** command allows SNASw to route session requests over the LEN node link to the resources named.

Examples

The following is an example of how to configure the **snasw location** command:

```
snasw location NETA.INDEPLU owning-cp NETA.LENHOSTA
```

Related Commands

Command	Description
show snasw directory	Shows SNASw resource directory information.

snasw pathswitch

To force an HPR pathswitch for an RTP connection, use the **snasw pathswitch** privileged EXEC command.

```
snasw pathswitch rtp-connection-name
```

Syntax Description

<i>rtp-connection-name</i>	Specifies the RTP connection to path-switch. This is an eight-byte string. You can obtain the <i>rtp-connection-name</i> from the show snasw rtp command.
----------------------------	--

Defaults

No default behaviors or values.

Command Modes

Privileged EXEC

Command History

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

Usage Guidelines

If a specific connection name is coded, and no such connection is known to SNASw, the **snasw pathswitch** command is ignored and a message is issued. Use the **snasw pathswitch** command to force an HPR pathswitch for sessions that use this node as an RTP endpoint.

Examples

The following is an example of how to configure the **snasw pathswitch** command:

```
snasw pathswitch @R000006
```

Related Commands

Command	Description
show snasw rtp	Shows SNASw RTP endpoint connection information.

snasw pdlog

To control message logging to the console and the SNA problem determination log cyclic buffer, use the **snasw pdlog** global configuration command. Use the **no** form of this command to remove previous pdlog configurations.

```
snasw pdlog [problem | exception | info] [buffer-size buffer-size-value] [file filename]  
no snasw pdlog
```

Syntax Description

problem	(Optional) Indicates that only problem records are sent to the console.
exception	(Optional) Indicates that both problems and exceptions are sent to the console.
info	(Optional) Indicates that informational messages and problems and exceptions are sent to the console.
buffer-size <i>buffer-size-value</i>	(Optional) Indicates the size of the pdlog buffer requested (in kilobytes). The default is 500 KB. The minimum is 10 KB, and the maximum is 16000 KB.
file <i>filename</i>	(Optional) Indicates the URL for writing the pdlog file to a server. Use the following format: protocol://host/path/filename.

Defaults

If not coded, the **snasw pdlog** command defaults to an active 500 KB cyclic buffer. Problems, exceptions, and informational messages are always sent to the buffer. By default, only problems go to the console.

Command Modes

Global configuration

Command History

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

Usage Guidelines

Use the **snasw pdlog** command to customize the type of information you prefer to see on the router console from the SNASw feature.

Examples

The following is an example of how to configure the **snasw pdlog** command:

```
snasw pdlog exception buffer-size 200 file tftp://my host/files/trace.pdlog
```

Related Commands

Command	Description
show snasw pdlog	Displays entries in the cyclical problem determination log to the console.
snasw dump	Dumps trace and problem determination logs to a file server.

snasw port

To specify the DLCs used by SNASw, use the **snasw port** global configuration command. Use the **no** form of this command to delete a previously configured port.

```
snasw port portname [hpr-ip | vdlc ring-group mac mac-address] interfacename
    [conntype | nohpr | len | dyncplen] [dlus-required] [hpr-sap hpr-sap-value]
    [max-links link-limit-value] [sap sap-value] [vnname virtual-node-name] [nns] [nostart]
no snasw port portname
```

Syntax Description

<i>portname</i>	Indicates the one- to eight-character name for the port. This argument is used to refer to this port in informational messages and the show snasw port command.
hpr-ip	Indicates that the port is HPR/IP.
vdlc ring-group	Indicates that the port is VDLC. No <i>interfacename</i> is required. The <i>ring-group</i> indicates the source-bridge ring-group of which this VDLC port is a member.
mac mac-address	Indicates that the virtual source MAC address used for the VDLC port.
<i>interfacename</i>	Indicates the name of the interface over which the port will communicate. Allowable interfaces include Token Ring, Ethernet, VLAN, or loopback.
conntype nohpr len dyncplen	The keyword conntype indicates the connection type for the port. Conntype can be set to one of three values: nohpr, len, or dyncplen. If not configured, HPR-capable links are established. The keyword nohpr indicates that the HPR is not supported but APPN connections with CP-CP sessions are permitted. The keyword len indicates that APPN connections are not allowed; only LEN node-level connectivity is negotiated. The keyword dycpen (similar to LEN node in functionality) also replaces the cpname. This option is specifically intended for users with XID3-capable devices that send cpnames, but whose cpnames configured on these devices have not been configured uniquely across the devices. Therefore, a default cpname must be generated to have a properly functioning APPN connection management and directory function
hpr-sap hpr-sap-value	Indicates the local HPR-SAP value.
max-links max-links-value	(Optional) Indicates the number of links permitted on this port. When this link limit is reached, the port will not respond to inbound connection requests from stations attempting to connect to this port. Outbound connections are still permitted.
sap sap-value	(Optional) Indicates the local SAP value.

vname <i>virt-node-name</i>	(Optional) Indicates the network qualified virtual node name (3 to 17 characters) of the connection network being defined.
nns-required	(Optional) Indicates active CP-CP sessions to a NNS.
nostart	(Optional) Indicates that the port will not open automatically when defined.

Defaults

No default behaviors or values.

Command Modes

Global configuration

Command History

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

Usage Guidelines

More than one port can be configured (with different port names). A configured port cannot be redefined without first deleting the port using the **no** form of the port command.

Note SNASw ports do not dynamically adjust to interface configuration changes that are made when SNASw is active. For example, if you change an interface MAC address or MTU, SNASw may not recognize the new value. If you want to make changes to an interface and want SNA Switch to adjust to the new interface changes, you may need to either delete and redefine the port that is using that interface or stop and restart SNASw.

Examples

The following are examples of how to configure the **snasw port** command:

```
snasw port SRBG Virtual-TokenRing0 conntype nohpr
snasw port UPSTREAM TokenRing1/1
snasw port dlsport vdlc 30 mac 4000.33333.4444
snasw port HPRIP hpr-ip Loopback0
snasw port TRVLAN Vlan1/1 vname NETA.CONNET
```

Related Commands

Command	Description
show snasw link	Displays the SNASw link and port associated with that link.
show snasw port	Displays the SNASw port objects.

snasw start

To start SNASw, use the **snasw start** privileged EXEC command.

snasw start

Syntax Description

There are no keywords or arguments for this command.

Defaults

No default behaviors or values.

Command Modes

Privileged EXEC

Command History

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

Usage Guidelines

If not enough memory exists to start SNASw, a message indicating lack of memory is issued. A **cpname** must be configured with the **snasw cpname** command before SNASw will start.

Examples

The following is an example of the **snasw start** command:

```
snasw start
```

Related Commands

Command	Description
show snasw class-of-service	Defines a control point name for SNASw.
snasw stop	Terminates SNASw.

snasw start cp-cp

To initiate a request to start CP-CP sessions with a partner CP via privileged EXEC command, use the **snasw start cp-cp** privileged EXEC command.

```
snasw start cp-cp cpname
```

Syntax Description

cpname Indicates the fully qualified CP name of the adjacent node with which CP-CP sessions should be started.

Defaults

No default behaviors or values.

Command Modes

Privileged EXEC

Command History

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

Usage Guidelines

The functionality is necessary because it is possible for CP-CP sessions to fail permanently or temporarily, but beyond the timeframe for automatic CP-CP session retry. If the current state of the node mandates that CP-CP sessions cannot be started to the partner (for example, CP-CP sessions already exist on a different upstream link) or no active adjacent CP matches the *cpname* named, the command fails.

Examples

The following is an example of the **snasw start cp-cp** command:

```
snasw start cp-cp NETA.CMCHOST
```

Related Commands

Command	Description
snasw stop cp-cp	Terminates CP-CP sessions with a partner CP.

snasw start link

To start an inactive defined link, use the **snasw start link** privileged EXEC command.

snasw start link *linkname*

Syntax Description

linkname Indicates the name of the link as configured or shown in **show snasw link**.

Defaults

No default behaviors or values.

Command Modes

Privileged EXEC

Command History

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

Usage Guidelines

Use the **snasw start link** command to initiate a connection sequence for a link that is defined but not currently active. Unless **nostart** is configured on the link definition, a link is started automatically. Use this command to start links that have **nostart** configured or links that have been stopped using the **snasw stop link** privileged EXEC command.

Examples

The following is an example of the **snasw start link** command:

```
snasw start link CMCHOST1
```

Related Commands

Command	Description
show snasw link	Displays the SNASw link objects.
snasw stop link	Stops an active defined link.

snasw start port

To start an inactive port, use the **snasw start port** privileged EXEC command.

```
snasw start port portname
```

Syntax Description

portname Indicates the name of the port as configured or shown in the **show snasw port** command.

Defaults

No default behaviors or values.

Command Modes

Privileged EXEC

Command History

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

Usage Guidelines

Use the **snasw start port** command to enable a port that is defined to the configuration but is not currently active. Unless **nostart** is configured on the port definition, a port is started automatically. Use this command to start ports that have **nostart** configured or ports that have been stopped using the **snasw stop port** privileged EXEC command.

Examples

The following is an example of the **snasw start port** command:

```
snasw start port TOKEN0
```

Related Commands

Command	Description
show snasw port	Displays the SNASw port objects.
snasw stop port	Stops an active port.

snasw stop

To shut down SNASw, use the **snasw stop** privileged EXEC command.

snasw stop

Syntax Description

There are no keywords or arguments for this command.

Defaults

No default behaviors or values.

Command Modes

Privileged EXEC

Command History

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

Usage Guidelines

Use the **snasw stop** command to terminate all sessions, stop all ports and links, and shut down SNASw.

Examples

The following is an example of the **snasw stop** command:

```
snasw stop
```

Related Commands

Command	Description
snasw start	Starts SNASw.

snasw stop cp-cp

To terminate CP-CP sessions with a partner CP, use the **snasw stop cp-cp** privileged EXEC command.

snasw stop cp-cp *cpname*

Syntax Description

cpname Indicates the fully qualified CP name of the adjacent node with which CP-CP sessions should be stopped.

Defaults

No default behaviors or values.

Command Modes

Privileged EXEC

Command History

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

Usage Guidelines

Forcing a CP-CP session termination can be used to clear some fault scenarios such as hung or nonresponsive CP sessions, allowing the SNA switch to potentially restart sessions with the same or alternate partner node.

Examples

The following is an example of the **snasw stop cp-cp** command:

```
snasw stop cp-cp NETA.CMCHOST
```

Related Commands

Command	Description
snasw start cp-cp	Initiates a request to start CP-CP sessions with a partner CP.

snasw stop link

To stop an active link, use the **snasw stop link** privileged EXEC command.

snasw stop link *linkname*

Syntax Description

linkname Indicates the name of the link as configured or shown in the **show snasw link** command.

Defaults

No default behaviors or values.

Command Modes

Privileged EXEC

Command History

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

Usage Guidelines

If connectivity to a specified partner CP is no longer desired, the link can be deactivated with this command. All non-HPR sessions established using this link are disconnected.

Examples

The following is an example of the **snasw stop link** command:

```
snasw stop link CMCHOST1
```

Related Commands

Command	Description
show snasw link	Displays the SNASw link objects.

snasw stop port

To stop an active port, use the **snasw stop port** privileged EXEC command.

```
snasw stop port portname
```

Syntax Description

portname Indicates the name of the port as configured or shown in the **show snasw port** command.

Defaults

No default behaviors or values.

Command Modes

Privileged EXEC

Command History

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

Usage Guidelines

Use the **snasw stop port** command to disable a specified port without removing it from the configuration. All non-HPR sessions established using this port and all links are shut down on the port.

Examples

The following is an example of the **snasw stop port** command:

```
snasw stop port TOKEN0
```

Related Commands

Command	Description
snasw start port	Starts an inactive port.

snasw stop session

To terminate a session that is no longer desirable to have active, use the **snasw stop session** privileged EXEC command.

snasw stop session *pcid fqcpname netid-destination*

Syntax Description

<i>pcid</i>	Procedure correlator ID in 16-digit hexadecimal form.
<i>fqcpname</i>	Fully qualified cpname of the node that generates the PCID.
<i>netid.destination</i>	Fully qualified primary LU name.

Defaults

No default behaviors or values.

Command Modes

Privileged EXEC

Command History

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

Usage Guidelines

The **snasw stop session** command is used to clear sessions that are active but in an indeterminate or hung state or if the session partner is not responsive.

Examples

The following is an example of the **snasw stop session** command:

```
snasw stop session C3BBD36EA9CBA1AF neta.mvsd
```

Related Commands

Command	Description
show snasw session	Displays the SNASw session objects.

Debug Commands

This section documents the new debug commands used for the SNASw feature.

- `debug snasw dlc`
- `debug snasw ips`

debug snasw dlc

To display frame information entering and leaving SNASw in a real time to the console, use the **debug snasw dlc** command.

debug snasw dlc detail

Syntax Description

detail Indicates that in addition to a one line description of the frame being displayed an entire hexadecimal dump of the frame will follow.

Defaults

By default, a one-line description of the frame is displayed.



Warning The **debug snasw dlc** command displays the same trace information available from the **snasw dlctrace** command. The **snasw dlctrace** command is the preferred method for gathering this trace information because it is written to a capture buffer instead of directly to the console. The **debug snasw dlc** command should be used only when it is certain that excessive output will not go to the console.

Command History

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

Examples

The following is an example of the **debug snasw dlc** command:

```
debug snasw dlc
```

This command provides the following output:

```

Sequence
Number      Link          Size of ISR/
              SNA BTU HPR  Description of frame
343  MVSD      In  sz:134  ISR fmh5 DLUR Rq ActPU NETA.APPNRA29
344  MVSD      Out sz:12   ISR +Rsp IPM      slctd nws:0008
345  @I000002 Out sz:18   ISR Rq ActPU
346  MVSD      Out sz:273  ISR fmh5 TOPOLOGY UPDATE
347  @I000002 In  sz:9     ISR +Rsp Data
348  @I000002 In  sz:12   ISR +Rsp IPM      slctd nws:0002
349  @I000002 In  sz:29   ISR +Rsp ActPU
350  MVSD      Out sz:115  ISR fmh5 DLUR +Rsp ActPU
351  MVSD      In  sz:12   ISR +Rsp IPM      slctd nws:0007
352  MVSD      In  sz:88   ISR fmh5 DLUR Rq ActLU NETA.MARTLU1
353  MVSD      Out sz:108  ISR fmh5 REGISTER
354  @I000002 Out sz:27   ISR Rq ActLU NETA.MARTLU1
    
```

Related Commands

Command	Description
snasw dlctrace	Captures trace frames entering and leaving the SNASw feature.
snasw dlfilter	Filters frames traced by the snasw dlctrace or debug snasw dlc commands.

debug snasw ips

To display internal signal information realtime to the console, use the **debug snasw ips** command.

debug snasw dlc

Syntax Description

There are no keywords or arguments for this command.

Defaults

By default, a one-line description of the interprocess signal is displayed.



Warning The **debug snasw ips** command displays the same trace information available from the **snasw ipstrace** command. Output from this debug command can be large. The **snasw ipstrace** command is the preferred method for gathering this trace information because it is written to a capture buffer instead of being written directly to the console. The **debug snasw ips** command should only be used when it is certain that the output will not cause excessive data to appear on the console. The **debug snasw dlc** command displays the same trace information available via the **snasw dlctrace** command. The **snasw dlctrace** command is the preferred method for gathering this trace information because it is written to a capture buffer instead of directly to the console. The **debug snasw dlc** command should only be used when it is certain that the output will not cause excessive data to be output to the console.

Command History

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

Examples

The following is an example of the **debug snasw ips** command:

debug snasw ips

This command provides the following output:

```

Sequence
Number      Signal Name      Sending      Receiving
              Process          Process      Queue

11257 : DEALLOCATE_RCB : --(0) -> RM(2130000) Q 4
11258 : RCB_DEALLOCATED : RM(2130000) -> PS(22E0000) Q 2
11259 : RCB_DEALLOCATED : --(0) -> PS(22E0000) Q 2
11260 : VERB_SIGNAL : PS(22E0000) -> DR(20F0000) Q 2
11261 : FREE_SESSION : --(0) -> RM(2130000) Q 2
11262 : BRACKET_FREED : RM(2130000) -> HS(22FB0001) Q 2
11263 : BRACKET_FREED : --(0) -> HS(22FB0001) Q 2
11264 : VERB_SIGNAL : --(0) -> DR(20F0000) Q 2
11265 : DLC_MU : DLC(2340000) -> PC(22DD0001) Q 2
11266 : DLC_MU : --(0) -> PC(22DD0001) Q 2
    
```

Related Commands

Command	Description
snasw ipstrace	Captures interprocess signal information between SNASw components.

Error Messages

The following pages list the error messages, explanations, and recommended actions for SNASw.

Error Message

`%SNASW-4-APPN_LOG_0: EXCEPTION - %lu - SNA Switch could not allocate necessary storage`

Explanation SNA Switching Services could not allocate necessary storage. Some operations may fail. See other logs.

Recommended Action Decrease the system load (for example, by reducing the number of active sessions) or make more storage available to the SNA Switch.

Error Message

`%SNASW-3-APPN_LOG_1: PROBLEM - %lu - SNA Switch could not allocate necessary storage`

Explanation SNA Switching Services could not allocate necessary storage. Some operations fails. See other logs or verbs.

Recommended Action Decrease the system load (for example, by reducing the number of active sessions) or make more storage available to the SNA Switch.

Error Message

`%SNASW-4-APPN_LOG_2: EXCEPTION - %lu - SNA Switch cryptography call failed, possibly due to missing password`

Explanation A call from SNA Switching Services to perform a cryptographic operation failed. Session activation fails, an active session will end abnormally with the given sense code, or some other action fails. More information may appear in subsequent logs.

Recommended Action Check the logs following this error message for evidence of failed session activation. If failure is evident, check MODE, LS, or INTERNAL PU definitions for cryptographic support. Check that any passwords necessary have been defined. If this problem occurs intermittently or with sessions already active with the same PLU, then SLU and mode make more storage available to SNA Switching Services.

Error Message

`%SNASW-3-ASM_LOG_0: PROBLEM - %lu - Received BIND request directed at this node with unrecognized secondary LU name`

Explanation Received a BIND request directed at this node (that is, either without an RSCV or at the last hop on the RSCV) with an unrecognized secondary LU name. This message usually indicates a configuration error at the primary LU. Session activation fails with the specified sense code.

Recommended Action Correct the primary LU configuration.

Error Message

`%SNASW-3-ASM_LOG_11: PROBLEM - %lu - Received BIND request with badly formed secondary LU name`

Explanation Received a BIND request with badly formed secondary LU name. This message might indicate an interoperability problem. Session activation fails with the specified sense code.

Recommended Action Contact the Cisco TAC with problem details.

Error Message

%SNASW-3-ASM_LOG_12: PROBLEM - %lu - Received BIND request where network ID of secondary LU does not match local network ID

Explanation Received a BIND request where the network identifier of secondary LU does not match the local network identifier. Session activation fails with the specified sense code.

Recommended Action Contact the Cisco TAC with problem details.

Error Message

%SNASW-4-ASM_LOG_15: EXCEPTION - %lu - Insufficient storage to deactivate link

Explanation There is insufficient storage to deactivate a link. The link is not deactivated

Recommended Action Decrease the system load (for example, by reducing the number of active sessions) or make more storage available to the SNA Switch.

Error Message

%SNASW-4-ASM_LOG_18: EXCEPTION - %lu - Unable to correlate received BIND response

Explanation Unable to correlate received BIND response. This is a normal trace condition, caused by a BIND being followed immediately by an UNBIND for the same session. The BIND response is discarded.

Recommended Action None.

Error Message

%SNASW-3-ASM_LOG_19: PROBLEM - %lu - Received BIND using LFSID that is already in use

Explanation Received a BIND using LFSID that is already in use. This is usually caused by a race condition (a BIND, UNBIND, BIND sequence all using the same LFSID, where the second BIND overtakes the UNBIND). Nodes at the current level of APPN contain "LFSID aging" processing to minimize the changes of this trace condition, but some older implementations may not support this processing. The BIND is rejected with specified sense code.

Recommended Action If this problem is persistent, or occurs frequently, contact the Cisco TAC with problem details.

Error Message

%SNASW-3-ASM_LOG_22: PROBLEM - %lu - Session control request received with invalid LFSID

Explanation Session control request received with invalid local form session identifier (that is, the LFSID is not in a range appropriate for the request). This message might indicate an interoperability problem. The request is rejected with the specified sense code.

Recommended Action Contact the Cisco TAC with problem details.

Error Message

%SNASW-3-ASM_LOG_24: PROBLEM - %lu - Failed to initialize address space instance

Explanation Insufficient storage to create a local form session identifier routing table for a link station. Link activation fails.

Recommended Action Decrease the system load (for example, by reducing the number of active sessions), or make more storage available to the SNA Switch.

Error Message

%SNASW-4-ASM_LOG_25: EXCEPTION - %lu - Unable to extend local form session identifier routing table

Explanation Unable to extend local form session identifier routing table. Session activation fails with the specified sense code.

Recommended Action Decrease the system load (for example, by reducing the number of active sessions), or make more storage available to the SNA Switch.

Error Message

%SNASW-4-ASM_LOG_26: EXCEPTION - %lu - Independent LU session deactivated because LU deleted

Explanation An independent LU-LU session was deactivated because the local LU was deleted.

Recommended Action None.

Error Message

%SNASW-3-ASM_LOG_27: PROBLEM - %lu - Detected fatal BIND or UNBIND protocol error

Explanation Detected fatal BIND or UNBIND protocol error. This message might indicate an interoperability problem. Sense codes are as follows:

- 10010003—BIND IPM format error
- 10020000—RU (BIND, UNBIND, or BIND IPM) length error
- 20110000—BIND pacing window overrun, or PI not set when expected
- 20110001—Unexpected solicited BIND IPM
- 20110002—PI set when not expected
- 20110003—Pacing response not IPM
- 800F0000—LFSID incorrect for SC request
- 800F0001—ODAI incorrect Link is deactivated.
- 80070000—BIND or RSP (BIND) segment out of sequence, or segmented UNBIND or RSP(UNBIND)

- 80070002—BIND or RSP (BIND) segments interleaved

Recommended Action Contact the Cisco TAC with problem details.

Error Message

%SNASW-3-ASM_LOG_28: PROBLEM - %lu - Received BIND IPM on link where adaptive BIND pacing not supported

Explanation Received a BIND IPM on link where adaptive BIND pacing is not supported. This message might indicate an interoperability problem. BIND IPM is discarded.

Recommended Action Contact the Cisco TAC with problem details.

Error Message

%SNASW-4-ASM_LOG_29: EXCEPTION - %lu - Dependent LU session deactivated because LU deleted

Explanation A dependent LU-LU session was deactivated because the LU was deleted.

Recommended Action None.

Error Message

%SNASW-3-ASM_LOG_2: PROBLEM - %lu - Insufficient storage to generate an Alert

Explanation Insufficient storage to generate Alert to report a BIND segmentation or pacing error. The Alert is not sent.

Recommended Action Decrease the system load (for example, by reducing the number of active sessions) or make more storage available to the SNA Switch.

Error Message

%SNASW-3-ASM_LOG_3: PROBLEM - %lu - Insufficient storage to process received BIND request

Explanation Insufficient storage to process received BIND request. The BIND is rejected with the specified sense code.

Recommended Action Decrease the system load (for example, by reducing the number of active sessions) or make more storage available to the SNA Switch.

Error Message

%SNASW-3-ASM_LOG_4: PROBLEM - %lu - ACTPU, ACTLU, DACTPU or DACTLU received on link on which dependent LUs are not supported

Explanation ACTPU, ACTLU, DACTPU, or DACTLU received over a link on which dependent LUs are not supported. This message might indicate an interoperability problem. The request is rejected with the specified sense code.

Recommended Action Contact the Cisco TAC with problem details.

Error Message

%SNASW-3-ASM_LOG_5: PROBLEM - %lu - Branch Network Node received BIND request with badly formed RSCV

Explanation A branch NN has received a BIND request with a badly formed RSCV. This message might indicate an interoperability problem. Session activation fails.

Recommended Action Contact the Cisco TAC with problem details.

Error Message

%SNASW-3-ASM_LOG_6: PROBLEM - %lu - Badly-formed BIND request rejected by SNA Switch

Explanation The SNA Switch received and rejected a badly formed BIND request. This message might indicate an interoperability problem. The session activation fails.

Recommended Action Contact the Cisco TAC with problem details.

Error Message

%SNASW-3-BAD_MSG_NAME: Invalid message name specified for snasw msg-trap

Explanation An invalid message name was supplied on the **snasw msg-trap** command.

Recommended Action Reissue the command with a valid message name.

Error Message

%SNASW-4-CH2_LOG_0: EXCEPTION - %lu - CRV exchange failed on a PLU-SLU session. The session fails

Explanation CRV exchange failed. This indicates the cryptography keys configured at this LU and the partner LU are inconsistent. The session is deactivated with the specified sense code (08350001).

Recommended Action Use information on the session deactivated problem log (log 271) to identify the local LU and partner LU, and correct the mismatch in cryptography keys.

Error Message

%SNASW-4-CH2_LOG_1: EXCEPTION - %lu - Protocol error during CRV exchange

Explanation Protocol error during CRV exchange. This indicates a possible interoperability problem. Sense codes are as follows:

- 10020000 —CRV RU too short
- 20090000—CRV request received from secondary LU, or CRV response received from primary LU, or CRV not received when expected
- 400B0000—CRV chain indicators not set to BC, EC
- 400C0000—CRV request with BBI, EBI or CEBI set
- 400D0000—CRV request with CDI set
- 400F0000—CRV with FI not set
- 40080000—CRV with PI set
- 40100000—CRV request with CSI set to CODE1
- 40110000—CRV not expedited
- 40130000—CRV response RTI and SDI inconsistent. The session is deactivated with specified sense code
- 40140000—CRV not RQD1
- 40150000—CRV with QRI not set
- 40160000—CRV request with EDI set

- 40170000—CRV request with PDI set

Recommended Action Use the information in the session deactivated problem log (271) to identify the local LU and partner LU. Run a trace on the specified link station, and contact the Cisco TAC with the log and trace.

Error Message

%SNASW-4-CH2_LOG_2: EXCEPTION - %lu - Insufficient storage to initialize half session

Explanation Insufficient storage to initialize the half session. The half session fails to activate with the specified sense code.

Recommended Action Decrease the system load (for example, by reducing the number of active sessions) or make more storage available to the SNA Switch.

Error Message

%SNASW-4-CH_LOG_0: EXCEPTION - %lu - LU type 0, 1, 2 or 3 format error

Explanation LU type 0, 1, 2, or 3 format error. This message might indicate an interoperability problem. The PIU containing the error is discarded.

Recommended Action Contact the Cisco TAC with problem details.

Error Message

%SNASW-4-CH_LOG_1: EXCEPTION - %lu - LU type 0, 1, 2 or 3 session ended abnormally because of insufficient storage

Explanation LU type 0, 1, 2, or 3 session ended abnormally because of insufficient storage. The session is deactivated with the specified sense code.

Recommended Action Decrease the system load (for example, by reducing the number of active sessions) or make more storage available to the SNA Switch.

Error Message

%SNASW-4-CH_LOG_2: EXCEPTION - %lu - LU type 0, 1, 2 or 3 session ended abnormally while receiving data

Explanation LU type 0, 1, 2, or 3 session ended abnormally while receiving data. The session is deactivated with the specified sense code.

Recommended Action Contact the Cisco TAC with problem details.

Error Message

%SNASW-4-CH_LOG_3: EXCEPTION - %lu - LU type 0, 1, 2 or 3 session ended abnormally because of invalid application data

Explanation LU type 0, 1, 2, or 3 session ended abnormally because invalid data was received from an application. The session is deactivated with the specified sense code.

Recommended Action Contact the Cisco TAC with problem details.

Error Message

%SNASW-4-CH_LOG_4: EXCEPTION - %lu - Application sent invalid Data message

Explanation LU type 0, 1, 2, or 3 application sent an invalid data message. The status "Acknowledge (NACK-2)" was sent to the application.

Recommended Action Investigate the error in the application.

Error Message

%SNASW-4-CH_LOG_5: EXCEPTION - %lu - Application sent invalid Status Control message

Explanation LU type 0, 1, 2, or 3 application sent an invalid Status Control message. The status "Control (NACK-2)" was sent to the application.

Recommended Action Investigate the error in the application.

Error Message

%SNASW-4-CH_LOG_6: EXCEPTION - %lu - Application sent invalid Acknowledgment or Status message

Explanation LU type 0, 1, 2, or 3 application sent an invalid Acknowledgment or Status message. An Error message was sent to the application.

Recommended Action Investigate the error in the application.

Error Message

%SNASW-4-CH_LOG_8: EXCEPTION - %lu - Insufficient storage to report RTM statistics to Host

Explanation Insufficient storage to report RTM statistics to host. RTM statistics displayed by host are inconsistent.

Recommended Action Decrease the system load (for example, by reducing the number of active sessions) or make more storage available to the SNA Switch.

Error Message

%SNASW-4-CH_LOG_9: EXCEPTION - %lu - Insufficient storage to report RTM status to application

Explanation Insufficient storage to report RTM status to application. RTM statistics reported and displayed by application might be inconsistent.

Recommended Action Decrease the system load (for example, by reducing the number of active sessions) or make more storage available to the SNA Switch.

Error Message

%SNASW-3-CLSIBadPrimitive: CLSI bad primitive type, header= [chars]

Explanation An internal software error occurred.

Recommended Action If the message recurs, copy the error message exactly as it appears on the console or in the system log and contact the Cisco TAC.

Error Message

%SNASW-3-CLSIBadReturnCode: CLSI bad return code: [dec], header= [chars]

Explanation An internal software error occurred.

Recommended Action If the message recurs, copy the error message exactly as it appears on the console or in the system log and contact the Cisco TAC.

Error Message

`%SNASW-3-CLSIFailure: SNASw failed to process CLSI message, header= [chars]`

Explanation An internal software error occurred.

Recommended Action If the message recurs, copy the error message exactly as it appears on the console or in the system log, contact the Cisco TAC.

Error Message

`%SNASW-6-CS2_LOG_0: INFO - %lu - Implicit link limit on port reached`

Explanation An implicit, dynamic, or discovery link could not be activated because the implicit link limit defined on the port was reached or exceeded. The link type activated is:

- 1—dynamic
- 3—implicit
- 4—discovery

Recommended Action None.

Error Message

`%SNASW-4-CS2_LOG_10: EXCEPTION - %lu - Link activation retry limit reached`

Explanation An automatic retry link station is still inactive after the maximum allowed number of retries. The link station remains inactive awaiting operator intervention. The activation of any sessions relying on this link station fails.

Recommended Action Check surrounding logs for link activation failures. Check the configuration of the link station. Check the state of the adjacent node. Issue the `snasw start link` command to retry activation.

Error Message

`%SNASW-4-CS2_LOG_11: EXCEPTION - %lu - A request to activate a connection network TG was rejected because the local and destination link addresses were incompatible`

Explanation The SNA Switch cannot start a link to an adjacent node over a connection network TG because the link address on the local node is not compatible with the link address on the adjacent node. The session fails with the specified sense code.

Recommended Action Check the local and destination link addresses.

Error Message

`%SNASW-4-CS2_LOG_12: EXCEPTION - %lu - A request to activate a connection network TG was rejected because a defined link was already active between the local and destination address and multiple links are not supported`

Explanation SNA Switch cannot start a link to an adjacent node over a connection network TG because the DLC does not support multiple links between the local and destination addresses. The session fails with the specified sense code.

Recommended Action Check the local and destination link addresses.

Error Message

%SNASW-4-CS2_LOG_25: EXCEPTION - %lu - Insufficient resources to (un)register adjacent LEN

Explanation The branch NN has insufficient resources to register or unregister an adjacent LEN node. The directory of this node or of the network node server might become inconsistent because the LEN CP is still there when it should not be, or vice versa. Session activation to the LEN node might fail when a link to it is active, or neighboring nodes might believe that the LEN node can be contacted when the link is down.

Recommended Action Ensure sufficient resources are available to the SNA Switch and then recycle the link to the required state.

Error Message

%SNASW-4-CS2_LOG_26: EXCEPTION - %lu - Invalid TG descriptor received from DLUS

Explanation An invalid TG descriptor was received from a DLUS. The PU is not activated.

Recommended Action Check the configuration of the DLUS named by this log. Contact the Cisco TAC with problem details.

Error Message

%SNASW-4-CS2_LOG_27: EXCEPTION - %lu - A DLUS-defined downstream DLUR-served link could not be defined

Explanation A DLUS-defined downstream DLUR-served link could not be defined because the specified port does not exist, or there is an existing link station to the same destination address. The PU is not activated.

Recommended Action Correct the configuration.

Error Message

%SNASW-4-CS2_LOG_28: EXCEPTION - %lu - A DLUS-defined downstream DLUR-served link failed to activate

Explanation A DLUS-defined downstream link failed to activate. The PU is not activated.

Recommended Action Check that the named port is active. Check that the downstream node at the given address is powered on. Check surrounding logs for reasons that the named LS is not activated. Check the DLUS configuration.

Error Message

%SNASW-4-CS2_LOG_29: EXCEPTION - %lu - DLUS-defined DSPU name clashes with locally-defined DSPU name

Explanation A DLUS-defined DSPU name clashes with the locally defined DSPU name of a different PU. An implicit link fails. The ACTPU for the DSPU connected over this link is rejected.

Recommended Action Reconfigure this node or the DLUS to remove the PU name. If the DLUS and the DLUR use the same PU name, then they must apply this name to the same PU.

Error Message

%SNASW-4-CS2_LOG_2: EXCEPTION - %lu - Link activation race detected - local node responsible for disconnect

Explanation A link activation race was detected on an ATM port. The local node is responsible for resolving this race. The local node disconnects its link. The remote node's link activation request succeeds.

Recommended Action This is a normal trace condition. No action is required.

Error Message

%SNASW-4-CS2_LOG_30: EXCEPTION - %lu - Insufficient information to create a DLUS-defined link to a DLUR DSPU

Explanation Insufficient information to create a DLUS-defined link. A PU is not activated. The ACTPU for the named PU is rejected with the given sense code.

Recommended Action Correct the PU definition at the DLUS. The DLUS-defined link could not be created using the information from the DLUS in the TG descriptor (CV x'46'). For example, to create a Token Ring link, SNA Switching Services requires the x'46' descriptor to contain the following subfields:

- x'91'—Signaling information CV specifying EBCDIC 'TR'
- x'92'—Port identifier containing an 8-byte EBCDIC port name
- x'93'—LSAP info containing a 1-byte destination SAP address
- x'94'—MAC info containing a 6-byte destination MAC address

Error Message

%SNASW-4-CS2_LOG_3: EXCEPTION - %lu - Link activation race detected - adjacent node responsible for disconnect

Explanation A link activation race was detected on an ATM port. The remote node is responsible for resolving this race. The local node sends a negotiation error CV indicating that the remote link activation request should fail. The local node's link activation request succeeds.

Recommended Action This is a normal trace condition. No action is required.

Error Message

%SNASW-4-CS2_LOG_4: EXCEPTION - %lu - PORT_BANDWIDTH_UPDATE (status = QUIESCING) received

Explanation A PORT_BANDWIDTH_UPDATE signal (status = QUIESCING) is received. Any connection network TGs on this port are advertised as quiescing. Any automatically activated TGs are advertised as nonoperational.

Recommended Action If possible, increase the bandwidth available to the local port.

Error Message

%SNASW-4-CS2_LOG_5: EXCEPTION - %lu - PORT_BANDWIDTH_UPDATE (status = OK) received

Explanation A PORT_BANDWIDTH_UPDATE signal (status = OK) is received. Any connection network TGs on this port that were advertised as quiescing are advertised as active. Any automatically TGs that were advertised as nonoperational are advertised as operational.

Recommended Action To avoid future problems with bandwidth shortage, increase the bandwidth available to the local port.

Error Message

%SNASW-3-CS2_LOG_9: PROBLEM - %lu - DLC failure during creation

Explanation The DLC returned inconsistent data during creation. The DLC is destroyed, and all ports and link stations defined on the DLC are inoperative.

Recommended Action Run a trace on the DLC and contact Cisco TAC with the log and trace information.

Error Message

%SNASW-3-CS_LOG_0: PROBLEM - %lu - An active link station has failed

Explanation An active link station failed. The link and any sessions using it are deactivated.

Recommended Action An attempt was made to restart the link. If the problem persists, inspect the log for problems or exceptions logged by the DLC that give specific reasons for the failure, then follow the actions specified by those logs. Otherwise, run a trace on the specified port or link station to find the reason for the failure.

Error Message

%SNASW-3-CS_LOG_10: PROBLEM - %lu - Link to host not configured

Explanation An unexpected SET_MODE received before XID exchange is complete was received from an adjacent host and there is no link configured to that host. An implicit link cannot be activated because there is not a local PU defined to use the link. Inbound link activation fails.

Recommended Action Define a link station using the **snasw link** command with *adj_cp_type* set to NAP_HOST_XID3 or NAP_HOST_XID0.

Error Message

%SNASW-3-CS_LOG_11: PROBLEM - %lu - Parallel TGs not supported to this adjacent node

Explanation An attempt was made to activate more than one TG to an adjacent node that does not support parallel TGs. Link activation fails.

Recommended Action Modify the configuration so that there is only one link station defined to the specified adjacent node. (Alternately, several links to the adjacent node can be defined, but only one can be active concurrently.)

Error Message

%SNASW-4-CS_LOG_12: EXCEPTION - %lu - Insufficient storage to perform orderly link deactivation (link deactivated immediate instead)

Explanation Insufficient storage to perform an orderly link deactivation, so an immediate deactivation is performed instead.

Recommended Action Decrease the system load (for example, by reducing the number of active sessions) or make more storage available to the SNA Switch.

Error Message

`%SNASW-3-CS_LOG_13: PROBLEM - %lu - Conflicting requirements for error recovery, link is not HPR-capable`

Explanation There are conflicting requirements for error recovery between the local node and a partner node when attempting to activate a link that is HPR-capable. The link activates, but is not HPR-capable.

Recommended Action To use HPR protocols on the link, the local and partner nodes must accommodate the other's error recovery requirement. At the minimum this error requires reconfiguration, but reconfiguration might not be possible.

Error Message

`%SNASW-4-CS_LOG_14: EXCEPTION - %lu - Insufficient storage to update ANR routing tables following deactivation of an HPR-capable link`

Explanation Insufficient storage to update ANR routing tables following deactivation of an HPR-capable link. The node might be unable to free resources that are no longer required but otherwise operates normally.

Recommended Action Decrease the system load (for example, by reducing the number of active sessions), or make more storage available to SNA Switching Services.

Error Message

`%SNASW-4-CS_LOG_15: EXCEPTION - %lu - Insufficient storage to update ANR routing tables following activation of an HPR-capable link`

Explanation Insufficient storage to update ANR routing tables following activation of an HPR-capable link. HPR traffic using this ANR label is not routed correctly, which might cause RTP connections to path-switch or fail.

Recommended Action Decrease the system load (for example, by reducing the number of active sessions), or make more storage available to SNA Switching Services.

Error Message

`%SNASW-3-CS_LOG_17: PROBLEM - %lu - DLC failed`

Explanation A DLC ended abnormally. All ports and link stations defined on the DLC are inoperative.

Recommended Action Restart the DLC using the `snasw start port` command. If the problem persists, look for DLC-specific logs for more information on the reason for the failure.

Error Message

`%SNASW-4-CS_LOG_19: EXCEPTION - %lu - Insufficient storage to forward Alert generated by DLC`

Explanation Insufficient storage to forward an Alert generated by DLC. The alert is discarded.

Recommended Action Decrease the system load (for example, by reducing the number of active sessions) or make more storage available to the SNA Switch.

Error Message

`%SNASW-3-CS_LOG_1: PROBLEM - %lu - XID exchange count exceeds activation limit`

Explanation The number of XIDs received during link activation exceeded the limit defined for the port. This message could indicate an XID protocol error, or an excessively unreliable physical media. The sense data gives more information about the error:

- 0809003A—Limit was exceeded while exchanging NULL XIDs. Link activation fails
- 083E0001—Limit was exceeded while exchanging prenegotiation or negotiation XIDs

Recommended Action Retry the activation. If the SNA Switch is still unable to activate the link station, run a trace on the link station or port to diagnose the problem.

Error Message

`%SNASW-3-CS_LOG_22: PROBLEM - %lu - Unable to deactivate port`

Explanation Unable to deactivate port. The **snasw stop port** command fails, and the port might not restart successfully.

Recommended Action If required, attempt to restart the port. If the restart fails, look for DLC-specific logs for more information about the failure.

Error Message

`%SNASW-3-CS_LOG_24: PROBLEM - %lu - Unrecoverable DLC failure`

Explanation Unrecoverable DLC failure. The DLC is destroyed and all ports and link stations defined on the DLC are inoperative.

Recommended Action Restart the DLC and ports using the **snasw start port** command. If these operations fail, or if this problem persists, run a trace on the DLC and contact the Cisco TAC.

Error Message

`%SNASW-4-CS_LOG_25: EXCEPTION - %lu - Link not configured for automatic activation or last stopped non-automatically`

Explanation A session or application required the SNA Switch to automatically activate a link station, but the link station was not configured to be automatically activated or was last stopped manually. The session or application fails with the specified sense code.

Recommended Action Manually activate the link using the **snasw start link** command or redefine the link to support automatic activation using the **snasw link** command.

Error Message

`%SNASW-4-CS_LOG_26: EXCEPTION - %lu - Unable to activate link station because owning port is not active`

Explanation A session or application required the SNA Switch to automatically activate a link station, but the request was failed because the owning port was not active. This problem usually indicates an inconsistent network topology, which may be transient (that is, caused by a normal trace condition) or permanent (indicated by logs 127 or 128). The session or application fails with the specified sense code.

Recommended Action If possible, increase the port link activation limits. Otherwise, check the consistency of the network topology.

Error Message

%SNASW-4-CS_LOG_27: EXCEPTION - %lu - Unable to find requested link

Explanation A session required the SNA Switch to automatically activate a link station, but SNA Switching Services was unable to identify the requested link. This problem usually indicates an inconsistent network topology, which may be transient (that is, caused by a normal trace condition) or permanent (indicated by logs 127 or 128). The session fails with the specified sense code.

Recommended Action Check the consistency of the network topology.

Error Message

%SNASW-4-CS_LOG_28: EXCEPTION - %lu - Unable to activate dynamic link station because owning port is not active

Explanation A session required the SNA Switch to automatically activate a dynamic link station, but the request was failed because the owning port was not active. This problem usually indicates an inconsistent network topology, which may be transient (that is, caused by a normal trace condition) or permanent (indicated by logs 127 or 128). The session fails with the specified sense code.

Recommended Action If possible, increase the port activation limits. Otherwise, check the consistency of the network topology.

Error Message

%SNASW-4-CS_LOG_29: EXCEPTION - %lu - Unable to find requested connection network

Explanation A session required the SNA Switch to automatically activate a dynamic link station, but SNA Switching Services was unable to identify the requested connection network. This problem usually indicates an inconsistent network topology, which may be transient (that is, caused by a normal trace condition) or permanent (indicated by logs 127 or 128). The session fails with the specified sense code.

Recommended Action Check the consistency of the network topology.

Error Message

%SNASW-3-CS_LOG_2: PROBLEM - %lu - XID exchange count exceeds nonactivation limit

Explanation The number of XIDs received during non-activation exchange exceeded the limit defined for the port. This message might indicate an XID protocol error or an excessively unreliable physical media. Non-activation XID exchange fails, and the link is deactivated.

Recommended Action Run a trace on the link station or port to diagnose the problem, and contact the Cisco TAC with the trace information.

Error Message

%SNASW-3-CS_LOG_30: PROBLEM - %lu - Incoming call rejected because port link-activation limits exceeded

Explanation An incoming call was rejected because the port link activation limits would be exceeded. The link activation fails.

Recommended Action If possible, increase the port link activation limits.

Error Message

%SNASW-3-CS_LOG_31: PROBLEM - %lu - The CP name on an XID3 received from adjacent node is different to that expected

Explanation The CP name on an XID3 received from an adjacent node is different than expected. The link activation fails.

Recommended Action If the received adjacent CP name is correct, correct the link station configuration using the **snasw link** command. Depending on other aspects of the link station definition, the CP name check can be disabled by issuing the **snasw link** command with the *adj_cp_name* field set to all zeros.

Error Message

%SNASW-3-CS_LOG_32: PROBLEM - %lu - The node ID on an XID3 received from a back-level node is different to that expected

Explanation The node ID on an XID3 received from a back level node is different than expected. The link activation fails.

Recommended Action If the received node ID is correct, correct the link station configuration using the **snasw link** command. Depending on other aspects of the link station definition, the node ID check can be disabled by issuing the **snasw link** command with the *adj_node_id* field set to all zeros.

Error Message

%SNASW-3-CS_LOG_33: PROBLEM - %lu - The node type indicated on an XID3 received from an adjacent node is different to that expected

Explanation The node type indicated on an XID3 received from an adjacent node is different than expected. The link activation fails.

Recommended Action If the received node type is correct, correct the link station configuration using the **snasw link** command. Depending on other aspects of the link station definition, the node type check can be disabled by issuing the **snasw link** command with the *adj_node_type* field set to NAP_LEARN_NODE.

Error Message

%SNASW-3-CS_LOG_34: PROBLEM - %lu - Both sent and received XIDs indicate the same, non-negotiable, link station role

Explanation Both sent and received XIDs indicate the same nonnegotiable link station role. The link activation fails.

Recommended Action Correct the local port definition or the remote definition so that the link station roles are complementary or so that at least one link station is negotiable.

Error Message

%SNASW-4-CS_LOG_35: EXCEPTION - %lu - Unable to activate link station because port total link-activation limit reached

Explanation A session or application required the SNA Switch to automatically activate a link station, but the request failed because it would have exceeded the port total link activation limit. This problem usually indicates an inconsistent network topology, which may be transient (that is, caused by a normal trace condition) or permanent (indicated by logs 127 or 128). The session or application fails with the specified sense code.

Recommended Action Check the consistency of the network topology.

Error Message

```
%SNASW-4-CS_LOG_36: EXCEPTION - %lu - Unable to activate link station because port outbound link-activation limit reached
```

Explanation A session or application required the SNA Switch to automatically activate a link station, but the request failed because it would have exceeded the maximum number of concurrently active outbound links allowed for the owning port. This number is the total link activation limit minus the inbound link activation limit (that part of the total limit reserved for active inbound links). This problem usually indicates an inconsistent network topology, which may be transient (that is, caused by a normal trace condition) or permanent (indicated by logs 127 or 128). The session or application fails with the specified sense code.

Recommended Action Check the consistency of the network topology.

Error Message

```
%SNASW-4-CS_LOG_37: EXCEPTION - %lu - Unable to activate dynamic link station because port total link-activation limit reached
```

Explanation A session required the SNA Switch to automatically activate a dynamic link station, but the request failed because it would have exceeded the port total link activation limit. This problem usually indicates an inconsistent network topology, which may be transient (that is, caused by a normal trace condition) or permanent (indicated by logs 127 or 128). The session fails with the specified sense code.

Recommended Action Check the consistency of the network topology.

Error Message

```
%SNASW-4-CS_LOG_38: EXCEPTION - %lu - Unable to activate dynamic link station because port outbound link-activation limit reached
```

Explanation A session required the SNA Switch to automatically activate a dynamic link station, but the request failed because it would have exceeded the maximum number of concurrently active outbound links allowed for the owning port. This number is the total link activation limit minus the inbound link-activation limit (that part of the total limit reserved for active inbound links). This problem usually indicates an inconsistent network topology, which may be transient (that is, caused by a normal trace condition) or permanent (indicated by logs 127 or 128). The session fails with the specified sense code.

Recommended Action Check the consistency of the network topology.

Error Message

```
%SNASW-6-CS_LOG_39: INFO - %lu - Link station to host started
```

Explanation A non-APPN link station to an upstream host was successfully started.

Recommended Action None.

Error Message

```
%SNASW-3-CS_LOG_3: PROBLEM - %lu - Insufficient storage to activate link
```

Explanation Insufficient storage to activate link. Link activation fails.

Recommended Action Decrease the system load (for example, by reducing the number of active sessions) or make more storage available to the SNA Switch.

Error Message

%SNASW-6-CS_LOG_40: INFO - %lu - Link station to DSPU started

Explanation A non-APPN link station to a downstream PU was successfully started.

Recommended Action None.

Error Message

%SNASW-6-CS_LOG_41: INFO - %lu - Link station to host stopped

Explanation A non-APPN link station to an upstream host was successfully stopped.

Recommended Action None.

Error Message

%SNASW-6-CS_LOG_42: INFO - %lu - Link station to DSPU stopped

Explanation A non-APPN link station to a downstream PU was successfully stopped.

Recommended Action None.

Error Message

%SNASW-4-CS_LOG_43: EXCEPTION - %lu - Unable to find requested link

Explanation A locally initiated dependent session activation request required the SNA Switch to automatically activate a link to a specified PU name, but SNA Switching Services was unable to identify the a link to the PU. This problem indicates an inconsistent local configuration that is transient and is caused by a recent modification. The session activation request fails with the specified sense code.

Recommended Action Check the consistency of the local configuration (link definitions can be viewed using the **show snasw link** command).

Error Message

%SNASW-6-CS_LOG_44: INFO - %lu - SNA Switching Services link started

Explanation A SNA Switch link was successfully started.

Recommended Action None.

Error Message

%SNASW-3-CS_LOG_4: PROBLEM - %lu - Link to back-level LEN node not configured

Explanation An XID3 from an adjacent back-level LEN node not carrying a network name control vector was received, and there was not a link configured to that back-level LEN node. An implicit link cannot be activated because the adjacent node's CP name is not known. Inbound link activation fails.

Recommended Action Define a link station using the **snasw link** command with *adj_cp_type* set to **NAP_BACK_LEVEL_LEN_NODE**.

Error Message

%SNASW-3-CS_LOG_51: PROBLEM - %lu - Intra-node session support ended abnormally

Explanation Intranode session support ended abnormally. This error should occur only because there is a shortage of available storage. Any active intranode sessions fails, and no more intranode sessions are activated.

Recommended Action Decrease the system load (for example, by reducing the number of active sessions) or make more storage available to the SNA Switch.

Error Message

%SNASW-4-CS_LOG_52: EXCEPTION - %lu - Unable to find requested connection network

Explanation A session required the SNA Switch to automatically activate a dynamic link station, but the SNA Switch was unable to identify the requested connection network TG. This problem usually indicates an inconsistent network topology, which may be transient (that is, caused by a normal trace condition) or permanent (indicated by logs 127 or 128). The session fails with the specified sense code.

Recommended Action Check the consistency of the network topology.

Error Message

%SNASW-3-CS_LOG_54: PROBLEM - %lu - Insufficient storage to generate link Alert

Explanation Insufficient storage to generate link Alert. The alert is not sent.

Recommended Action Decrease the system load (for example, by reducing the number of active sessions) or make more storage available to the SNA Switch.

Error Message

%SNASW-6-CS_LOG_55: INFO - %lu - HPR-capable SNA Switch link started

Explanation A SNA Switch link was successfully started on a node that supports HPR.

Recommended Action None.

Error Message

%SNASW-6-CS_LOG_56: INFO - %lu - SNA Switch link stopped

Explanation A SNA Switch link was successfully stopped.

Recommended Action None.

Error Message

%SNASW-6-CS_LOG_57: INFO - %lu - DLC started

Explanation A DLC was successfully started.

Recommended Action None.

Error Message

%SNASW-6-CS_LOG_58: INFO - %lu - DLC stopped

Explanation A DLC was successfully stopped.

Recommended Action None.

Error Message

%SNASW-6-CS_LOG_59: INFO - %lu - Port started

Explanation A port was successfully started.

Recommended Action None.

Error Message

%SNASW-3-CS_LOG_5: PROBLEM - %lu - Link to host not configured correctly (host is not a Type 2.1 node)

Explanation The link to host was not configured correctly (that is, configured as a link to a Type 2.1 node). Link activation fails.

Recommended Action Redefine (or define) the link station using the **snasw link** command with *adj_cp_type* set to NAP_HOST_XID3 or NAP_HOST_XID0.

Error Message

%SNASW-6-CS_LOG_60: INFO - %lu - Port stopped

Explanation A port was successfully stopped.

Recommended Action None.

Error Message

%SNASW-4-CS_LOG_61: EXCEPTION - %lu - Unable to start requested CP-CP sessions with adjacent node

Explanation The specified link is configured to support CP-CP sessions, but these sessions could not be started. This error could be because the remote node is not configured to support CP-CP sessions on this link, or because both the local and remote nodes are ENs, and hence CP-CP sessions cannot be started. CP-CP sessions are not established.

Recommended Action Correct the configuration mismatch by removing CP-CP sessions support from the local connection definition or by adding it to the adjacent node's connection definition.

Error Message

%SNASW-3-CS_LOG_62: PROBLEM - %lu - Failed to create DLC

Explanation A DLC could not be started either because of insufficient resources or because the specified DLC type is not supported. The DLC is inoperative.

Recommended Action If the DLC type is supported, then decrease the system load, for example, by reducing the number of active sessions, or make more storage available to the SNA Switch.

Error Message

%SNASW-3-CS_LOG_63: PROBLEM - %lu - Pre-defined TG number does not match that sent by adjacent node

Explanation The specified link station is configured with a predefined TG number, but the adjacent node has sent a different non-zero TG number. Link activation fails.

Recommended Action Correct mismatched TG number configuration at this node using the **snasw link** command.

Error Message

%SNASW-3-CS_LOG_64: PROBLEM - %lu - Adjacent node sent a TG number that was pre-assigned to another LS

Explanation Adjacent node attempted to use a TG number for this link that is already predefined on another link station. Link activation fails.

Recommended Action Correct the mismatched TG number configuration at this node using the `snasw link` command.

Error Message

%SNASW-3-CS_LOG_65: PROBLEM - %lu - Adjacent node sent a TG number that was already in use by another LS

Explanation Adjacent node attempted to use a TG number for this link that is already in use by another link station. This message might indicate an interoperability problem. Link activation fails.

Recommended Action Run a trace on the link station or port to get more diagnostic information on the problem, and contact the Cisco TAC.

Error Message

%SNASW-6-CS_LOG_66: INFO - %lu - Adjacent node has changed its CP name

Explanation An adjacent node has changed its CP name.

Recommended Action None.

Error Message

%SNASW-3-CS_LOG_67: PROBLEM - %lu - Insufficient storage to update topology database with link station

Explanation There is insufficient storage to update the topology database with link station information. The topology is inconsistent, which might result in unexpected session activation failures (typically with sense codes 8014xxxx, 0806002B, or 08500001).

Recommended Action Decrease the system load (for example, by reducing the number of active sessions) or make more storage available to the SNA Switch. Cycling the specified link station (by either activating then deactivating, or deactivating then activating) might clear the condition.

Error Message

%SNASW-3-CS_LOG_68: PROBLEM - %lu - Insufficient storage to update topology database with connection network

Explanation There is insufficient storage to update the topology database with connection network information. The topology is inconsistent, which may result in unexpected session activation failures (typically with sense codes 8014xxxx, 0806002B, or 08500001).

Recommended Action Decrease the system load (for example, by reducing the number of active sessions) or make more storage available to the SNA Switch. Cycling the specified port (by either activating then deactivating, or deactivating then activating) might clear the condition.

Error Message

%SNASW-3-CS_LOG_69: PROBLEM - %lu - Insufficient storage to enable intra-node sessions

Explanation There is insufficient storage to enable intranode sessions. Intranode sessions are not activated.

Recommended Action Decrease the system load (for example, by reducing the number of active sessions) or make more storage available to the SNA Switch.

Error Message

%SNASW-3-CS_LOG_6: PROBLEM - %lu - XID protocol error during activation exchange

Explanation There was an XID protocol error during activation exchange. This message might indicate an interoperability problem between this node and the adjacent node, or it might be caused by the adjacent node resetting and restarting the exchange without sending a DISC or DM frame. The sense codes are as follows:

- 0806002C—The adjacent node has changed its network name during the course of an XID exchange
- 0809003A—Received a null XID when an XID format 3 was expected
- 0809003C—Prenegotiation XID received when not expected (had already received a negotiation proceeding XID3)
- 0809003D—Nonactivation XID received when a null XID or activation XID was expected
- 08090040—Received an unexpected or invalid mode-setting command (SNRM or SABME)
- 08090045—The adjacent node has stopped supporting exchange state indicators in the middle of an XID exchange
- 08090046—The adjacent node had previously indicated it did not support exchange state indicators, but has sent a XID with exchange state indicators set
- 08090047—Received XID after receiving mode-setting command (for example, SNRM or SABME)
- 08090048—received unsolicited XID from NRM secondary link station
- 08090049—The adjacent node sent an XID error control vector (x'22')
- 08090055—Invalid VRN in TG descriptor CV of XID3
- 086F0000—XID3 control vector length error
- 088C1000—The adjacent node is a network node, but did not include a product set identifier control vector in the XID3
- 088C0EF1—The adjacent node is type 4 or 5, but did not include a PU name control vector
- 088C0EF4—The adjacent node has no been inconsistent in including a network name control vector
- 088C4680—An XID was received on an ATM port, but did not include a TG identifier TG descriptor subfield
- 08910004—The network name control vector does not contain a valid network identifier
- 08910005—The network name control vector does not contain a valid CP name
- 0895xxyy—XID3 control vector error (xx indicates key of first control vector in error, yy indicates offset of error within control vector)

- 08960000—Control vector too long
- 08960001—Network name control vector is too long
- 10150001—Received XID3 is too short (less than 29 bytes)
- 10150002—Length of received XID3 does not match length indicated in XID3
- 1016000B—The adjacent node has selected zero as the TG number (which is invalid)
- 1016000C—The adjacent network node does not support BIND segment generation and has a maximum BTU size less than 521 bytes
- 1016000D—The adjacent node does not support the SDLC command/response profile (which is the only profile supported by APPN and LEN nodes)
- 1016000E—Product set identifier on XID3 has changed
- 10160000—The adjacent node indicated an invalid BIND pacing setting
- 10160001—The maximum number of I-frames that the adjacent node can receive before sending an acknowledgment is set to zero
- 10160003—The maximum BTU size the adjacent node can receive is set to less than 99 bytes
- 10160004—Unexpected XID format
- 10160005—The adjacent end node supports receipt of BIND segments, but does not support BIND segment generation
- 10160006—The adjacent end node does not support receipt of BIND segments and has a maximum BTU size less than 265 bytes
- 10160007—The adjacent network node does not support receipt of BIND segments and has a maximum BTU size less than 521 bytes
- 10160008—An adjacent node was inconsistent in its setting of networking capabilities
- 10160009—The adjacent network node supports CP-CP sessions but does not provide CP services
- 10160010—The ABM support indicated in sent and received XID3s is inconsistent
- 10160013—The DLC type in sent and received XIDs are not in agreement
- 1016001A—The adjacent node is inconsistent in its support for parallel TGs
- 1016001B—The adjacent node provides or requests CP services, but does not support CP-CP sessions
- 1016001C—The adjacent node indicated an LS role that was not primary, secondary or negotiable
- 1016001E—The adjacent node did not send its CP name in XID3 but requested CP-CP sessions on this link
- 10160014—An adjacent node changed role from non-negotiable to negotiable
- 10160015—The adjacent node supports BIND pacing as sender only
- 10160017—After two exchanges, randomized node IDs sent by this node and adjacent node are still identical
- 10160020—An adjacent node is not type 2, 4, or 5
- 10160022—The adjacent node included an HPR Capabilities [X'61'] control vector in its XID3 but specified a maximum BTU size less than 768

- 10160023—The adjacent node included an HPR Capabilities (X'61') control vector in its XID3 but specified an invalid ANR label length (less than 1 or greater than 8)
- 10160026—NCE field lengths in the HPR Control Flows (X'81') subfield are inconsistent with the length of the HPR Capabilities (X'61') control vector
- 10160027—The adjacent node indicated support for control flows over RTP, but did not include a HPR Control Flows (X'81') subfield
- 10160028—An adjacent node has specified an invalid error mode in its HPR Capabilities CV.
- 10160034—An adjacent node indicated no support for LDLC, but the local node only supports LDLC
- 10160044—An adjacent node indicated support for LDLC, but did not include an LLC SAP subfield in the HPR Capabilities CV. Link activation fails.

Recommended Action Contact the Cisco TAC with problem details.

Error Message

%SNASW-3-CS_LOG_7: PROBLEM - %lu - No free TG numbers

Explanation There are no free TG numbers between this node and the specified adjacent node. This error should occur only if there are already 236 parallel TGs between this node and the adjacent node. Link activation fails.

Recommended Action Reconfigure the network to reduce the number of parallel TGs between this node and the specified adjacent node.

Error Message

%SNASW-3-CS_LOG_8: PROBLEM - %lu - XID protocol error during non-activation exchange

Explanation There was an XID protocol error during non-activation exchange. This message might indicate an interoperability problem between this node and the adjacent node. The sense codes are as follows:

- 0809003A—Received a null XID when an activation XID format 3 was expected
- 0809003B—Received a null XID when a nonactivation XID format 3 was expected
- 0809003E—An activation XID received when non-activation XID expected
- 0809003F—An adjacent node initiated a secondary-initiated non-activation XID exchange on a link that does not support secondary-initiated non-activation XID exchanges
- 0809004E—Received a non-null XID from a secondary NRM link station, when a null XID was expected
- 08090042—An nonactivation exchange initiation indicator was not set when expected
- 1016000B—An adjacent node attempted to change TG number during nonactivation exchange to a TG number that was already in use
- 10160002—An adjacent node was inconsistent in its setting of ACTPU suppression indicator
- 10160008—An adjacent node was inconsistent in its setting of networking capabilities
- 10160019—An adjacent node attempted to change its CP name when CP-CP sessions supported on link station, or link station not quiesced The link is deactivated.

Recommended Action Run a trace on the link station or port to obtain more diagnostic information about the problem. Contact the Cisco TAC.

Error Message

%SNASW-3-CS_LOG_9: PROBLEM - %lu - Link to host not configured correctly
(host is not a DSPU)

Explanation The link to the host is not configured correctly (configured as a link to a DSPU). Link activation fails.

Recommended Action Redefine (or define) the link station using the **snasw link** command with *adj_cp_type* set to NAP_HOST_XID3 or NAP_HOST_XID0.

Error Message

%SNASW-3-DLCBadMessage: DLC unrecognized message, header= [chars]

Explanation An internal software error occurred.

Recommended Action If the message recurs, copy the error message exactly as it appears on the console or in the system log, contact the Cisco TAC.

Error Message

%SNASW-3-DLCFailure: SNASw failed to process DLC message, header= [chars]

Explanation An internal software error occurred.

Recommended Action If the message recurs, copy the error message exactly as it appears on the console or in the system log, contact the Cisco TAC.

Error Message

%SNASW-3-DLCInvalidFsmState: Invalid Input=[chars] to SNASW PortFsm for SapMap [hex] with OldState=[chars]

Explanation An internal software error occurred.

Recommended Action If the message recurs, copy the error message exactly as it appears on the console or in the system log, contact the Cisco TAC.

Error Message

%SNASW-3-DLCPortFailure: Port [chars] activation failed: [chars]

Explanation An error was received from CLS. Typically, indicates a configuration error.

Recommended Action If the message recurs, copy the error message exactly as it appears on the console or in the system log, contact the Cisco TAC.

Error Message

%SNASW-4-DLUR_LOG_10: EXCEPTION - %lu - Failed to contact a DLUS for PU.
Retry count exceeded.

Explanation The DLUR has failed to contact either the DLUS or the backup and default DLUSs after the configured number of retries. Contact is not made with the DLUS.

Recommended Action Check earlier logs for causes of individual failures to contact the host. Resolve any problems or increase the timeout or retry count and try the contact again.

Error Message

%SNASW-3-DLUR_LOG_11: PROBLEM - %lu - Received PLU-SLU BIND request with duplicate FQPCID

Explanation Received PLU-SLU BIND request with duplicate FQPCID. Session activation fails with the specified sense code. (083B0002).

Recommended Action Report the problem to the Cisco TAC (running a trace on the specified link if more diagnostics are required).

Error Message

%SNASW-6-DLUR_LOG_12: INFO - %lu - A pipe to a DLUS has activated

Explanation A pipe to a DLUS is activated.

Recommended Action None.

Error Message

%SNASW-6-DLUR_LOG_13: INFO - %lu - A pipe to a DLUS has deactivated

Explanation A pipe to a DLUS is deactivated.

Recommended Action None.

Error Message

%SNASW-4-DLUR_LOG_14: EXCEPTION - %lu - An attempt to activate a persistent pipe to a DLUS has failed

Explanation DLUR has requested a persistent pipe to a DLUS, but the DLUS does not support persistent pipes. The sense codes are as follows:

- 08A0000C—The DLUS has failed the pipe activation because there is no PU needing service. The attempt to activate a persistent pipe to the DLUS fails.
- 088E0009—The DLUR has failed the pipe activation because it requires all pipes to be persistent

Recommended Action If the DLUR is unable to contact a different DLUS that supports persistent pipes and the sense code is 088E0009, then DLUR requirement for persistent pipes can be removed. Otherwise, the DLUS must be upgraded to support persistent pipes.

Error Message

%SNASW-4-DLUR_LOG_15: EXCEPTION - %lu - A DLUS has sent an ACTPU without a PU name

Explanation A DLUS sent an ACTPU without a PU name. The ACTPU is rejected with the specified sense code. PU activation will not continue.

Recommended Action Check the status of the named DLUS. Check that it is correctly configured. Optionally, reconfigure the SNA Switch to use a different DLUS.

Error Message

%SNASW-4-DLUR_LOG_16: EXCEPTION - %lu - A DLUS has sent an ACTPU with a PU name that is already in use

Explanation A DLUS sent an ACTPU with a PU name that is already in use. The ACTPU is rejected with the specified sense code. PU activation will not continue.

Recommended Action Reconfigure the DLUS or the DLUR to use different PU names. If the DLUS and the DLUR use the same PU name, then they must apply the name to the same PU.

Error Message

`%SNASW-4-DLUR_LOG_17: EXCEPTION - %lu - A DLUS has sent an ACTPU with a PU name different from the name in the last ACTPU received for the same DSPU.`

Explanation A DLUS has sent an ACTPU with a PU name that is different than the PU name in the last ACTPU received for the same DSPU. The PU name of this implicit or DLUS-defined DSPU changes its name to the name from this new ACTPU.

Recommended Action Reconfigure each DLUS in the network to use the same PU name when referring to the same PU.

Error Message

`%SNASW-4-DLUR_LOG_18: EXCEPTION - %lu - Failed to contact one or both of the default DLUS when attempting to activate a persistent pipe required by a DLUS-dependent port. The retry count is exceeded.`

Explanation The DLUR failed to contact either the default primary DLUS or the default backup DLUS or both after the configured number of retries when it attempted to activate a persistent pipe required to enable a DLUS-dependent port. The DLUS-dependent port is not enabled.

Recommended Action Check earlier logs for causes of individual failures to contact the host. Resolve any problems or increase the timeout or retry count and try the contact again.

Error Message

`%SNASW-6-DLUR_LOG_19: INFO - %lu - Deactivating a persistent pipe because it is not required`

Explanation The DLUR deactivates a persistent pipe because it is not required to keep it active.

Recommended Action None.

Error Message

`%SNASW-4-DLUR_LOG_1: EXCEPTION - %lu - UNBIND could not be correlated to DLUR-served LU`

Explanation Unable to correlate received UNBIND request to a DLUR-supported session. This process is a normal trace condition (caused by UNBIND requests crossing). A +ve response is sent to UNBIND.

Recommended Action None.

Error Message

`%SNASW-4-DLUR_LOG_20: EXCEPTION - %lu - Invalid MU type received by DLUR`

Explanation An invalid MU type is received by DLUR from an internal or downstream PU.

Recommended Action If this is an internal PU then contact support with details of this log. If this is a downstream PU then contact the supplier of the downstream node.

Error Message

`%SNASW-3-DLUR_LOG_2: PROBLEM - %lu - REQACTPU rejected`

Explanation DLUS rejects REQACTPU with the given sense code. An SSCP-PU session with the given DLUS is not activated. If a backup DLUS is configured for the PU, DLUR attempts to activate the PU via the backup DLUS.

Recommended Action Examine sense code and retry activation, if appropriate.

Error Message

%SNASW-4-DLUR_LOG_5: EXCEPTION - %lu - CPSVRMGR pipe session failure

Explanation A CPSVRMGR pipe failed to reach a specified DLUS. Any PUs using the specified DLUS are deactivated (that is, a DACTPU(cold) is sent). DLUR might attempt to contact one or more backup DLUSs, if configured to do so.

Recommended Action If a pipe with backup DLUS is not initiated automatically manually, then restart any required PUs

Error Message

%SNASW-4-DLUR_LOG_8: EXCEPTION - %lu - Inconsistent DLUS Names

Explanation Inconsistent DLUS Names. The host has requested the activation of a downstream link to a PU by sending an ACTPU. The link is configured to request a different DLUS. The DLUS initiating the activation is used.

Recommended Action None. If the host DLUS is the regular DLUS (not a backup), then adjust the downstream link configuration when convenient.

Error Message

%SNASW-4-DLUR_LOG_9: EXCEPTION - %lu - Protocol Error from DLUS Host: RU Size too large for SSCP Session

Explanation Protocol error from DLUS. An RU that is too large for the SSCP session is received. This error is typically caused by the SSCP sending too large a LOGON screen. The data is thrown away.

Recommended Action If you are expecting an SSCP LOGON screen, enter the LOGON command as usual.

Error Message

%SNASW-4-DS2_LOG_0: EXCEPTION - %lu - Insufficient resources to (un)register adjacent LEN

Explanation The branch NN has insufficient resources to register or unregister an adjacent LEN node. The directory of this node or that of its NNS might become inconsistent because the LEN CP will still be there when it should not be, or vice versa. Session activation to the LEN node might fail when a link to it is active or when neighboring nodes might believe the LEN node to be contacted when the link is down.

Recommended Action Ensure sufficient resources are available to the SNA Switch and then recycle the link to the required state.

Error Message

%SNASW-3-DS2_LOG_1: PROBLEM - %lu - Inaccurate directory entry held for this LU

Explanation A directed locate for this LU was tried, but the LU was not recognized at the EN stored in the directory. The directory entry is removed and a broadcast locate is sent instead.

Recommended Action None.

Error Message

%SNASW-4-DS2_LOG_2: EXCEPTION - %lu - Failed to register resource with NNS/CDS

Explanation Failed to allocate memory for storage of resource in the register list. Registration does not take place immediately.

Recommended Action None.

Error Message

%SNASW-4-DS_LOG_10: EXCEPTION - %lu - CP-CP sessions deactivated while broadcast Locate outstanding

Explanation CP-CP sessions are deactivated while a broadcast Locate is in process. Session activation might fail.

Recommended Action This log flags a session failure that impacted a pending broadcast Locate. Other more specific logs give reasons for the session failure and appropriate actions.

Error Message

%SNASW-3-DS_LOG_11: PROBLEM - %lu - Received registration or deletion request from an unknown end node

Explanation A registration or deletion request from an unknown EN is received. This message might indicate an interoperability problem, but is not considered fatal. The registration request is discarded.

Recommended Action None.

Error Message

%SNASW-3-DS_LOG_12: PROBLEM - %lu - Insufficient storage to register resources owned by a served end node

Explanation There is insufficient storage to register resources owned by a served EN. The specified resource is not registered, and the registration request rejected. Network searches for the resource might fail if the EN is unable to register it.

Recommended Action Decrease the system load (for example, by reducing the number of active sessions) or make more storage available to the SNA Switch.

Error Message

%SNASW-3-DS_LOG_13: PROBLEM - %lu - Resource registration failure: resource already registered

Explanation Failed to register resource for a served EN because the resource is already registered with a different parent resource. This error typically occurs when the same LU is defined on two or more ENs. The registration request is rejected, which might result in other resources not being registered. Subsequent network search failures might occur.

Recommended Action Remove or rename the LU on one of the ENs.

Error Message

%SNASW-3-DS_LOG_14: PROBLEM - %lu - Registration failure notification received from network node server is badly formed

Explanation A registration failure GDS variable received from the network node server is badly formed. This message might indicate an interoperability problem. CP-CP sessions to the node are deactivated.

Recommended Action Contact the Cisco TAC with problem details.

Error Message

%SNASW-3-DS_LOG_15: PROBLEM - %lu - Link/session failure while registering resources with network node server

Explanation There is a link or session failure while registering resources with the NNS. CP-CP sessions to the node are deactivated.

Recommended Action This log flags a registration request that was disrupted by the link or session failure. Other more specific logs give details on the reasons for the failure, and the appropriate actions.

Error Message

%SNASW-3-DS_LOG_17: PROBLEM - %lu - Protocol error while registering resources with network node server

Explanation A protocol error occurred while registering resources with the NNS. CP-CP sessions to the node are deactivated.

Recommended Action Contact the Cisco TAC with problem details.

Error Message

%SNASW-4-DS_LOG_18: EXCEPTION - %lu - Locate search timed out

Explanation A local node timed out waiting for a Locate response from the specified adjacent node. This error typically indicates a problem in another node in the network not responding to Locate requests (possibly because only one CP-CP session is active with an adjacent node). The Locate fails with one of the following codes:

- 08120010—The adjacent CP is short of resources, and CP-CP sessions is deactivated
- 08900060—Search failure: the adjacent CP does not have sufficient resources (CP-CP sessions are not deactivated)

Recommended Action Verify that there are no nodes in the network with a single CP-CP session active to an adjacent node.

Error Message

%SNASW-3-DS_LOG_1: PROBLEM - %lu - Network search not started because it would exceed the maximum number of concurrent locates supported by this node

Explanation The network search is not started because it exceeds the maximum number of concurrent Locates requests supported by this node. Session activation fails with the specified sense code.

Recommended Action Contact the Cisco TAC.

Error Message

%SNASW-3-DS_LOG_21: PROBLEM - %lu - Served end node attempted to delete a home directory entry

Explanation A served EN attempts to delete a directory entry that is defined as a home entry at this node. This normally occurs when the **snasw location** command is used to define LUs owned by served ENs or LEN nodes. The Delete request is rejected with the specified sense code.

Recommended Action Use the **no snasw location** command to remove the home entry from the directory.

Error Message

%SNASW-4-DS_LOG_22: EXCEPTION - %lu - Served end node attempted to delete a non-existent directory entry

Explanation A served EN attempted to delete a directory entry that does not exist. This error is normally caused by a network race condition, causing the Delete request to arrive when the resource has not been registered. The Delete request is rejected with the specified sense code.

Recommended Action None.

Error Message

%SNASW-3-DS_LOG_23: PROBLEM - %lu - Served end node attempted to delete a resource it doesn't own

Explanation A served EN attempts to delete a resource when it is not registered as the owner of the resource. This message might indicate an interoperability problem. The Delete request is rejected with the specified sense code. This error might cause the end node to deactivate CP-CP sessions.

Recommended Action Contact the Cisco TAC with problem details.

Error Message

%SNASW-3-DS_LOG_24: PROBLEM - %lu - Received Register/Delete GDS variable containing format errors

Explanation Received a Register or Delete GDS variable with format errors from a served EN. Sense codes are as follows:

- 08950000—GDS variable or control vector length error
- 10140080—Invalid control vector Register or delete attempt is rejected. The resources specified is not registered

Recommended Action Contact the Cisco TAC with problem details.

Error Message

%SNASW-3-DS_LOG_26: PROBLEM - %lu - Unable to register resources because this node is not authorized at the network node server

Explanation The NNS rejected a Register request with a sense code indicating this node is not authorized to register resources at the NN. This message usually indicates a mismatch between the NNS configuration (to consider this end node unauthorized) and the configuration of the node (to register resources). No resource registration occurs until CP-CP sessions are deactivated and reestablished.

Recommended Action Modify the NNS configuration to make this node authorized to register resources.

Error Message

`%SNASW-3-DS_LOG_27: PROBLEM - %lu - Unable to register resources because the network node server's directory is full`

Explanation A resource registration failed because the NNS directory is full. This message might indicate a shortage of storage at the NN or a configured upper bound on the size of its directory. No resource registration occurs until CP-CP sessions are deactivated and reestablished.

Recommended Action Increase the size of the directory at the NNS. This message might be a simple configuration change, or it might require freeing up storage by reducing the load at the server.

Error Message

`%SNASW-3-DS_LOG_28: PROBLEM - %lu - Resource registration failed because the resource conflicted with an existing entry in the network node's directory`

Explanation A resource registration failed because the resource conflicted with existing resources in the NNS directory. This error most commonly occurs when two LUs with the same name are defined on two different ENs being served by the same NN. It might also occur if the NN has a home directory entry defined for the same resource. Registration of the resource in question fails, but other resources should still register correctly.

Recommended Action Check the NNS directory for the duplicate entry. If the entry is a home entry, then remove it from the directory. If it is a registered entry owned by a different EN, then redefine the LU to use a different name.

Error Message

`%SNASW-3-DS_LOG_29: PROBLEM - %lu - Resource registration failed because network node server detected a protocol error in the Register request`

Explanation A resource registration failed because the NNS detected a protocol error in the Register request. This message might indicate an interoperability problem. Registration of this resource fails, but other resources are still registered correctly.

Recommended Action Contact the Cisco TAC with problem details.

Error Message

`%SNASW-4-DS_LOG_2: EXCEPTION - %lu - Locate search failed: search error`

Explanation A network search from this node or the NNS failed. These sense codes usually indicate a transient problem in the network (either a resource shortage, or link failure). Session activation fails with the specified sense code. The most common sense codes are as follows (the sense code is an amalgam of codes received from the various nodes in the searched):

- 0812000A—Insufficient resources at the CDS
- 08900010—Routing error on a directed Locate search
- 08900060—Insufficient storage to process Locate search
- 08900070—Session outage in the search tree

Recommended Action Retry the session activation. If the problem persists, Contact the Cisco TAC with problem details.

Error Message

%SNASW-3-DS_LOG_30: PROBLEM - %lu - Resource registration failed with an unknown sense code

Explanation A resource registration failed with an unknown sense code. This message might indicate an interoperability problem. No resource registration occurs until CP-CP sessions are deactivated and reestablished.

Recommended Action Contact the Cisco TAC with problem details.

Error Message

%SNASW-3-DS_LOG_31: PROBLEM - %lu - Delete failure reply received with sense code that is unrecoverable

Explanation A Delete reply is received with a sense code that is unrecoverable. CP-CP sessions to the node are deactivated.

Recommended Action Contact the Cisco TAC with problem details.

Error Message

%SNASW-3-DS_LOG_32: PROBLEM - %lu - Unable to correlate received Register or Delete reply to a directory entry

Explanation A Directory Error Correlator returned on a Register or Delete reply cannot be correlated to a directory entry. A protocol error occurred and might indicate an interoperability problem. CP-CP sessions to the node are deactivated.

Recommended Action Contact the Cisco TAC with problem details.

Error Message

%SNASW-3-DS_LOG_33: PROBLEM - %lu - Unable to delete resources because this node is not authorized at the network node server

Explanation The NNS rejected a Delete request with a sense code indicating this node is not authorized to register resources at the NN. This message usually indicates a mismatch between the NNS (to consider this EN unauthorized) and the node configuration (to register resources). No resource registration or deletion occurred until CP-CP sessions are deactivated and reestablished.

Recommended Action Modify the NNS configuration to consider this node authorized.

Error Message

%SNASW-4-DS_LOG_34: EXCEPTION - %lu - Delete request failed because the resource was not found or not removable

Explanation A Delete request failed because the entry was defined as a home entry at the NNS or because the resource was not found. Neither error is severe and will not affect future registration and deletion or other aspects of network operation. A Delete attempt failed, and further deletion and registration continues unaffected.

Recommended Action None.

Error Message

%SNASW-4-DS_LOG_35: EXCEPTION - %lu - Register GDS variable received with an invalid resource name

Explanation There is an invalid resource name in received register request. The register request fails.

Recommended Action Contact the Cisco TAC with problem details.

Error Message

%SNASW-4-DS_LOG_36: EXCEPTION - %lu - Central Resource Registration failure

Explanation There is a Central Resource Registration failure. Network performance might degrade because of additional broadcast Locate searches.

Recommended Action None.

Error Message

%SNASW-4-DS_LOG_37: EXCEPTION - %lu - Central Resource Registration failure: invalid correlator received

Explanation Central Resource Registration failure and an invalid correlator are received. Network performance might degrade because of additional broadcast Locate searches.

Recommended Action None.

Error Message

%SNASW-6-DS_LOG_38: INFO - %lu - Central Directory Server located

Explanation The Central Directory Server is located.

Recommended Action None.

Error Message

%SNASW-3-DS_LOG_3: PROBLEM - %lu - Received badly formed Locate from an adjacent node

Explanation A badly formed Locate is received from an adjacent node. This message might indicate an interoperability problem. Sense codes are as follows:

- 1010B080—Missing command parameters control vector in Found GDS variable
- 1014A082—Missing search argument directory entry in Find GDS variable CP-CP sessions with adjacent node is deactivated with the specified sense code
- 10140080—GDS variable or control vector length error

Recommended Action Contact the Cisco TAC with problem details.

Error Message

%SNASW-3-DS_LOG_40: PROBLEM - %lu - Locate received from adjacent node exceeded the maximum number of concurrent locates supported by this node

Explanation A Locate request received from an adjacent node exceeds the maximum number of concurrent Locates supported by this node. CP-CP sessions with the adjacent node are deactivated to avoid deadlocks.

Recommended Action The network recovers from this problem (the CP-CP sessions is reactivated). If the problem persists, contact the Cisco TAC.

Error Message

%SNASW-3-DS_LOG_41: PROBLEM - %lu - Insufficient storage to start a network search

Explanation There is insufficient storage to start a network search. Session activation fails with the specified sense code.

Recommended Action Provide more storage for the SNA Switch.

Error Message

%SNASW-3-DS_LOG_42: PROBLEM - %lu - CP-CP sessions deactivated while directed Locate outstanding

Explanation CP-CP sessions are deactivated while a directed Locate is in process. Session activation may fail.

Recommended Action This log identifies that a session failure impacted a pending directed Locate. Other logs give reasons for the session failure and test the appropriate actions to resolve the error.

Error Message

%SNASW-6-DS_LOG_43: INFO - %lu - Locate search failed: LU not found

Explanation A network search from this node or the NNS failed to locate the target LU. This error might occur because the target LU name is incorrect, the target system is inoperative, or there are link errors in the backbone of the network. Session activation fails with the specified sense code.

Recommended Action If the target LU name is correct, check that the system on which the LU is defined is active. If the system is active, check the topology of the network to ensure that the target system (or its NNS) is reachable from this node.

Error Message

%SNASW-4-DS_LOG_44: EXCEPTION - %lu - CP-CP sessions established with end node: invalid directory entry removed

Explanation CP-CP sessions are established with an adjacent EN that was previously defined using the **snasw location** command. The invalid directory definitions for the EN and any of its LUs are removed.

Recommended Action Do not configure the invalid entries.

Error Message

%SNASW-3-DS_LOG_4: PROBLEM - %lu - Insufficient storage to process Locate received from adjacent node

Explanation There is insufficient storage to process Locate requests received from adjacent node. CP-CP sessions with the adjacent node are deactivated to avoid possible deadlocks.

Recommended Action Decrease the system load (for example, by reducing the number of active sessions) or make more storage available to the SNA Switch.

Error Message

%SNASW-4-DS_LOG_5: EXCEPTION - %lu - Received Locate with no Find GDS variable

Explanation Received a Locate request with no Find GDS variable. The Locate request is discarded.

Recommended Action None.

Error Message

%SNASW-3-DS_LOG_9: PROBLEM - %lu - Insufficient storage for CP-CP sessions

Explanation There is insufficient storage for CP-CP sessions. CP-CP sessions are deactivated with the specified sense code.

Recommended Action Decrease the system load (for example, by reducing the number of active sessions) or make more storage available to the SNA Switch.

Error Message

%SNASW-3-EVENT: [chars]

Explanation This is an informational event.

Recommended Action None.

Error Message

%SNASW-4-HPR_LOG_0: EXCEPTION - %lu - HPR Route Setup RU received with format errors

Explanation An HPR Route Setup RU is received with format errors. The message cannot be processed and is discarded.

Recommended Action Report error to remote end.

Error Message

%SNASW-4-HPR_LOG_10: EXCEPTION - %lu - Local node has received a HPR Route Setup RU that it cannot forward because the next hop is not HPR-capable so is acting as the new destination

Explanation The local node received an HPR Route Setup RU request that it cannot forward because the next hop in the route is not HPR-capable. The local node supports RTP and acts as the destination. The Route Setup request is between the origin node and the local node (the new destination). RTP Connections are activated between these two nodes. This event is normal when the local node has an automatically activated link to a node that does not support RTP. Sessions that originate at (or beyond) the origin node use HPR from the origin to the new destination and use ISR from the new destination and beyond.

Recommended Action None.

Error Message

%SNASW-4-HPR_LOG_11: EXCEPTION - %lu - The local node is acting as the new destination for a backed-out Route Setup

Explanation The local node received an HPR Route Setup Reply request that contains the backout sense code and acts as the new destination for the Route Setup. The Route Setup request successfully backed out. The Route Setup request is between the origin node and the local node (the new destination). RTP Connections are activated between these two nodes. This event is normal when a node in the route has an automatically activated link to a node that does not support RTP or HPR. Sessions that originate at (or beyond) the origin node use HPR from the origin node to the new destination and use ISR from the new destination and beyond.

Recommended Action None.

Error Message

%SNASW-4-HPR_LOG_12: EXCEPTION - %lu - A Route Setup was backed out from the original destination to the new destination

Explanation The local node has received an HPR Route Setup Reply request in which the destination node is not the same as the destination node that was in the corresponding Route Setup Request. The Route Setup request successfully backed out. The Route Setup request is between the origin node and the new destination. RTP Connections are activated between these two nodes. This

event is normal when a node in the route has an automatically activated link to a node that does not support RTP or HPR. Sessions that originate at (or beyond) the local node use HPR from the local node to the new destination and use ISR from new destination and beyond.

Recommended Action None.

Error Message

```
%SNASW-4-HPR_LOG_13: EXCEPTION - %lu - A Route Setup Reply has been received with the backout sense code HPR will not be used for this session
```

Explanation The local node received an HPR Route Setup Reply request with the backout sense code. The Route Setup request failed because the destination node does not support RTP. No intermediate node supports RTP and was able to become the new destination. The Route Setup request failed and HPR is not used for the session that is activated. This event is normal when a node in the route has an automatically activated link to a node that does not support RTP or HPR.

Recommended Action None.

Error Message

```
%SNASW-4-HPR_LOG_14: EXCEPTION - %lu - Local node is the destination of a HPR Route Setup RU but does not support RTP so is replying with the backout sense code
```

Explanation The local node received an HPR Route Setup RU request as the destination node, but cannot accept it because it does not support RTP. The local node replies with the backout sense code. The Route Setup request between the origin node and this node fails. RTP Connections are not activated between these two nodes. This event is] normal when another HPR-capable node has an automatically activated link to this node. It may be possible for an intermediate node in the route that supports RTP to take over the role of the destination node for the Route Setup request. If this happens sessions that originate at (or beyond) the origin node use HPR from the origin to the new destination and use ISR from the new destination to the local node and beyond. If no intermediate node acts as the destination, then HPR is not used at all by such sessions.

Recommended Action None.

Error Message

```
%SNASW-4-HPR_LOG_15: EXCEPTION - %lu - Remote NCE has restarted, so disconnect this RTP connection with previous instance of that NCE
```

Explanation A connection setup NLP is received from a remote NCE that has shut down and restarted. An RTP connection from that NCE before it shut down still exists. The old RTP connection is disconnected.

Recommended Action None.

Error Message

%SNASW-4-HPR_LOG_16: EXCEPTION - %lu - Unable to activate Route Setup RTP connection

Explanation A Route Setup RTP Connection request cannot be activated during processing of a Route Setup request. The Route Setup request fails with the sense code shown. The next Route Setup request triggers another attempt to activate the Route Setup RTP Connection.

Recommended Action Decrease the system load (for example, by reducing the number of active sessions) or make more storage available to the SNA Switch.

Error Message

%SNASW-4-HPR_LOG_17: EXCEPTION - %lu - Connection Setup NLP rejected because it specified unsupported Topic ID

Explanation A Connection Setup NLP is rejected because it specifies the CP-CP session or Route Setup Topic ID, but was received on a TG that does not support the Control Flows over the RTP Tower. The CP-CP session or Route Setup RTP Connection fails with sense code HA0010017.

Recommended Action Contact the Cisco TAC with problem details.

Error Message

%SNASW-4-HPR_LOG_18: EXCEPTION - %lu - HPR Route Setup RU received with existing FQPCID

Explanation An HPR Route Setup RU is received with an FQPCID that matches an existing route. The message is rejected and the route not established.

Recommended Action Report error to remote end.

Error Message

%SNASW-4-HPR_LOG_1: EXCEPTION - %lu - Unable to correlate HPR Route Setup RU

Explanation An HPR Route Setup Reply cannot be correlated. The message cannot be processed and is discarded.

Recommended Action Report error to remote end.

Error Message

%SNASW-3-HPR_LOG_2: PROBLEM - %lu - Unable to activate RTP connection

Explanation An RTP Connection cannot be activated. In certain situations, the origin might retry activation.

Recommended Action Examine the sense code and retry activation, if appropriate.

Error Message

%SNASW-4-HPR_LOG_3: EXCEPTION - %lu - Link failure caused HPR route setup request to be dropped

Explanation There is a link failure between this node and source of a Route Setup request. The Route Setup request is dropped by this node. The partner node on that link should generate a -ve reply.

Recommended Action Investigate the link failure.

Error Message

%SNASW-4-HPR_LOG_4: EXCEPTION - %lu - HPR manager failed to obtain memory to send indication

Explanation The HPR manager does not have the memory to send an RTP indication. The data_lost flag is set in the next indication that is successfully sent.

Recommended Action Investigate the memory shortage.

Error Message

%SNASW-4-HPR_LOG_5: EXCEPTION - %lu - NLP received with format errors

Explanation An NLP is received with format errors. The message cannot be processed and is discarded.

Recommended Action Report error to remote end.

Error Message

%SNASW-4-HPR_LOG_6: EXCEPTION - %lu - NLP received for RTP connection which no longer exists

Explanation An NLP is received for an RTP connection that no longer exists. The message cannot be processed and is discarded.

Recommended Action Report error to remote end.

Error Message

%SNASW-4-HPR_LOG_8: EXCEPTION - %lu - Connection Setup NLP received for previous NCE instance

Explanation A connection setup NLP is received that specifies a previous instance of this NCE. The NCE has been shut down and restarted since processing the last Route Setup request. No RTP connection can be started, so the NLP is discarded.

Recommended Action Report error to remote end.

Error Message

%SNASW-4-HPR_LOG_9: EXCEPTION - %lu - Local node has received a HPR Route Setup RU that it cannot forward because the next hop is not HPR-capable so is replying with the backout sense code

Explanation The local node received an HPR Route Setup RU request that it cannot forward because the next hop in the route is not HPR-capable. The local node does not support RTP so it cannot act as the destination node and replies with the backout sense code. The Route Setup request between the origin node and the destination fails. RTP Connections cannot be activated between these two nodes. This event is normal when the local node has an automatically activated link to a node that does not support HPR. It may be possible for an intermediate node in the route that supports RTP to take over the role of the destination node for the Route Setup request. If error occurs, then sessions that originate at (or beyond) the origin node use HPR from the origin to the new destination and use ISR from the new destination to the local node (and beyond). If no intermediate node is able to act as the destination, then HPR is not used by these sessions.

Recommended Action None.

Error Message

%SNASW-4-HS_LOG_0: EXCEPTION - %lu - CRV exchange failed

Explanation A CRV exchange fails. This message indicates the cryptography keys configured at this LU and the partner LU are inconsistent. The session is deactivated with the sense code 08350001.

Recommended Action Use the information in the session deactivated problem log (log 271) to identify the local LU and partner LU, and correct the mismatch in the cryptography keys.

Error Message

%SNASW-4-HS_LOG_1: EXCEPTION - %lu - LU6.2 session state error

Explanation An LU 6.2 session state error occurred. This message might indicate an interoperability problem. The session is deactivated with the specified sense code. Sense codes are as follows:

- 200A0000—Immediate request mode violated by partner LU
- 200B0000—Queued response indicator invalid
- 200E0000—Unexpected SIGNAL response
- 200F0000—Received unexpected response or received EXPD RU before previous EXPD RU was acknowledged
- 20020000—Chaining sequence error
- 20030000—Bracket state error
- 20040000—Received normal flow request when half-duplex flip-flop state not receive
- 20120000—Unexpected sense code on negative response
- 40040000—Received RQE, BB, CEB chain from contention loser
- 40110000—RU category of response does not match request
- 40120000—Request code of response does not match request
- 40210000—QRI setting on response does not match request

Recommended Action Use the information on the session deactivated problem log (271) to identify the local LU and partner LU. If required, run a trace on the specified link station and contact the Cisco TAC with the log and trace data.

Error Message

%SNASW-4-HS_LOG_3: EXCEPTION - %lu - MU format errors

Explanation An LU 6.2 session format error occurred. This message might indicate an interoperability problem. The session is deactivated with the specified sense code. Sense codes are as follows:

- 0190000—Incorrect indicators with last-in-chain request.
- 080F6051—Security error (FMH12 error)
- 10030000—Function not supported (unrecognized request code)
- 10050000—SIGNAL or LUSTAT request too short
- 10084001—Invalid FM header type (not 5, 7, or 12)
- 400B0000—Chaining error or EC,RQE1/2,CD RU received on full-duplex conversation

- 400C0000—Bracket error
- 400F0000—Incorrect use of format indicator (FI)
- 40030000—BB not allowed
- 40040000—CEB or EB not allowed
- 40070000—Definite response not allowed
- 40090000—CD not allowed
- 40100000—Alternate code not supported
- 40110000—Incorrect specification of RU category
- 40120000—Incorrect specification of request code
- 40130000—Incorrect specification of SDI and RTI
- 40140000—Incorrect use of DR1I, DR2I, and ERI
- 40150000—Incorrect use of QRI
- 40160000—Incorrect use of EDI
- 40170000—Incorrect use of PDI
- 40180000—Incorrect setting of QRI with bidder's BB 4

Recommended Action Use the information from the session deactivated problem log (271) to identify the local LU and partner LU. If required, run a trace on the specified link station and contact the Cisco TAC with the log and trace data.

Error Message

```
%SNASW-4-HS_LOG_4: EXCEPTION - %lu - LU6.2 response correlation error
```

Explanation An LU 6.2 response correlation error occurred. This message might indicate an interoperability problem. The session is deactivated with the specified sense code. Sense codes are as follows:

- 200E0000—Uncorrelated positive response, or uncorrelated RTR response

Recommended Action Use the information on the session deactivated problem log (271) to identify the local LU and partner LU. If required, run a trace on the specified link station and contact the Cisco TAC with the log and trace data.

Error Message

```
%SNASW-4-HS_LOG_5: EXCEPTION - %lu - LU6.2 session ended abnormally -  
insufficient storage
```

Explanation An LU 6.2 session ended abnormally because of insufficient storage. The session is deactivated with the specified sense code.

Recommended Action Decrease the system load (for example, by reducing the number of active sessions) or make more storage available to the SNA Switch.

Error Message

%SNASW-4-HS_LOG_6: EXCEPTION - %lu - Protocol error during CRV exchange

Explanation A protocol error occurred during the CRV exchange. This message indicates a possible interoperability problem. The session is deactivated with specified sense code. Sense codes are as follows:

- 10020000—CRV RU too short
- 20090000—CRV request received from secondary LU, or CRV response received from primary LU, or CRV not received when expected
- 400B0000—CRV chain indicators not set to BC, EC
- 400C0000—CRV request with BBI, EBI or CEBI set
- 400D0000—CRV request with CDI set
- 400F0000—CRV with FI not set
- 40080000—CRV with PI set
- 40100000—CRV request with CSI set to CODE1
- 40110000—CRV not expedited
- 40130000—CRV response RTI and SDI inconsistent
- 40140000—CRV not RQD1
- 40150000—CRV with QRI not set
- 40160000—CRV request with EDI set
- 40170000—CRV request with PDI set

Recommended Action Use the information on the session deactivated problem log (271) to identify the local LU and partner LU. Run a trace on the specified link station, and contact the Cisco TAC with the log and trace data.

Error Message

%SNASW-4-HS_LOG_7: EXCEPTION - %lu - SIGNAL RU received on full-duplex conversation

Explanation An incoming SIGNAL RU is received on a full-duplex conversation. The session is deactivated with the sense code 10030004.

Recommended Action Contact the Cisco TAC with problem details.

Error Message

%SNASW-3-HS_LOG_8: PROBLEM - %lu - EXPD RU received while previous expedited data remains to be processed

Explanation An EXPD RU is received while previous expedited data remains to be processed. The session is deactivated with the sense code 200F0000.

Recommended Action Contact the Cisco TAC with problem details.

Error Message

%SNASW-4-HS_LOG_9: EXCEPTION - %lu - Insufficient storage to initialize half session

Explanation There is insufficient storage to initialize the half session. The half session fails to activate with the specified sense code.

Recommended Action Decrease the system load (for example, by reducing the number of active sessions) or make more storage available to the SNA Switch.

Error Message

%SNASW-4-LDLC_CTRL_LOG_0: EXCEPTION - %lu - Unable to create a new LDLC_CTRL instance

Explanation A new LDLC_CTRL instance could not be created. Link activation cannot continue. This error results in the failure of an outbound link activation attempt or the rejection of an inbound link activation.

Recommended Action Check surrounding logs for evidence of buffer congestion. If buffer congestion is causing this failure, then decrease the system load or make more resources available to LDLC.

Error Message

%SNASW-4-LDLC_CTRL_LOG_1: EXCEPTION - %lu - LDLC command frame retry limit exceeded

Explanation The LDLC command frame retry limit is exceeded. Link activation fails, or an active link is brought down.

Recommended Action Check connectivity to the remote address.

Error Message

%SNASW-4-LDLC_CTRL_LOG_2: EXCEPTION - %lu - LDLC link reported inoperative by underlying media

Explanation A LDLC link is reported inoperative by the underlying media. Link activation fails, or an active link is brought down.

Recommended Action Check for faults at the supplied destination address. Check for faults and error conditions in the underlying drivers and media. Check for outages on the connection path. Check that all the wires are still plugged in.

Error Message

%SNASW-4-LDLC_DATA_LOG_0: EXCEPTION - %lu - Unrecognized NHDR routing instruction

Explanation An unrecognized NHDR routing instruction is received. This packet cannot be routed by LDLC and is discarded. Data might be lost. This message might indicate an interoperability problem.

Recommended Action Check the surrounding logs for other evidence of interoperability problems. If failures or problems occur, gather trace data about the protocol flows, then report this problem to the Cisco TAC.

Error Message

%SNASW-4-LDLC_DATA_LOG_1: EXCEPTION - %lu - Unrecognized LDLC RU identifier

Explanation An unrecognized LDLC RU identifier is received. This packet cannot be processed by LDLC and is discarded. Link activation might fail. Link deactivation might fail. Data might be lost. This message might indicate an interoperability problem.

Recommended Action Check the surrounding logs for other evidence of interoperability problems. If failures or problems occur, gather trace data about the protocol flows, then report this problem to the Cisco TAC.

Error Message

%SNASW-4-LDLC_DATA_LOG_2: EXCEPTION - %lu - Unable to grant credit

Explanation LDLC is unable to grant further send credit.

Recommended Action Check the surrounding logs for evidence of buffer congestion. If buffer congestion is causing this failure, decrease the system load or make more resources available to LDLC.

Error Message

%SNASW-6-LDLC_DEBUG_LOG_0: INFO - %lu - Link activation race has occurred

Explanation A link activation trace has occurred, and link activation will be completed, but the routes might be different in each direction. No other effect is noticeable.

Recommended Action None.

Error Message

%SNASW-4-LDLC_IP_LOG_0: EXCEPTION - %lu - IPDLC failed to allocate necessary storage

Explanation IPDLC cannot allocate necessary storage. Some operations might fail. See other logs for more information.

Recommended Action Decrease the system load (for example, by reducing the number of active links), or make more storage available to IPDLC.

Error Message

%SNASW-4-LDLC_IP_LOG_10: EXCEPTION - %lu - Unable to activate IPDLC port

Explanation An IPDLC link cannot be activated. This error results in the failure of a port activation attempt. No further IPDLC operation is possible until a port is activated successfully.

Recommended Action Check surrounding logs for evidence of buffer congestion. If buffer congestion is causing this failure, either decrease system load or make more resources available to IPDLC. Ensure that the necessary facilities are available for the UDP interface to operate correctly. Check that valid DLC specific configuration data was provided to IPDLC when it was defined.

Error Message

%SNASW-4-LDLC_IP_LOG_11: EXCEPTION - %lu - Unable to activate IPDLC link

Explanation An IPDLC link cannot be activated. Link activation cannot continue. This error results in the failure of an outbound link activation attempt or the rejection of an inbound link activation.

Recommended Action Check surrounding logs for evidence of buffer congestion. If buffer congestion is causing this failure, either decrease system load or make more resources available to IPDLC. Ensure that the necessary facilities are available for the UDP interface to operate correctly. Check that valid DLC specific configuration data was provided when SNAP-IPDLC was defined.

Error Message

%SNASW-3-LDLC_IP_LOG_12: PROBLEM - %lu - The IPDLC UDP stub process has abended - SNAP IPDLC will abend

Explanation The UDP stub process abends. IPDLC will abend itself. All links using SNAP-IPDLC fails, and SNAP-IPDLC fails.

Recommended Action Check for the UDP/IP problem that caused the UDP stub to abend. If the reason cannot be determined, gather full trace data and contact the Cisco TAC.

Error Message

%SNASW-4-LDLC_IP_LOG_1: EXCEPTION - %lu - IPDLC failed to request a posting

Explanation IPDLC failed to request a posting. Link activation might fail or data transmission might be delayed.

Recommended Action Decrease the system load (for example, by reducing the number of active links), or make more storage available to IPDLC.

Error Message

%SNASW-4-LDLC_IP_LOG_2: EXCEPTION - %lu - IPDLC failed to grow a link hash table

Explanation IPDLC failed to develop a link hash table. Data transmission rates might be marginally degraded.

Recommended Action If there are few instances of this log, then IPDLC has recovered, and no action is required. If this log occurs repeatedly, then decrease the system load (for example, by reducing the number of active links) or make more storage available to SNAP-IPDLC.

Error Message

%SNASW-4-LDLC_IP_LOG_3: EXCEPTION - %lu - IPDLC failed to create a UDP stub

Explanation IPDLC failed to create a UDP stub. Port activation fails.

Recommended Action Decrease the system load (for example, by reducing the number of active links) or make more storage available to IPDLC.

Error Message

%SNASW-4-LDLC_IP_LOG_4: EXCEPTION - %lu - IPDLC's UDP stub has failed to initialize

Explanation IPDLC has created a UDP stub, but the UDP stub failed to initialize successfully. Port activation fails.

Recommended Action Check the surrounding logs and other diagnostics for reports of a failure from a UDP stub process.

Error Message

%SNASW-6-LDLC_IP_LOG_9: INFO - %lu - Invalid IP address specified for a IPDLC link

Explanation An invalid IP address was specified for a IPDLC link. The link fails to start.

Recommended Action Correct the configuration. These settings are supplied in the address information passed to the SNA Switch on the **snasw link** command.

Error Message

%SNASW-4-LM2_LOG_0: EXCEPTION - %lu - CRV exchange failed on a PLU-SLU session. The session fails.

Explanation CRV exchange failed. This indicates the cryptography keys configured at this LU and the partner LU are inconsistent. The session is deactivated with the sense code 08350001.

Recommended Action Correct the mismatch in cryptography keys.

Error Message

%SNASW-4-LM2_LOG_1: EXCEPTION - %lu - A conventional half-session has aborted.

Explanation A critical buffer shortage or protocol error or CRV exchange protocol error has occurred. This message indicates a possible interoperability problem. The session is deactivated with the specified sense code. Sense codes for CRV exchange errors are as follows:

- 10020000—CRV RU too short 400F0000 - CRV with FI not set
- 20090000—CRV request received from secondary LU, or CRV response received from primary LU, or CRV not received when expected
- 400B0000—CRV chain indicators not set to BC, EC
- 400C0000—CRV request with BBI, EBI or CEBI set
- 400D0000—CRV request with CDI set
- 40080000—CRV with PI set
- 40100000—CRV request with CSI set to CODE1
- 40110000—CRV not expedited
- 40130000—CRV response RTI and SDI inconsistent
- 40140000—CRV not RQD1
- 40150000—CRV with QRI not set
- 40160000—CRV request with EDI set

- 40170000—CRV request with PDI set

Recommended Action If the surrounding logs indicate critical congestion, decrease the system load or make more resources available to the SNA Switch. Otherwise, contact Cisco TAC with the problem details.

Error Message

%SNASW-6-LM_LOG_0: INFO - %lu - An LU-SSCP session has been activated for LU type 0, 1, 2 or 3

Explanation An LU-SSCP session is activated.

Recommended Action None.

Error Message

%SNASW-3-LM_LOG_12: PROBLEM - %lu - Insufficient storage to activate LU-SSCP session for LU type 0, 1, 2 or 3 (as SSCP)

Explanation There is insufficient storage to activate LU-SSCP session for LU type 0, 1, 2, or 3. An ACTLU request is not sent.

Recommended Action Decrease the system load (for example, by reducing the number of active sessions) or make more storage available to the SNA Switch.

Error Message

%SNASW-3-LM_LOG_13: PROBLEM - %lu - Insufficient storage to activate LU type 0, 1, 2 or 3 PLU-SLU session (as SLU)

Explanation There is insufficient storage to activate LU type 0, 1, 2, or 3 PLU-SLU session. A BIND request is rejected with the specified sense code.

Recommended Action Decrease the system load (for example, by reducing the number of active sessions) or make more storage available to the SNA Switch.

Error Message

%SNASW-3-LM_LOG_14: PROBLEM - %lu - Insufficient storage to activate LU-SSCP session for LU type 0, 1, 2 or 3 (as LU)

Explanation There is insufficient storage to activate LU-SSCP session for LU type 0, 1, 2, or 3. The ACTLU request is not rejected with the specified sense code.

Recommended Action Decrease the system load (for example, by reducing the number of active sessions) or make more storage available to the SNA Switch.

Error Message

%SNASW-3-LM_LOG_15: PROBLEM - %lu - A BIND request received by an LU type 0, 1, 2 or 3 was rejected by SNA Switch because it failed parameter checks

Explanation A BIND request was received by an LU type 0, 1, 2, or 3 that failed parameter checks. PLU-SLU session is not activated. The sense codes that apply to this condition are as follows:

- 08210004—Cryptography required by SLU, not supported by PLU
- 08210005—Session key missing
- 0835xxxx—Parameter error at offset xxxx in BIND RU.

The offsets that apply to this sense code are as follows:

- 000A—Invalid secondary send RU size

- 000B—Invalid secondary receive RU size
- 000E—Invalid PS profile (i.e. invalid session type)
- 000F—Invalid PS usage (applies to RJE BIND only)
- 0002—Invalid FM profile
- 0003—Invalid TS profile
- 0004—Invalid primary FM usage
- 0005—Invalid secondary FM usage
- 0006—Invalid common FM usage
- 0007—Invalid common FM usage
- 0008—Invalid secondary send pacing
- 0009—Invalid secondary receive pacing
- 001A—Invalid cryptography
- 001B—Invalid cryptography method BIND request is rejected with the specified sense code.
- 0010—Invalid primary half-session PS usage (applies to RJE BIND only)
- 0014—Invalid default screen size: rows (applies to 3270 display BIND only). Invalid default buffer size: rows (applies to 3270 printer BIND only)
- 0015—Invalid default screen size: columns (applies to 3270 display BIND only). Invalid default buffer size: columns (applies to 3270 printer BIND only)
- 0016—Invalid alternate screen size: rows (applies to 3270 display BIND only). Invalid alternate buffer size: rows (applies to 3270 printer BIND only)
- 0017—Invalid alternate screen size: columns (applies to 3270 display BIND only). Invalid alternate buffer size: columns (applies to 3270 printer BIND only)

Recommended Action If possible, investigate the configuration of the system that sent the BIND request. If a configuration error is found, then correct it. Otherwise contact the Cisco TAC with problem details.

Error Message

```
%SNASW-3-LM_LOG_16: PROBLEM - %lu - A BIND request received by an LU type 0, 1, 2 or 3 was rejected by an application connected to SNA Switch
```

Explanation A BIND request received by an LU type 0, 1, 2, or 3 was rejected by an application connected to the SNA Switch. The BIND request is rejected with the specified sense code. The PLU-SLU session is not activated.

Recommended Action Investigate why the application rejected the BIND request (review the sense code information). Investigate the configuration of the system that sent the BIND request if possible. If a configuration error is found then correct it, otherwise contact the Cisco TAC with problem details.

Error Message

%SNASW-3-LM_LOG_17: PROBLEM - %lu - A BIND request received by an LU type 0, 1, 2 or 3 was rejected by SNA Switch because the application connection was not open

Explanation A BIND request received by an LU type 0, 1, 2, or 3 was rejected because the application connection was not open. This error might be caused by a normal window condition or it might indicate that the system that sent the BIND request is incorrectly configured or is defective. The BIND request is rejected with the specified sense code. The PLU-SLU session is not activated.

Recommended Action Investigate the cause of the problem. If the system that sent the BIND request is incorrectly configured, then correct the configuration error. If it appears that the system is defective then contact the Cisco TAC with problem details.

Error Message

%SNASW-4-LM_LOG_18: EXCEPTION - %lu - An LU-SSCP session activation attempt failed because the SSCP was not suitable

Explanation An ACTLU was received for an LU from the wrong SSCP. The ACTLU is rejected with sense code 084B0000 (the LU activation attempt fails).

Recommended Action If it is required that the LU accept the ACTLU, then the LU definition must be changed so that the LU requires the SSCP Identifier that is received from the SSCP, or the LU accepts any SSCP Identifier.

Error Message

%SNASW-3-LM_LOG_19: PROBLEM - %lu - An UNBIND RSP was received at a secondary LU

Explanation An UNBIND RSP was received at a secondary LU. This is illegal SNA as no UNBIND RQ was sent. The UNBIND RSP is dropped.

Recommended Action The session might not come down properly. Check that dependent LU applications are correctly replying to all signals. Otherwise, contact the Cisco TAC with problem details.

Error Message

%SNASW-6-LM_LOG_1: INFO - %lu - A PLU-SLU session has been activated for LU type 0, 1, 2 or 3

Explanation A PLU-SLU session is activated.

Recommended Action None.

Error Message

%SNASW-6-LM_LOG_2: INFO - %lu - An LU-SSCP session has been deactivated for LU type 0, 1, 2 or 3

Explanation An LU-SSCP session is deactivated.

Recommended Action None.

Error Message

%SNASW-6-LM_LOG_3: INFO - %lu - A PLU-SLU session has been deactivated for LU type 0, 1, 2 or 3

Explanation A PLU-SLU session is deactivated.

Recommended Action None.

Error Message

%SNASW-3-LM_LOG_4: PROBLEM - %lu - Insufficient storage to dynamically define dependent LU with host

Explanation There is insufficient storage to dynamically define a dependent LU with the host. The LU-SSCP session is not activated.

Recommended Action Decrease the system load (for example, by reducing the number of active sessions) or make more storage available to the SNA Switch.

Error Message

%SNASW-3-LM_LOG_5: PROBLEM - %lu - Insufficient storage to BIND LU type 0, 1, 2 or 3 PLU-SLU session (as PLU)

Explanation There is insufficient storage to BIND an LU type 0, 1, 2, or 3 PLU-SLU session. The BIND request is not sent.

Recommended Action Decrease the system load (for example, by reducing the number of active sessions) or make more storage available to the SNA Switch.

Error Message

%SNASW-4-LM_LOG_6: EXCEPTION - %lu - Insufficient storage to send RTM statistics to host

Explanation There is insufficient storage to send RTM statistics to the host. RTM statistics displayed by host are inconsistent.

Recommended Action Decrease the system load (for example, by reducing the number of active sessions) or make more storage available to the SNA Switch.

Error Message

%SNASW-4-LM_LOG_7: EXCEPTION - %lu - Insufficient storage to report RTM status to application

Explanation There is insufficient storage to report the RTM status to the application. RTM statistics reported and displayed by application might be inconsistent.

Recommended Action Decrease the system load (for example, by reducing the number of active sessions) or make more storage available to the SNA Switch.

Error Message

%SNASW-3-MIBQueryFailure: Query [chars] failed. NOF primary rc=[hex] secondary rc=[hex].

Explanation An internal software error occurred.

Recommended Action If the message recurs, copy the error message exactly as it appears on the console or in the system log, contact the Cisco technical support representative and provide the representative with the gathered information.

Error Message

%SNASW-3-MIBRegisterFailure: [chars] Indication [hex] failed. NOF primary rc=[hex] secondary rc=[hex].

Explanation An internal software error occurred.

Recommended Action If the message recurs, copy the error message exactly as it appears on the console or in the system log, contact the Cisco TAC and provide the representative with the gathered information.

Error Message

%SNASW-3-MIBTrapFailure: Trap failed. [chars] MIB OID=[chars] index
OID=[chars].

Explanation An internal software error occurred.

Recommended Action If the message recurs, copy the error message exactly as it appears on the console or in the system log, contact the Cisco TAC and provide the representative with the data.

Error Message

%SNASW-4-MS_LOG_10: EXCEPTION - %lu - Alert/Resolution received and cannot
be sent

Explanation There is a memory failure while trying to allocate space to route a back-level alert or resolution to the parent MS process. The alert or resolution is not sent. It is logged here.

Recommended Action Decrease the system load (for example, by reducing the number of active sessions) or make more storage available to the SNA Switch.

Error Message

%SNASW-4-MS_LOG_12: EXCEPTION - %lu - Memory shortage in verb processing

Explanation The system is unable to allocate control block space to process an incoming verb. The verb is not processed, and it is returned to the sending application with a primary return code of NAP_UNEXPECTED_SYSTEM_ERROR.

Recommended Action Decrease the system load (for example, by reducing the number of active sessions) or make more storage available to the SNA Switch.

Error Message

%SNASW-4-MS_LOG_13: EXCEPTION - %lu - Memory shortage in trying to send an
alert

Explanation The system is unable to allocate memory needed to send an alert. The alert is not sent, however, the sense code of the alert is logged.

Recommended Action Decrease the system load (for example, by reducing the number of active sessions) or make more storage available to the SNA Switch.

Error Message

%SNASW-4-MS_LOG_14: EXCEPTION - %lu - Memory shortage in MDS_MU processing

Explanation The system is unable to find the memory to process an MDS_MU. The MDS_MU is not processed. If the MDS_MU originated at the local node, then the SEND_MDS_MU verb containing the MDS_MU is returned to the sending application noting the error. If the MDS_MU did not originate from the local node, then an error message is returned to the originating application.

Recommended Action Decrease the system load (for example, by reducing the number of active sessions) or make more storage available to the SNA Switch.

Error Message

%SNASW-4-MS_LOG_15: EXCEPTION - %lu - Correlator clash detected in MDS_MU processing

Explanation A correlation error was detected while processing an MDS_MU. The MDS_MU is not processed. If the MDS_MU originated at the local node the SEND_MDS_MU verb containing the MDS_MU is returned to the sending application noting the error. If the MDS_MU did not originate from the local node, an error message is returned to the originating application. An error message may also be sent to other applications if they are affected by the correlation clash.

Recommended Action Reissue the SEND_MDS_MU with a correct correlator value.

Error Message

%SNASW-4-MS_LOG_16: EXCEPTION - %lu - Insufficient storage to pass Alert data to registered Alert handler

Explanation There is insufficient storage to pass an alert to the registered Alert Handler. The alert is not sent; however, it will be logged.

Recommended Action Decrease the system load (for example, by reducing the number of active sessions) or make more storage available to the SNA Switch.

Error Message

%SNASW-4-MS_LOG_17: EXCEPTION - %lu - Following alert failed to be sent to focal point

Explanation The system receives a send failure for an alert stored on the send alert queue. No held alert function is available to store the alert until another focal point is established. The alert is not sent; however, it will be logged.

Recommended Action None.

Error Message

%SNASW-4-MS_LOG_18: EXCEPTION - %lu - Error on alert send not correlated with entries on send alert queue

Explanation The system is unable to correlate an error received on an alert send with the alerts stored in the send alert queue. The send alert queue is either too small and the original alert was deleted or a previous error prevented the alert from being held on the queue. The alert is not sent to the focal point.

Recommended Action Investigate whether or not a prior memory shortage caused the alert to be omitted the queue.

Error Message

%SNASW-3-MS_LOG_22: PROBLEM - %lu - Error message received reporting invalid format of our MDS_MUs

Explanation MS Capabilities receives an error message reporting a format error on an MDS_MU the local node sent. The error message is logged; however, no further action is taken. Ignoring the message might lead to further unexpected occurrences.

Recommended Action Contact the Cisco TAC with the problem details.

Error Message

%SNASW-4-MS_LOG_23: EXCEPTION - %lu - MS Capabilities unable to send request due to memory shortage

Explanation MS Capabilities failed to obtain space to send a message. The message is not sent. If the message was a request for focal point services, MS pursues focal point services alternately. If the message was to revoke a previous focal point, the message is not sent. The node still appears in the focal point's sphere of control list.

Recommended Action Decrease the system load (for example, by reducing the number of active sessions) or make more storage available to the SNA Switch.

Error Message

%SNASW-4-MS_LOG_24: EXCEPTION - %lu - Error message received at MS Capabilities (delivery failure)

Explanation MS Capabilities received an error message. This error is assumed to be the result of a send failure. The error message received is logged so that send failure types can be examined. MS capabilities takes appropriate recovery action if the failed send affects the focal point table.

Recommended Action Contact the Cisco TAC with problem details.

Error Message

%SNASW-4-MS_LOG_27: EXCEPTION - %lu - Memory Failure in MDS creation sequence

Explanation MDS fails to get needed memory during the creation sequence. The MDS creation fails.

Recommended Action Decrease the system load (for example, by reducing the number of active sessions) or make more storage available to the SNA Switch.

Error Message

%SNASW-4-MS_LOG_28: EXCEPTION - %lu - Insufficient storage to process received MS Capabilities information

Explanation There is insufficient storage to processed received MS Capabilities information. The category for which this failure occurred is reset.

Recommended Action Decrease the system load (for example, by reducing the number of active sessions) or make more storage available to the SNA Switch.

Error Message

%SNASW-4-MS_LOG_29: EXCEPTION - %lu - Parsing error found in MDS_MU header

Explanation MDS received an MDS_MU request that it could not parse correctly. An alert is raised. If the MDS_MU originated from a local application, the SEND_MDS_MU returns with the return codes NAP_PARAMETER_CHECK and NAP_INVALID_MDS_MU_FORMAT.

Recommended Action Investigate the syntax of MDS_MU sent, correct the syntax, and reissue the SEND_MDS_MU request.

Error Message

%SNASW-4-MS_LOG_31: EXCEPTION - %lu - Insufficient storage to queue Alert/Resolution for error correlation

Explanation There is insufficient storage to queue alert or resolution for error correlation. The alert or resolution is not queued, and thus, if an error message regarding the failure to send this alert or resolution is received, MDS is unable to correlate it. If the alert or resolution is sent successfully, no further problems result.

Recommended Action Decrease the system load (for example, by reducing the number of active sessions) or make more storage available to the SNA Switch.

Error Message

%SNASW-4-MS_LOG_32: EXCEPTION - %lu - MDS unable to get memory to send TP_ENDED

Explanation MDS is unable to obtain enough buffer memory to send TP_ENDED request for SEND_TP. The TP_ENDED request is not sent.

Recommended Action Decrease the system load (for example, by reducing the number of active sessions) or make more storage available to the SNA Switch.

Error Message

%SNASW-4-MS_LOG_33: EXCEPTION - %lu - MDS unable to get memory for SNASVCMG session list entry

Explanation MDS is unable to obtain enough memory for a SNASVCMG session control block. The control block is not obtained.

Recommended Action Decrease the system load (for example, by reducing the number of active sessions) or make more storage available to the SNA Switch.

Error Message

%SNASW-4-MS_LOG_34: EXCEPTION - %lu - Unexpected what_received in MDS Transaction Program

Explanation An MDS Transaction Program received an unexpected what_received request. The transaction program reinitializes. The MDS_MU request is returned to the originator if the error was detected at the originating node, or the originator is notified of the send failure via an error message.

Recommended Action Investigate the cause of the unexpected what_received request.

Error Message

%SNASW-4-MS_LOG_36: EXCEPTION - %lu - Following locally originated MSCAPS message failed to be sent

Explanation The system received a send failure for a local MS capabilities originated message. MS capabilities treat the send failure as a loss of connectivity to the partner node. If focal point relationships are affected, then MS capabilities take appropriate recovery action.

Recommended Action Investigate the cause of failed send.

Error Message

%SNASW-4-MS_LOG_37: EXCEPTION - %lu - MS unable to allocate space for link control block

Explanation The system is unable to allocate resources to set up a link control block for a received PU_STATUS message. The active link is treated as unknown by MS. Any messages received over the link are returned as undeliverable. Any TRANSFER_MS_DATA or SEND_MDS_MUs received from applications specifying the link in the PU_STATUS are returned with link_name unknown.

Recommended Action Decrease the system load (for example, by reducing the number of active sessions) or make more storage available to the SNA Switch.

Error Message

%SNASW-4-MS_LOG_3: EXCEPTION - %lu - Insufficient storage to deliver MDS_MU to a registered application

Explanation There is insufficient storage to deliver a MDS_MU request to a registered application. The MU is returned to the sender indicating a resource shortage error.

Recommended Action Decrease the system load (for example, by reducing the number of active sessions) or make more storage available to the SNA Switch.

Error Message

%SNASW-4-MS_LOG_5: EXCEPTION - %lu - Memory shortage in processing signal

Explanation The system is unable to allocate enough memory to process an incoming TRANSFER_MS_DATA or SEND_MDS_MU request or register a signal. The signal is returned to the sender noting the resource shortage error.

Recommended Action Decrease the system load (for example, by reducing the number of active sessions) or make more storage available to the SNA Switch.

Error Message

%SNASW-4-MS_LOG_6: EXCEPTION - %lu - MS unable to add time stamp and/or product set id

Explanation The system is unable to add the product set ID or the date time-stamp requested because of memory shortage or exceeding maximum NMVT size. Additions are not made to the signal.

Recommended Action Decrease the system load (for example, by reducing the number of active sessions) or make more storage available to the SNA Switch.

Error Message

%SNASW-6-MS_LOG_7: INFO - %lu - Alert data logged

Explanation TRANSFER_MS_DATA/SEND_MDS_MU data has arrived.

Recommended Action None.

Error Message

%SNASW-4-MS_LOG_8: EXCEPTION - %lu - Memory shortage preventing data log

Explanation The system is unable to allocate memory and is unable to log the data supplied by the user.

Recommended Action Decrease the system load (for example, by reducing the number of active sessions) or make more storage available to the SNA Switch.

Error Message

%SNASW-4-MS_LOG_9: EXCEPTION - %lu - Unrecognized signal received from application

Explanation A signal is received that is unrecognized and can not be returned to the sender. The signal memory is freed.

Recommended Action Check that issued signals are acceptable according to the API specification.

Error Message

%SNASW-3-NOF_LOG_10: PROBLEM - %lu - Insufficient storage to process ACTLU

Explanation There is insufficient storage to process a received ACTLU. The LU-SSCP session is not started (an ACTLU -ve response with the specified sense code is sent).

Recommended Action Decrease the system load (for example, by reducing the number of active sessions) or make more storage available to the SNA Switch.

Error Message

%SNASW-3-NOF_LOG_11: PROBLEM - %lu - ACTLU received for LU which is not defined locally, and implicit LU definition is not supported

Explanation An ACTLU is received for an LU that is not defined locally, and implicit LU definition is not supported. This error typically indicates a mismatch between this node and the host configuration. The LU-SSCP session is not activated (ACTLU is rejected with the specified sense code).

Recommended Action Remove the LU from the host configuration.

Error Message

%SNASW-4-NOF_LOG_15: EXCEPTION - %lu - An LU-SSCP session activation attempt failed because the SSCP was not suitable

Explanation An ACTLU is received for an LU from the wrong SSCP. The ACTLU is rejected with sense code 084B0000 (the LU activation attempt fails).

Recommended Action If it is required that the LU accept the ACTLU, then the LU definition must be changed so that the LU requires the particular SSCP Identifier that is actually received from the SSCP, or the LU accepts any SSCP Identifier.

Error Message

%SNASW-6-NOF_LOG_2: INFO - %lu - Node started

Explanation The node is successfully started.

Recommended Action None.

Error Message

%SNASW-3-NOF_LOG_3: PROBLEM - %lu - Insufficient storage to start SNA Switch

Explanation There is insufficient storage to start the SNA Switch.

Recommended Action Make more storage available to the SNA Switch.

Error Message

%SNASW-6-NOF_LOG_4: INFO - %lu - Node stopped

Explanation The node is successfully stopped.

Recommended Action None.

Error Message

%SNASW-3-NOF_LOG_7: PROBLEM - %lu - Failed to dynamically load TP

Explanation An APPC transaction program or CPI-C application is not dynamically loaded. The received Attach fails with the specified sense code.

Recommended Action Contact the Cisco TAC with the collected trace data.

Error Message

%SNASW-4-PC_LOG_0: EXCEPTION - %lu - Unable to route intra-node session data

Explanation Intranode session data is not routed. This error usually indicates a race condition when an intranode session is deactivating.

Recommended Action None.

Error Message

%SNASW-3-PC_LOG_10: PROBLEM - %lu - Insufficient storage to start link inactivity timer

Explanation There is insufficient storage to start the link-inactivity timer. The limited resource link is not automatically deactivated.

Recommended Action If the link is idle, deactivate it using the **snasw stop link** command.

Error Message

%SNASW-3-PC_LOG_11: PROBLEM - %lu - Unable to forward an HPR NLP - insufficient storage

Explanation There is insufficient storage to forward an HPR Network Layer Packet. NLP is discarded. If this error occurs frequently, it might cause RTP connections to path-switch or fail.

Recommended Action Decrease the system load (for example, by reducing the number of active sessions) or make more storage available to the SNA Switch.

Error Message

%SNASW-3-PC_LOG_12: PROBLEM - %lu - Insufficient storage to register ANR label

Explanation There is insufficient storage to register the ANR label. HPR traffic using this ANR label is not routed correctly, which might cause RTP connections to path-switch or fail.

Recommended Action Decrease the system load (for example, by reducing the number of active sessions) or make more storage available to the SNA Switch.

Error Message

%SNASW-4-PC_LOG_14: EXCEPTION - %lu - Received a frame with a badly formed transmission header or a frame that is too small to be a valid SNA frame

Explanation A frame with a badly formed transmission header or a frame that is too small to be a valid SNA frame is received. The invalid frame is discarded, and an alert is generated.

Recommended Action None.

Error Message

%SNASW-4-PC_LOG_15: EXCEPTION - %lu - Unable to correlate DLC credit for MLTG link

Explanation A DLC credit for an MLTG link cannot be correlated. This error occurs during a window condition in normal link deactivation.

Recommended Action If several instances of this log appear and poor RTP connection performance is observed, investigate further by querying link stations that are members of MLTGs. Unexpectedly low quantities of data sent over a link might indicate problems with the DLC credit. Contact the Cisco TAC with details of the problem, including a trace of the signals sent to and from the DLCs underlying the affected links.

Error Message

%SNASW-4-PC_LOG_16: EXCEPTION - %lu - Link failure because too many outgoing packets are queued for transmission

Explanation A remote node is not processing information fast enough and is causing large queues on this node. A link failure occurs.

Recommended Action Check the error logs on the remote node.

Error Message

%SNASW-4-PC_LOG_17: EXCEPTION - %lu - Link failure because too many outgoing packets are queued for transmission

Explanation A remote node is not processing information fast enough and is causing large queues on this node. A link failure occurs.

Recommended Action Check the error logs on the remote nodes that this MLTG is connected to.

Error Message

%SNASW-4-PC_LOG_4: EXCEPTION - %lu - Insufficient storage to generate Alert

Explanation There is insufficient storage to generate an alert to report invalid received data.

Recommended Action Decrease the system load (for example, by reducing the number of active sessions) or make more storage available to the SNA Switch.

Error Message

%SNASW-4-PC_LOG_5: EXCEPTION - %lu - Unable to route inter-node session data

Explanation Internode session data cannot be routed. This message usually indicates a trace condition when an internode session is deactivating.

Recommended Action None.

Error Message

```
%SNASW-4-PC_LOG_9: EXCEPTION - %lu - Unable to forward an HPR NLP - unknown ANR label
```

Explanation An HPR Network Layer Packet failed to forward because the ANR label could not be matched to an outgoing link. This error usually indicated a normal trace condition when an HPR-capable link is deactivated, although it might also be caused by an earlier resource shortage (look for log 192). An RTP connection attempts to path-switch or might fail.

Recommended Action Use the **show snasw link** command to look for an active HPR-capable link with the specified ANR label. If there is a link, then the problem was caused by a storage shortage. Decrease the system load (for example, by reducing the number of active sessions or make more storage available to the SNA Switch).

Error Message

```
%SNASW-3-PS_LOG_10: PROBLEM - %lu - Attach rejected because requested conversation duplex type not supported by requested transaction program
```

Explanation An Attach request is rejected because the specified conversation duplex type is not supported by the specified transaction program. The Attach is rejected. This error might be a mismatch in the capabilities of the originating transaction program and the destination transaction program, or it might simply be a configuration error. Possible sense codes are as follows:

- 08640003—Full-duplex Attach, not supported by TP
- 10086034—Half-duplex Attach, not supported by TP

Recommended Action Check the conversation duplex types supported by the specified transaction program and check that it matches the conversation type defined for the transaction program. If they match, or the transaction program is not defined, there is a mismatch between the originating and destination transaction programs.

Error Message

```
%SNASW-4-PS_LOG_11: EXCEPTION - %lu - Entry could not be added to signed-on-to list sending PV sign-on Attach.
```

Explanation The local LU failed to add an entry into the signed-on-to list when sending a PV sign-on Attach (FMH-5) request because of a resource shortage. The Attach request is sent, but does not contain the sign-on request.

Recommended Action Decrease the system load (for example, by reducing the number of active sessions) or make more storage available to the SNA Switch.

Error Message

```
%SNASW-4-PS_LOG_12: EXCEPTION - %lu - Unable to process Sign-Off verb due to resource shortage.
```

Explanation The local LU is unable to process a Sign-Off verb issued by a local TP because of a resource shortage. The Sign-Off request fails, and any entries in the signed-on-to and sign-on-from lists remain valid.

Recommended Action Decrease the system load (for example, by reducing the number of active sessions) or make more storage available to the SNA Switch.

Error Message

%SNASW-4-PS_LOG_13: EXCEPTION - %lu - SNA Switch detected a mapped conversation protocol error on an APPC mapped conversation

Explanation The SNA Switch detected a mapped conversation protocol error on an APPC mapped conversation. The conversation is terminated by an APPC primary_rc of NAP_CONV_FAILURE_NO_RETRY or a CPI-C return_code of CM_RESOURCE_FAILURE_NO_RETRY. The partner TP fails the conversation with an APPC primary_rc of NAP_DEALLOCATE_ABEND or a CPI-C return_code of CM_DEALLOCATE_ABEND. The session is not deactivated.

Recommended Action Report the protocol error to the partner LU support. If additional diagnostic information is required, run a link trace (the session identifier can be used to correlate this log to other logs that contain the appropriate link station name).

Error Message

%SNASW-4-PS_LOG_14: EXCEPTION - %lu - SNA Switch detected a mapped conversation protocol error on an APPC mapped conversation

Explanation The SNA Switch received an error data GDS variable on an APPC mapped conversation. The conversation is terminated by an APPC primary_rc of NAP_CONV_FAILURE_NO_RETRY or a CPI-C return_code of CM_RESOURCE_FAILURE_NO_RETRY. The partner TP fails the conversation with an APPC primary_rc of NAP_DEALLOCATE_ABEND or a CPI-C return_code of CM_DEALLOCATE_ABEND. The session is not deactivated.

Recommended Action Report the protocol error to the partner LU support. If additional diagnostic information is required, run a link trace (the session identifier can be used to correlate this log to other logs that contain the appropriate link station name).

Error Message

%SNASW-4-PS_LOG_15: EXCEPTION - %lu - An LU received an aping with data size greater than the maximum allowed

Explanation An LU received an APING with data length than the maximum allowed. The conversation is terminated with a primary_rc of DEALLOC_ABEND request.

Recommended Action Report the error to the Cisco TAC. SNA Switch LUs should not be APINGed with a data size greater than the defined maximum.

Error Message

%SNASW-3-PS_LOG_1: PROBLEM - %lu - Attach rejected because requested conversation type not supported by requested transaction program

Explanation The Attach request rejected because the conversation type is not supported by the transaction program. This message might indicate a mismatch in the capabilities of the originating transaction program and the destination transaction program, or it might be a configuration error. The Attach request is rejected.

Recommended Action Check the conversation type or types supported by the transaction program and verify that it matches the conversation type defined for the transaction program. If they match, or the transaction program is not defined, there is a mismatch between the originating and destination transaction programs.

Error Message

%SNASW-3-PS_LOG_3: PROBLEM - %lu - Conversation ended by protocol error

Explanation The session being used by a conversation is deactivated because of a protocol error, which causes the conversation to fail. The conversation is terminated by an APPC primary_rc of NAP_CONV_FAILURE_NO_RETRY or a CPI-C return_code of CM_RESOURCE_FAILURE_NO_RETRY.

Recommended Action This log gives information on which TPs and conversations are affected by a protocol error on a session. Other problem or exception logs give more information on the protocol error. Use the Session identifier to correlate this log with other related logs.

Error Message

%SNASW-3-PS_LOG_4: PROBLEM - %lu - Conversation ended by session outage

Explanation The session being used by a conversation is deactivated because of a session outage which causes the conversation to fail. The conversation is terminated either by an APPC primary_rc of NAP_CONV_FAILURE_RETRY or a CPI-C return_code of CM_RESOURCE_FAILURE_RETRY.

Recommended Action This log gives information on which TPs and conversation are affected by a session outage. Other problem or exception logs give more information on the reason for the session outage. Use the Session identifier to correlate this log with other related logs.

Error Message

%SNASW-4-PS_LOG_5: EXCEPTION - %lu - Protocol error detected on conversation

Explanation The SNA Switch detected a protocol error on an APPC conversation. The conversation is terminated either by an APPC primary_rc of NAP_CONV_FAILURE_NO_RETRY or a CPI-C return_code of CM_RESOURCE_FAILURE_NO_RETRY, and the session deactivated. Sense codes are as follows:

- 10010000—Invalid GDS logical length
- 1008200A—FMH7 received with no sense data (sense data is zero)
- 1008200E—FMH7 format error (log data concatenation not valid)
- 1008201D—FMH7 or log data mismatch (for example, FMH7 not received when expected, or log data truncated, or CEB not set on FMH7 when expected)
- 10086000—Received FMH but not FMH7
- 20040000—An incoming RU was received on a full-duplex conversation which is in send-only state

Recommended Action Report the protocol error to the partner LU support. If additional diagnostic information is required, run a link trace (the session identifier can be used to correlate this log to other logs which contain the appropriate link station name).

Error Message

%SNASW-4-PS_LOG_7: EXCEPTION - %lu - Error data received from partner LU.

Explanation The partner TP issued a SEND_ERROR or DEALLOCATE verb specifying error data. An error state is generated by the partner TP. The specified TP experiences a problem. Subsequent recovery or termination of the conversation is determined by the applications.

Recommended Action Check that both the local TP and the partner TP exist, are correctly named, and are working properly.

Error Message

%SNASW-4-PS_LOG_8: EXCEPTION - %lu - Error data sent to partner LU.

Explanation The local TP issued a SEND_ERROR or DEALLOCATE verb specifying error data. The specified TP experiences a problem. Subsequent recovery or termination of the conversation is determined by the applications.

Recommended Action Check that both the local TP and the partner TP exist, are correctly named, and are working properly.

Error Message

%SNASW-6-PS_LOG_9: INFO - %lu - Processed APING from partner LU.

Explanation An APING from the partner LU is processed successfully.

Recommended Action None.

Error Message

%SNASW-6-PU_LOG_0: INFO - %lu - A PU-SSCP session has been activated

Explanation A PU-SSCP session is activated.

Recommended Action None

Error Message

%SNASW-6-PU_LOG_1: INFO - %lu - A PU-SSCP session has been deactivated

Explanation A PU-SSCP session is deactivated.

Recommended Action None

Error Message

%SNASW-4-PU_LOG_2: EXCEPTION - %lu - Insufficient storage to send RTM statistics to host

Explanation There is insufficient storage to send RTM statistics to host. RTM statistics displayed by host are inconsistent.

Recommended Action Decrease the system load (for example, by reducing the number of active sessions) or make more storage available to the SNA Switch.

Error Message

%SNASW-3-RM2_LOG_0: PROBLEM - %lu - CP-CP session deactivated because of excessive delay

Explanation An adjacent node has not responded to a request on a CP-CP session within a reasonable period. The SNA Switch deactivates CP-CP sessions with this adjacent node. CP-CP sessions are deactivated with the sense code 08640002.

Recommended Action Contact the supplier of the adjacent node.

Error Message

%SNASW-3-RM_LOG_0: PROBLEM - %lu - Insufficient storage to start TP instance and conversation requested by received Attach

Explanation There is insufficient storage to start the transaction program instance and conversation requested by a received Attach (FMH5). If other instances of the same transaction program are active, the SNA Switch queues the Attach waiting for one of them to become free. Otherwise, the session is deactivated with a sense code of 08640000.

Recommended Action Decrease the system load (for example, by reducing the number of active sessions) or make more storage available to the SNA Switch.

Error Message

%SNASW-4-RM_LOG_13: EXCEPTION - %lu - APPC Transaction Program or CPI-C application has ended abnormally with active conversations

Explanation An APPC transaction program or CPI-C application has ended abnormally with active conversations. This message usually indicates an error in the application. The SNA Switch deactivates all sessions currently being used by the application.

Recommended Action Run a trace on the APPC API or the CPI-C API to see the sequence of verbs causing the problem.

Error Message

%SNASW-3-RM_LOG_14: PROBLEM - %lu - Deactivating session because of insufficient storage

Explanation A session deactivates because of insufficient storage. The SNA Switch deactivates the session.

Recommended Action Decrease the system load (for example, by reducing the number of active sessions) or make more storage available to the SNA Switch.

Error Message

%SNASW-3-RM_LOG_15: PROBLEM - %lu - Insufficient storage to initiate session activation requested by [MC_]ALLOCATE or CMALLC

Explanation There is insufficient storage to initiate session activation requested by ALLOCATE, MC_ALLOCATE or CMALLC. [MC_]ALLOCATE fails with a primary_rc of NAP_ALLOCATION_ERROR and secondary_rc of NAP_ALLOCATION_FAILURE_NO_RETRY. CMALLC fails with a return_code of CM_ALLOCATION_FAILURE_NO_RETRY

Recommended Action Decrease the system load (for example, by reducing the number of active sessions) or make more storage available to the SNA Switch.

Error Message

%SNASW-3-RM_LOG_22: PROBLEM - %lu - LU-LU verification failed.

Explanation An LU-LU verification failed. The partner LU sent an incorrect response to a challenge sent by a local LU. This error is either a security attack or a defect in the software at the partner LU location. The session is deactivated.

Recommended Action Check the identity of the partner LU. If this is a defect in the software at the partner LU location then contact the Cisco TAC.

Error Message

%SNASW-4-RM_LOG_23: EXCEPTION - %lu - Insufficient storage to deactivate limited resource session

Explanation There is insufficient storage to deactivate limited resource session. The limited resource session is not deactivated (although it may be deactivated later). This error could result in limited resource links being kept active while they are not required.

Recommended Action Decrease the system load (for example, by reducing the number of active sessions) or make more storage available to the SNA Switch.

Error Message

%SNASW-6-RM_LOG_27: INFO - %lu - Session limits changed

Explanation The session limits for a local LU, partner LU and mode have changed. The termination count indicates the number of sessions the SNA Switch deactivates as a result of the change in session limits.

Recommended Action None.

Error Message

%SNASW-3-RM_LOG_37: PROBLEM - %lu - LU-LU verification protocol error

Explanation An LU-LU verification protocol error has occurred. This message might indicate an interoperability problem. The session is deactivated with the specified sense code.

Recommended Action Contact the Cisco TAC with problem details.

Error Message

%SNASW-3-RM_LOG_3: PROBLEM - %lu - Insufficient storage to start conversation requested by [MC_]ALLOCATE or CMALLC

Explanation There is insufficient storage to start a new conversation requested by ALLOCATE, MC_ALLOCATE or CMALLC. [MC_]ALLOCATE fails with a primary_rc of NAP_UNEXPECTED_SYSTEM_ERROR, or CMALLC fails with a return_code of CM_PRODUCT_SPECIFIC_ERROR.

Recommended Action Decrease the system load (for example, by reducing the number of active sessions) or make more storage available to the SNA Switch.

Error Message

%SNASW-3-RM_LOG_42: PROBLEM - %lu - Failed to activate a new session, since this would exceed LU or mode session limit

Explanation The SNA Switch is unable to activate a new session because the maximum session limit specified for the mode or the local LU is exceeded. ALLOCATE, MC_ALLOCATE, or CMALLC verbs fail or hang while waiting for a session to become free.

Recommended Action Wait for a session to become free and retry, or use a different mode.

Error Message

%SNASW-3-RM_LOG_43: PROBLEM - %lu - Insufficient storage to start TP instance requested by TP_STARTED

Explanation There is insufficient storage to start the transaction program instance requested by TP_STARTED. If other instances of the same transaction program are active, the SNA Switch queues the TP_STARTED while waiting for one of them to become free. Otherwise, the TP_STARTED verb fails with a primary_rc of NAP_UNEXPECTED_SYSTEM_ERROR.

Recommended Action Decrease the system load (for example, by reducing the number of active sessions) or make more storage available to the SNA Switch.

Error Message

%SNASW-3-RM_LOG_44: PROBLEM - %lu - Insufficient storage to initiate automatic session activation

Explanation There is insufficient storage to initiate automatic session activation. Fewer active sessions are available on the specified mode, which might cause application delays or failures.

Recommended Action Decrease the system load (for example, by reducing the number of active sessions) or make more storage available to the SNA Switch.

Error Message

%SNASW-3-RM_LOG_45: PROBLEM - %lu - Insufficient storage to initiate session activation requested by ACTIVATE_SESSION

Explanation There is insufficient storage to initiate session activation requested by ACTIVATE_SESSION verb. ACTIVATE_SESSION fails with a NAP_ACTIVATION_FAIL_NO_RETRY.

Recommended Action Decrease the system load (for example, by reducing the number of active sessions) or make more storage available to the SNA Switch.

Error Message

%SNASW-3-RM_LOG_46: PROBLEM - %lu - Bracket protocol error

Explanation A bracket protocol error has occurred. This message might indicate a problem in the partner LU. The session is deactivated with the specified sense code. The sense codes are as follows:

- 20100000—Received negative response to BID with sense code 088B0000 from a partner LU who supports parallel sessions, or BIS protocol error
- 20030000—Partner LU attempted to start bracket after local LU had BID for session successfully, or unexpected RTR request received
- 20080000—Partner LU attempted to start bracket after sending BIS

Recommended Action Contact the Cisco TAC with problem details.

Error Message

%SNASW-3-RM_LOG_47: PROBLEM - %lu - Attach protocol error

Explanation An Attach protocol error occurred. This message might indicate a problem in the partner LU. The session is deactivated with the specified sense code. The sense codes are as follows:

- 080F6051—Attach security protocol violation
- 10086011—LUW identifier format error, or LUW identifier not specified when sync level is syncpt

- 10086031—PIP not allowed by TP
- 10086040—Sync level not supported by session, or already-verified not accepted from partner LU

Recommended Action Contact the Cisco TAC with problem details.

Error Message

```
%SNASW-3-RM_LOG_48: PROBLEM - %lu - Attach rejected because security information invalid
```

Explanation An Attach is rejected because security information is invalid. This message indicates an attempt to access a secure TP by an unknown user, or a known user who has specified an incorrect password. The Attach is rejected.

Recommended Action Use the information in the log to locate the security violation.

Error Message

```
%SNASW-3-RM_LOG_49: PROBLEM - %lu - Attach rejected because requested sync level not supported by requested transaction program
```

Explanation The Attach is rejected because the sync level is not supported by the transaction program. This error might indicate a mismatch in the capabilities of the originating transaction program and the destination transaction program, or it might indicate a configuration error. The Attach is rejected.

Recommended Action Check the sync level supported by the specified transaction program, and check that it matches the sync_level defined for the transaction program. If they match, or the transaction program is not defined, there is a mismatch between the originating and destination transaction programs.

Error Message

```
%SNASW-3-RM_LOG_51: PROBLEM - %lu - Attach rejected because requested TP is permanently disabled
```

Explanation An Attach is rejected because the specified TP is permanently disabled. This error should occur only if an application has explicitly disabled the transaction program. The Attach is rejected.

Recommended Action Contact the Cisco TAC with the collected data.

Error Message

```
%SNASW-3-RM_LOG_52: PROBLEM - %lu - Failed to activate a new session, because mode name was not recognized
```

Explanation The SNA Switch is unable to activate a new session because the mode name was not recognized. ALLOCATE, MC_ALLOCATE, or CMALLC verbs fail.

Recommended Action Check the mode name.

Error Message

%SNASW-3-RM_LOG_53: PROBLEM - %lu - Attach rejected because security information not specified

Explanation An Attach is rejected because security information is not specified. This message indicates an attempt to access a secure TP without specifying a user ID or password. The Attach is rejected.

Recommended Action Use the information in the log to locate the security mismatch.

Error Message

%SNASW-3-RM_LOG_54: PROBLEM - %lu - Bracket protocol error

Explanation A BIS protocol error occurred. This message might indicate a problem in the partner LU. The sense code is always set to 20100000. The session is deactivated with the specified sense code.

Recommended Action Contact the Cisco TAC with problem details.

Error Message

%SNASW-4-RTP2_LOG_0: EXCEPTION - %lu - RTP Connection is path-switching to a much longer path

Explanation An RTP connection is path-switching to a much longer path than it originally started. More room is needed in each packet for routing information than was originally planned. Performance across this RTP connection might degrade because some packets might have to be segmented.

Recommended Action If performance degradation is noticed, reactivate failed links then issue the PATH_SWITCH verb.

Error Message

%SNASW-4-RTP2_LOG_1: EXCEPTION - %lu - Invalid ARB support received from remote node

Explanation A value for ARB support that the local node does not support is received in an ARB setup segment. The remote node has not correctly completed the ARB negotiation. This is a protocol error. The connection is deactivated.

Recommended Action Investigate the cause of the error at the adjacent node.

Error Message

%SNASW-6-RTP_LOG_0: INFO - %lu - RTP Connection has connected

Explanation The RTP Connection connected.

Recommended Action None.

Error Message

%SNASW-6-RTP_LOG_1: INFO - %lu - RTP Connection has disconnected

Explanation The RTP Connection disconnected normally.

Recommended Action None.

Error Message

%SNASW-4-RTP_LOG_2: EXCEPTION - %lu - RTP Connection has disconnected

Explanation The RTP Connection disconnected because of an error. Sessions using the connection fail.

Recommended Action Investigate the cause of the error.

Error Message

%SNASW-4-RTP_LOG_3: EXCEPTION - %lu - Remote end of RTP Connection has disconnected

Explanation The RTP Connection disconnected because of an error. Sessions using the connection fail.

Recommended Action Investigate the cause of the error.

Error Message

%SNASW-4-RTP_LOG_4: EXCEPTION - %lu - RTP connection has timed-out

Explanation The RTP Connection timed out. The node attempts to path-switch

Recommended Action Investigate the cause of the errors

Error Message

%SNASW-4-RTP_LOG_5: EXCEPTION - %lu - RTP connection dropped due to local link failure

Explanation An RTP connection is dropped by a local link failure because of operator intervention. The node attempts to path switch

Recommended Action Investigate the cause of the link failure.

Error Message

%SNASW-6-RTP_LOG_6: INFO - %lu - Successful path-switch

Explanation The RTP Connection successfully switched paths.

Recommended Action None.

Error Message

%SNASW-4-RTP_LOG_7: EXCEPTION - %lu - Path-switch failure

Explanation An RTP connection failed to path-switch. The RTP connection is disconnected.

Recommended Action Investigate the cause of the error.

Error Message

%SNASW-4-RTP_LOG_8: EXCEPTION - %lu - Segmented NLP received on Route Setup RTP connection

Explanation A Route Setup RTP Connection RTP process received a segmented NLP. This is an error because all NLPs received should contain Route Setup GDS data, which should never be segmented. The NLP is dropped.

Recommended Action Contact the Cisco TAC with problem details.

Error Message

%SNASW-4-RTP_LOG_9: EXCEPTION - %lu - RTP connection has timed-out

Explanation A Route Setup RTP Connection timed out while waiting for status from the adjacent node. The RTP Connection fails.

Recommended Action Investigate the cause of the error at the adjacent node.

Error Message

%SNASW-3-SCM_LOG_0: PROBLEM - %lu - ISR session activation failed - ISR session limit reached

Explanation An intermediate session activation failed because the SNA Switch is not configured to support any more intermediate sessions. This error is usually caused by a normal network trace condition (because the SNA Switch informs other network nodes that it has reached its limit on intermediate sessions). ISR session activation fails with the sense code 0805000D.

Recommended Action Contact Cisco TAC with the collected data.

Error Message

%SNASW-6-SCM_LOG_10: INFO - %lu - ISR Session Deactivated

Explanation An ISR Session is deactivated

Recommended Action None.

Error Message

%SNASW-3-SCM_LOG_11: PROBLEM - %lu - Received ISR BIND request with duplicate FQPCID

Explanation An ISR BIND request with duplicate FQPCID is received. ISR session activation fails with the sense code 083B0002.

Recommended Action Contact the Cisco TAC with problem details.

Error Message

%SNASW-3-SCM_LOG_12: PROBLEM - %lu - Protocol error in received ISR BIND request

Explanation A protocol error is received in an ISR BIND response. This message might indicate an interoperability problem. Sense codes are as follows:

- 0835000C—Primary-to-secondary staging indicator incorrect
- 08350007—Control vectors included indicator incorrect
- 08350008—Secondary-to-primary staging indicator incorrect
- 086F0000—BIND response length inconsistent
- 10010024 —Unextended non-LU 6.2 BIND response
- 10020000—BIND RU length error ISR session activation fails with the specified sense code.

Recommended Action Contact the Cisco TAC with problem details.

Error Message

%SNASW-3-SCM_LOG_13: PROBLEM - %lu - ISR is unable to support requested RU size

Explanation ISR is unable to support the RU size requested on a non-negotiable BIND request or response. ISR session activation fails with the specified sense code. Sense codes are as follows:

- 0835000A—Maximum secondary send RU size is larger than that supported by ISR
- 0835000B—Maximum primary send RU size is larger than that supported by ISR

Recommended Action Contact the Cisco TAC with problem details.

Error Message

%SNASW-3-SCM_LOG_14: PROBLEM - %lu - ISR is unable to support requested pacing window size

Explanation ISR is unable to support a fixed receive pacing window requested on a non-negotiable BIND request or response. ISR session activation fails with the specified sense code. Sense codes are as follows:

- 0835000D—Maximum secondary send window size is larger than that supported by ISR
- 08350009—Maximum primary send window size is larger than that supported by ISR

Recommended Action Contact the Cisco TAC with problem details.

Error Message

%SNASW-3-SCM_LOG_15: PROBLEM - %lu - Insufficient storage to activate ISR session

Explanation There is insufficient storage to activate an ISR session. ISR session activation fails with the sense code 08120014.

Recommended Action Decrease the system load (for example, by reducing the number of active sessions) or make more storage available to the SNA Switch.

Error Message

%SNASW-3-SCM_LOG_1: PROBLEM - %lu - Protocol error in received ISR BIND request

Explanation A protocol error is received in an ISR BIND request. This message might indicate an interoperability problem. Sense codes are as follows:

- 0835000C—Primary-to-secondary staging indicator incorrect
- 08350008—Secondary-to-primary staging indicator incorrect
- 10010024—Unextended non-LU6.2 BIND
- 10020000—BIND RU length error ISR session activation fails with the specified sense code.

Recommended Action Contact the Cisco TAC with problem details.

Error Message

%SNASW-3-SCM_LOG_3: PROBLEM - %lu - Unable to identify or activate the next hop of an ISR session

Explanation The next hop of an ISR session cannot be identified or activated. ISR session activation fails with the specified sense code.

Recommended Action This log is preceded by other logs giving more specific reasons for the failure. Follow the actions outlined in those logs.

Error Message

%SNASW-3-SCM_LOG_4: PROBLEM - %lu - Fatal error detected in ISR session

Explanation ISR detected a fatal error in an intermediate session. The ISR session is deactivated with the specified sense code.

Recommended Action This log should be preceded by log 536 or 537. Follow the actions outlined in those logs.

Error Message

%SNASW-3-SCM_LOG_5: PROBLEM - %lu - ISR session failure because of link outage or error

Explanation An SR session failed because of a link outage or error. The ISR session is deactivated with the specified sense code.

Recommended Action This log gives information about which ISR sessions are affected by a link outage or error. Preceding logs give more specific information about the reason for the link outage or error.

Error Message

%SNASW-3-SCM_LOG_6: PROBLEM - %lu - Unable to assign LFSID to secondary stage of ISR session

Explanation A local-form session identifier (LFSID) to the secondary stage of an ISR session cannot be assigned. This problem is probably caused by insufficient storage to extend the appropriate LFSID routing table, although it could also indicate that the table is full (each link can route a maximum of 64770 ISR sessions). ISR session activation fails with the specified sense code.

Recommended Action This log gives information about which ISR session is affected by a failure in the LFSID table management. Preceding logs give more detail on the reason for the failure.

Error Message

%SNASW-4-SCM_LOG_7: EXCEPTION - %lu - Unable to correlate BIND response received during ISR session activation

Explanation A BIND response received during ISR session activation cannot be correlated.

Recommended Action None.

Error Message

%SNASW-4-SCM_LOG_8: EXCEPTION - %lu - Unable to correlate UNBIND request received for an ISR session

Explanation A BIND response received during ISR session activation cannot be correlated.

Recommended Action None.

Error Message

%SNASW-6-SCM_LOG_9: INFO - %lu - ISR Session Activated

Explanation An ISR Session is activated.

Recommended Action None.

Error Message

%SNASW-4-SC_LOG_1: EXCEPTION - %lu - Protocol error detected in PIU on intermediate session

Explanation The SNA Switch detected a protocol error in an PIU received on an intermediate session. This typically indicates a problem on an adjacent node. The intermediate session is deactivated. The sense codes are as follows:

- 10010003—Invalid IPM format
- 10020000—RU length error
- 10030000—CLEAR request on secondary stage, or CLEAR response on primary stage
- 20110000—Sender has overrun pacing window, or PI not set on first RU of window
- 20110001—Unexpected IPM
- 20110002—PI set on other than first RU in window
- 20110003—Invalid pacing response
- 80070000—Segment error

Recommended Action Report the problem in the adjacent node to the Cisco TAC (run a trace on the specified link if more diagnostics are required).

Error Message

%SNASW-4-SC_LOG_2: EXCEPTION - %lu - Deactivating intermediate session because of insufficient storage

Explanation Intermediate session is deactivated because of insufficient storage. The intermediate session is deactivated.

Recommended Action Decrease the system load (for example, by reducing the number of active sessions) or make more storage available to the SNA Switch.

Error Message

%SNASW-4-SM2_LOG_0: EXCEPTION - %lu - Standard compression levels used

Explanation A bind response was received that accepted session compression, but it did not specify the compression levels required (because the response is from a back-level node or because the bind request was shortened). The compression level negotiation fails and the standard compression levels are used which means that compression is used in both directions even though it might be configured for one direction only.

Recommended Action None.

Error Message

%SNASW-4-SM2_LOG_1: EXCEPTION - %lu - Failed to adjust a buffer pool

Explanation The desired number of buffers could not be reserved for a buffer pool. The receive pacing window size for the session will not increase as fast as configured.

Recommended Action Decrease the system load (for example, by reducing the number of active sessions) or make more storage available to the SNA Switch.

Error Message

%SNASW-3-SM_LOG_0: PROBLEM - %lu - Insufficient storage to define LU type 6.2

Explanation There is insufficient storage to define a new LU 6.2.

Recommended Action Decrease the system load (for example, by reducing the number of active sessions) or make more storage available to the SNA Switch.

Error Message

%SNASW-3-SM_LOG_10: PROBLEM - %lu - Format error in received LU6.2 BIND request

Explanation A format error is received LU 6.2 BIND request. Sense codes are as follows:

- 083B0000—Invalid FQPCID format Session activation fails with specified sense code
- 0835xxxx—Parameter error at offset xxxx in BIND RU
- 088C6000—FQPCID not included in extended BIND

Recommended Action Contact the Cisco TAC with problem details.

Error Message

%SNASW-3-SM_LOG_11: PROBLEM - %lu - Format error in received LU6.2 BIND response

Explanation A format error is received LU 6.2 BIND response. Session activation fails with specified sense code. Sense codes are as follows:

- 0835xxxx—Parameter error at offset xxxx in BIND RU

Recommended Action Contact the Cisco TAC with problem details.

Error Message

%SNASW-3-SM_LOG_12: PROBLEM - %lu - LU-mode session limit exceeded

Explanation The LU-mode session limit is exceeded. This problem normally should not occur because the session limits are negotiated with a CNOS exchange prior to sessions being activated. However, this log is also caused by a normal trace condition when the session limits are reset, or when this node was restarted after having previously had sessions with this partner LU. Session activation fails with a specified sense code.

Recommended Action If problem persists, check the session limits and active session counts on the specified local LU and the partner LU.

Error Message

%SNASW-4-SM_LOG_13: EXCEPTION - %lu - BIND race with single-session partner LU - partner LU has lost race

Explanation There was a BIND trace with single-session partner LU. This is a normal network race condition. The race is resolved in favor of the LU with the higher name. In this case the partner LU lost the race. Session activation fails with specified sense code.

Recommended Action None.

Error Message

%SNASW-3-SM_LOG_14: PROBLEM - %lu - Detected consistency errors in received BIND request

Explanation There are detected consistency errors in a received BIND request. This message might indicate an interoperability problem. Session activation fails with specified sense code. Sense codes are as follows:

- 080F6051—Security error
- 0835xxxx—Parameter error at offset xxxx in BIND RU

Recommended Action Contact the Cisco TAC with problem details.

Error Message

%SNASW-3-SM_LOG_15: PROBLEM - %lu - Detected consistency errors in received BIND response

Explanation There are detected consistency errors in a received BIND request. This message might indicate an interoperability problem. The session is deactivated with specified sense code. Sense codes are as follows:

- 080F6051—Security error
- 0835xxxx—Parameter error at offset xxxx in BIND RU

Recommended Action Contact the Cisco TAC with problem details.

Error Message

%SNASW-3-SM_LOG_16: PROBLEM - %lu - Format error in received UNBIND request

Explanation A format error is received in an UNBIND request. This message might indicate an interoperability problem. Sense codes are as follows:

- 0835xxxx—Parameter error at offset xxxx in UNBIND RU
- 0895xxyy—Format error in control vector, where xx is key of control vector, and yy is offset into control vector of byte in error
- 10020000—RU length error

Recommended Action Contact the Cisco TAC with problem details.

Error Message

%SNASW-4-SM_LOG_18: EXCEPTION - %lu - Unable to correlate received BIND response

Explanation A received BIND response cannot be correlated. This error is probably caused by a normal trace condition (a BIND request, followed immediately by an UNBIND request, and then by another BIND request using the same LFSID. The response to the first BIND request is not correlated.

Recommended Action None.

Error Message

%SNASW-3-SM_LOG_1: PROBLEM - %lu - Fatal error detected on LU6.2 session

Explanation A fatal error is detected on an LU 6.2 session. The session is deactivated with a specified sense code.

Recommended Action This log gives additional information on the failed session, but is preceded by exception logs (150, 151, 153, 154, 155 156 or 157) giving more specific information about the fatal error.

Error Message

%SNASW-4-SM_LOG_20: EXCEPTION - %lu - Unable to correlate received INIT-SELF response or NOTIFY request

Explanation A received INIT-SELF response or NOTIFY request cannot be correlated. This message is a response to a normal trace condition (caused by the session being deactivated before the INIT-SELF response has arrived).

Recommended Action None.

Error Message

%SNASW-4-SM_LOG_21: EXCEPTION - %lu - Unable to correlate received UNBIND request

Explanation A received UNBIND request cannot be correlate. This message is a response to a normal trace condition (caused by UNBIND requests crossing).

Recommended Action None.

Error Message

%SNASW-3-SM_LOG_2: PROBLEM - %lu - BIND or +RSP(BIND) specifies duplex support which is different from that for existing sessions

Explanation An incoming BIND or +RSP(BIND) request specified a duplex support for the remote LU, which is inconsistent with the existing sessions between the partner LUs. The BIND or +RSP(BIND) request is rejected.

Recommended Action Contact the Cisco TAC with problem details.

Error Message

%SNASW-4-SM_LOG_30: EXCEPTION - %lu - Received ACTLU when LU already active

Explanation An ACTLU is received when LU already active. The ACTLU is rejected with a specified sense code.

Recommended Action Run a trace on the link station corresponding to the specified PU name. Contact the Cisco TAC with problem details.

Error Message

%SNASW-3-SM_LOG_31: PROBLEM - %lu - Insufficient storage to activate LU-SSCP session

Explanation There is insufficient storage to activate the LU-SSCP session. ACTLU is rejected with a specified sense code.

Recommended Action Decrease the system load (for example, by reducing the number of active sessions) or make more storage available to the SNA Switch.

Error Message

%SNASW-4-SM_LOG_32: EXCEPTION - %lu - Unable to activate a new session since it would exceed the LU-mode session limit

Explanation A new session cannot be activated because it would exceed the LU-mode session limits. This problem is a normal trace condition and should occur infrequently. Session activation fails with a specified sense code, which may cause ALLOCATE, MC_ALLOCATE or CMALLC requests to fail.

Recommended Action None.

Error Message

%SNASW-3-SM_LOG_33: PROBLEM - %lu - Insufficient storage to reassemble received BIND response

Explanation There is insufficient storage to reassemble a received BIND response. The session is deactivated with a specified sense code.

Recommended Action Decrease the system load (for example, by reducing the number of active sessions) or make more storage available to the SNA Switch.

Error Message

%SNASW-3-SM_LOG_34: PROBLEM - %lu - Badly formed partner LU name in received BIND request

Explanation The partner LU name on received BIND request is badly formed. Session activation fails with the specified sense code.

Recommended Action Contact the Cisco TAC with problem details.

Error Message

%SNASW-3-SM_LOG_35: PROBLEM - %lu - Unrecognized mode name in received BIND request

Explanation Mode name on a received BIND request is unrecognized. Session activation fails with a specified sense code.

Recommended Action Modify the partner LU configuration so it does not attempt to use the unrecognized mode.

Error Message

%SNASW-3-SM_LOG_36: PROBLEM - %lu - Unable to activate session to single session partner LU, because there is an active session on another mode

Explanation A session to single session partner LU cannot be activated because there is already an active session on another mode. This message usually indicates contention between two or more APPC transaction programs or CPI-C applications for the same dependent LU 6.2. Session activation fails with a specified sense code, which may cause ALLOCATE, MC_ALLOCATE, or CMALLC requests to fail.

Recommended Action Contact the Cisco TAC with problem details.

Error Message

%SNASW-6-SM_LOG_37: INFO - %lu - LU6.2 session activated

Explanation An LU6.2 session is activated.

Recommended Action None.

Error Message

%SNASW-6-SM_LOG_38: INFO - %lu - LU6.2 session deactivated

Explanation An LU6.2 session is deactivated.

Recommended Action None.

Error Message

%SNASW-4-SM_LOG_39: EXCEPTION - %lu - An LU-SSCP session activation attempt failed because the SSCP was not suitable

Explanation An ACTLU from the wrong SSCP is received for an LU. The ACTLU is rejected with sense code 084B0000 (the LU activation attempt fails).

Recommended Action If the LU must accept the ACTLU, then the LU definition must be changed so that the LU requires the particular SSCP Identifier that is actually received from the SSCP, or the LU accepts any SSCP Identifier.

Error Message

%SNASW-4-SM_LOG_40: EXCEPTION - %lu - LU-mode session limit exceeded - BIND race

Explanation The LU-mode session limit is exceeded, and a BIND trace occurs. This is normal trace condition caused by the local LU and partner LU simultaneously attempting to activate the last session on the mode. The race is resolved in favor of the node with the higher name. In this case the partner LU lost the trace. Session activation fails with a specified sense code.

Recommended Action None.

Error Message

%SNASW-3-SM_LOG_41: PROBLEM - %lu - FQPCID collision on received BIND request

Explanation A FQPCID collision occurred. The FQPCID specified on a received BIND request matches the FQPCID being used for an existing active session. This error can be caused by a collision in the hashing algorithm used to generate an FQPCID, or it might indicate a problem in the node generating the FQPCID. Session activation fails with a specified sense code.

Recommended Action If problem is persistent or occurs often, Contact the Cisco TAC with problem details.

Error Message

%SNASW-3-SM_LOG_42: PROBLEM - %lu - Session identifier collision on received BIND request

Explanation A session identifier collision occurred. The session identifier specified on a received BIND request matches the session identifier of an existing active session. Session activation fails with specified sense code.

Recommended Action If problem is persistent or occurs often, Contact the Cisco TAC with problem details.

Error Message

%SNASW-6-SM_LOG_43: INFO - %lu - An LU-SSCP session has been activated for LU type 6.2

Explanation An LU-SSCP session is activated.

Recommended Action None.

Error Message

%SNASW-6-SM_LOG_44: INFO - %lu - An LU-SSCP session has been deactivated for LU type 6.2

Explanation An LU-SSCP session is deactivated.

Recommended Action None.

Error Message

%SNASW-3-SM_LOG_45: PROBLEM - %lu - LU-LU verification protocol mismatch.

Explanation There is an LU-LU verification protocol mismatch. The partner LU has requested the basic protocol when the local LU runs only the enhanced protocol with the partner LU. The local LU might be configured to run only the enhanced protocol with the partner LU, or it might be configured to run either protocol with the partner LU and has determined that the partner LU can run the enhanced protocol. This is caused by a mismatch in configuration, a migration problem, or a security attack. Session activation fails.

Recommended Action Check the identity of the partner LU.

Error Message

%SNASW-3-SM_LOG_46: PROBLEM - %lu - LU-LU verification failed.

Explanation LU-LU verification failed. The partner LU sent an incorrect response to a challenge sent by a local LU. This error is either a mismatch in configuration or a security attack. Session activation fails.

Recommended Action Check the identity of the partner LU. If this error is a mismatch in configuration, then reconfigure the password either at the local LU or at the partner LU (or at both LUs) so that both LUs have the same password.

Error Message

%SNASW-3-SM_LOG_47: PROBLEM - %lu - LU-LU verification protocol failed.

Explanation Duplicate random data are received. A list is kept of all random data sent as challenges by the local LU. Receiving duplicate random data from a partner LU should be a rare event and is evidence of a security attack. Session activation fails.

Recommended Action Check the identity of the partner LU. Check that the random number generators available to the local node and partner LUs are good quality (and therefore unlikely to generate matching data). Investigate recurrences of this problem as security attacks.

Error Message

%SNASW-3-SM_LOG_48: PROBLEM - %lu - BIND(-RSP) request received in response to a BIND request

Explanation A BIND(-RSP) request is received in response to a BIND request. This message might indicate a configuration error or a protocol error. Session activation fails with the specified sense code. Common sense codes that typically indicate a configuration error or a normal trace condition include the following:

- 080Fxxxx—Security authorization failed
- 0805xxxx—The session could not be activated as session activation limits have been reached
- 0806xxxx—The BIND specified a resource which is not known
- 08060014—The partner LU is not known
- 0821xxxx—The BIND supplied an invalid session parameter
- 0835xxxx—Parameter error in BIND RU at offset xxxx

Other sense codes include the following:

- 0812xxxx—Session activation failed due to resource shortage at the remote node
- 083Bxxxx—Invalid PCID in BIND RU
- 0852xxxx—Duplicate session activation request
- 0861xxxx—Invalid COS name in BIND RU
- 088Cxxxx—Control vector or subfield missing from BIND RU
- 0895xxxx—BIND RU contained a control vector that was in error
- 0896xxxx—BIND RU contained a control vector that was too long

Recommended Action If the sense code indicates a configuration error, check for inconsistencies between the configuration at the local LU and the configuration at the partner LU. If the configuration is consistent and the problem persists, Contact the Cisco TAC with problem details.

Error Message

%SNASW-3-SM_LOG_49: PROBLEM - %lu - UNBIND request received in response to a BIND request

Explanation An UNBIND request is received in response to a BIND request. This message might indicate a configuration error, or a protocol error. Session activation fails with the specified sense code. Common sense codes that typically indicate a configuration error or a normal trace condition include the following:

- 080Fxxxx —Security authorization failed
- 0805xxxx—The session could not be activated as session activation limits have been reached

- 0806xxxx—The BIND specified a resource which is not known
- 08060014—The partner LU is not known
- 0821xxxx—The BIND supplied an invalid session parameter
- 0835xxxx—Parameter error in BIND RU at offset xxxx

Other sense codes include the following:

- 0812xxxx—Session activation failed due to resource shortage at the remote node
- 083Bxxxx—Invalid PCID in BIND RU
- 0852xxxx—Duplicate session activation request
- 0861xxxx—Invalid COS name in BIND RU
- 088Cxxxx—Control vector or subfield missing from BIND RU
- 0895xxxx—BIND RU contained a control vector that was in error
- 0896xxxx—BIND RU contained a control vector that was too long

Recommended Action If the sense code indicates a configuration error, check for inconsistencies between the configuration at the local LU and the configuration at the partner LU. If the configuration is consistent and the problem persists, Contact the Cisco TAC with problem details.

Error Message

```
%SNASW-3-SM_LOG_5: PROBLEM - %lu - Insufficient storage to activate LU6.2 session
```

Explanation There is insufficient storage to activate LU 6.2 session. Session activation fails with a specified sense code.

Recommended Action Decrease the system load (for example, by reducing the number of active sessions) or make more storage available to the SNA Switch.

Error Message

```
%SNASW-4-SM_LOG_6: EXCEPTION - %lu - Abnormal UNBIND request received
```

Explanation An abnormal UNBIND request is received. This message might indicate a configuration error or a protocol error. The session fails with a specified sense code.

Recommended Action If the sense code indicates a configuration error, check for inconsistencies between the configuration at the local LU and the configuration at the partner LU. If the configuration is consistent and the problem persists, Contact the Cisco TAC with problem details.

Error Message

```
%SNASW-6-SS_LOG_11: INFO - %lu - Adjacent CP contacted
```

Explanation An adjacent CP is contacted.

Recommended Action None.

Error Message

```
%SNASW-6-SS_LOG_12: INFO - %lu - CP-CP sessions established
```

Explanation CP-CP sessions are successfully established with the adjacent node.

Recommended Action None.

Error Message

%SNASW-4-SS_LOG_13: EXCEPTION - %lu - Retrying CP-CP session activation after failure

Explanation A CP-CP session establishment is retried after an error.

Recommended Action None.

Error Message

%SNASW-3-SS_LOG_16: PROBLEM - %lu - CP capabilities exchange failed because of contention winner CP-CP session failure

Explanation A CP capabilities exchange failed because of a contention winner CP-CP session failure. A contention loser CP-CP session is deactivated. The SNA Switch attempts to reactivate CP-CP sessions with this adjacent CP.

Recommended Action This log flags the fact that a CP-CP session failed. Other logs give more details on the reason for the session failure.

Error Message

%SNASW-4-SS_LOG_17: EXCEPTION - %lu - CP-CP sessions established between network nodes in different networks

Explanation CP-CP sessions are established between two network nodes in different networks. CP-CP sessions are deactivated with the specified sense code.

Recommended Action None.

Error Message

%SNASW-6-SS_LOG_18: INFO - %lu - CP-CP sessions deactivated

Explanation CP-CP sessions to the adjacent node are deactivated.

Recommended Action None.

Error Message

%SNASW-4-SS_LOG_4: EXCEPTION - %lu - Network Node server not required

Explanation NNS is not required. This message is logged when a back-level APPN network node (one that does not support function set 1015) attempts to activate CP-CP sessions with the SNA Switch (EN) when it already has a NNS. The CP-CP session is deactivated with the specified sense code. The SNA Switch cannot subsequently use this NN as its server unless all links to it are deactivated and at least one is restarted.

Recommended Action None.

Error Message

%SNASW-3-SS_LOG_5: PROBLEM - %lu - CP capabilities exchange failed because of contention loser CP-CP session failure

Explanation CP capabilities exchange failed because of a contention loser CP-CP session failure. A contention winner CP-CP session is deactivated. The SNA Switch attempts to reactivate CP-CP sessions with this adjacent CP.

Recommended Action This log flags the fact that a CP-CP session failed. Other logs give more details on the reason for the session failure (insufficient resources, link failure).

Error Message

%SNASW-3-SS_LOG_7: PROBLEM - %lu - Insufficient storage to generate Alert CPSS003

Explanation There is insufficient storage to generate an Alert CPSS003 (protocol error in received BIND or LOCATE). The alert is not sent.

Recommended Action Decrease the system load (for example, by reducing the number of active sessions) or make more storage available to the SNA Switch.

Error Message

%SNASW-3-SS_LOG_8: PROBLEM - %lu - CP capabilities exchange failed because of protocol error

Explanation A CP capabilities exchange failed because of a protocol error. This message might indicate an interoperability problem. The SNA Switch does not attempt to reactivate CP-CP sessions with this adjacent CP. Sense codes are as follows:

- 08B60000—CP-CP sessions not supported by adjacent node
- 08060030—CP capabilities requested by unknown CP
- 08090039—CP transaction error CP-CP sessions with the specified adjacent node is deactivated
- 08150007—CP capabilities requested when CP-CP session already established
- 08210002—CP capabilities requested on other than CPSVCMG mode

Recommended Action Contact the Cisco TAC with problem details.

Error Message

%SNASW-3-SS_LOG_9: PROBLEM - %lu - Protocol error in CP capabilities exchange

Explanation A CP capabilities exchange failed because of badly formatted CP CAPS GDS variable. CP-CP sessions with the specified adjacent node is deactivated. The SNA Switch does not attempt to reactivate CP-CP sessions with this adjacent CP. Sense codes are as follows:

- 10101000—CP capabilities length error
- 10101002—Unexpected GDS identifier (not CP capabilities)

Recommended Action Contact the Cisco TAC with problem details.

Error Message

%SNASW-4-TC_LOG_0: EXCEPTION - %lu - Session pacing error

Explanation A session pacing error occurred. This message might indicate an interoperability problem. The session is deactivated with the specified sense code. Sense codes are as follows:

- 10010003—Invalid IPM format
- 20110000—Sender has overrun pacing window, or PI not set on first RU of window
- 20110001—Unexpected IPM
- 20110002—PI set on other than first RU in window
- 20110003—Invalid pacing response

Recommended Action Use information on the session deactivated problem log (271) to identify the local LU and partner LU. If required, run a trace on the specified link station and contact the Cisco TAC with the log and trace data.

Error Message

%SNASW-4-TC_LOG_1: EXCEPTION - %lu - Session segmentation error

Explanation A session segmentation error occurred. This message might indicate an interoperability problem. The session is deactivated with the specified sense code. Sense codes are as follows:

- 80070000—Segmenting error
- 80070001—Segmentation not supported on this link

Recommended Action Use information on the session deactivated problem log (271) to identify the local LU and partner LU. If required, run a trace on the specified link station and contact the Cisco TAC with the log and trace data.

Error Message

%SNASW-4-TC_LOG_2: EXCEPTION - %lu - RU length error

Explanation There is an RU length error. This message might indicate an interoperability problem. The session is deactivated with the specified sense code. Sense codes are as follows:

- 10020000—RU length error

Recommended Action For an LU 6.2 session, use information on the session deactivated problem log (271) to identify the local LU and partner LU. If required, run a trace on the specified link station and contact the Cisco TAC with the log and trace data.

Error Message

%SNASW-3-TRACE: Diagnostic trace record too large for configured buffer.
Buffer ID [hex]

Explanation A trace record could not be written to one of the cyclic trace buffers because it was larger than the available buffer space. The buffer is cleared.

Recommended Action Increase the size of the relevant cyclic trace buffer or, if diagnostics are not currently necessary, disable the tracing.

Error Message

%SNASW-4-TS_LOG_0: EXCEPTION - %lu - Unable to generate session route :
unknown COS name

Explanation A COS name specified for a session activation could not be associated with a valid COS. A session activation fails with the specified sense code.

Recommended Action Ensure no mode-to-COS mapping tables at the origin node or its network node server use the unrecognized COS.

Error Message

%SNASW-3-TS_LOG_13: PROBLEM - %lu - Failed to send alert due to insufficient
memory

Explanation There is insufficient memory to send an alert. The host will not see an alert. The alert number identifies the alert:

- 1—CPDB001
- 2—CPDB002
- 3—CPDB003
- 4, 6—CPDB004

- 5, 7—CPDB005

The alerts are detailed in the Management Services Reference (C30-3346). No other symptoms are seen.

Recommended Action Decrease the system load (for example, by reducing the number of active sessions) or make more storage available to the SNA Switch.

Error Message

```
%SNASW-4-TS_LOG_1: EXCEPTION - %lu - Unable to generate session route - no suitable TGs from origin node
```

Explanation No suitable TG was found from the origin EN to the backbone network for the COS specified for a session activation. This error might be caused by a temporary link failure between the origin node and a NN. A session activation fails with the specified sense code.

Recommended Action Check for a link failure at the origin node that explains the route failure. If no link failure is found, then change the mode-to-COS mapping on the origin node or its network node server to use a different class of service or reconfigure the network to ensure there is a usable route from the origin node to the backbone network (for example, by defining or activating another link from the origin node to a NN).

Error Message

```
%SNASW-4-TS_LOG_2: EXCEPTION - %lu - Unable to generate session route - no suitable TGs to destination node
```

Explanation No suitable TG is found from the backbone network to the destination EN for the COS specified for a session activation. This error might be caused by a temporary link failure between the destination node and a network node. A session activation fails with the specified sense code.

Recommended Action Check for a link failure at the destination node that explains the route failure. If no link failure is found, then change the mode-to-COS mapping on the origin node or its network node server to use a different class of service or reconfigure the network to ensure there is a usable route from the destination node to the backbone network (for example, by defining or activating another link from the destination node to a NN).

Error Message

```
%SNASW-4-TS_LOG_6: EXCEPTION - %lu - Unable to generate session route to adjacent node
```

Explanation No suitable TG is found for a session activation to an adjacent node for the given COS. This error might be caused by a link failure. A session activation fails with the specified sense code.

Recommended Action Check for a link failure that explains the failure. If no link failure is found reconfigure the network to ensure there is a usable link between this node and the specified adjacent node.

Error Message

```
%SNASW-4-TS_LOG_7: EXCEPTION - %lu - Unable to generate session route - RSCV truncated
```

Explanation A Route Selection Control Vector message is generated for a route that was too long (must be less than 256 bytes long). Session activation fails with the specified sense code.

Recommended Action Reconfigure the network to ensure there is a short enough route between the origin and destination nodes.

Glossary

Advanced Program-to-Program Communication—See APPC.

Advanced Peer-to-Peer Networking—See APPN.

APPC—Advanced Program-to-Program Communication. The general facility characterizing the LU 6.2 architecture and its various implementations in products.

APPN—Advanced Peer-to-Peer Networking. An extension to SNA that features the following: (1) greater distributed network control that avoids critical hierarchical dependencies, thereby isolating the effects of single points of failure; (2) dynamic exchange of network topology information to foster ease of connection, reconfiguration, and adaptive routing selection; (3) dynamic definition of network resources; and (4) automated resource registration and directory lookup. APPN extends LU 6.2 peer orientation for end-user services to network control and supports multiple LU types including LU 2, LU 3, and LU 6.2.

basic transmission unit—See BTU.

Branch Extender—See BX.

BX—A function of SNASw that enhances the scalability and reliability of SNA routing nodes by appearing as a NN to downstream EN, LEN node, and PU 2.0 devices while also appearing as an EN to upstream devices. The Branch Extender function eliminates APPN topology and APPN broadcast search flows between SNASw nodes and the SNA data hosts in the network.

BTU—basic transmission unit. In SNA, the unit of data and control information passed between path control components. A BTU can consist of one or more path information units (PIUs).

class of service—See COS.

CN—connection networks. A representation within an APPN network of shared-access transport facilities (SATFs), such as Token Ring, that allows nodes identifying their connectivity to the SATF by a common virtual routing node to communicate without having individually defined connections to one another.

connection networks—See CN.

COS—class of service. A set of characteristics such as specific transmission priority, level of route reliability, and security level used to construct a route between session partners. The class of service is derived from a mode name specified by the initiator of a session.

Enterprise Extender—see EX.

EX—A function of SNASw that offers SNA High Performance Routing (HPR) support directly over IP networks. EX utilizes connectionless UDP transport.

High Performance Routing—See HPR.

HPR—High Performance Routing. An addition to APPN that enhances data-routing performance and session reliability.

intermediate session routing—See ISR.

ISR—intermediate session routing. A type of routing function within an APPN network node that provides session-level flow control and outage reporting for all sessions that pass through the node but whose endpoints are elsewhere.

LEN node— low-entry networking node. A capability of nodes to attach directly to one another using basic peer-to-peer protocols to support multiple and parallel sessions between logical units.

low-entry networking node—See LEN node.

maximum transfer unit—See MTU.

MTU—maximum transfer unit. The maximum number of bytes that an IP datagram can contain.

network node server—See NNS.

NNS—network node server. An APPN network node that provides network services for its local LUs and client ENs.

QOS—quality of service. A set of communication characteristics required by an application. Each QOS defines a specific transmission priority, level of route reliability, and security level. Each QOS also defines whether the sessions are interactive.

quality of service—See QOS.

Responsive Mode ARB—In SNASw, the second generation HPR flow control architecture.

SNA—Systems Network Architecture. The IBM architecture that defines the logical structure, formats, protocols, and operational sequences for transmitting information units through, and controlling the configuration and operation of, networks. The layered structure of SNA allows the ultimate origins and destinations of information (the users) to be independent of and unaffected by the specific SNA network services and facilities that are used for information exchange.

SNASw—SNA Switching Services. A feature within Cisco IOS software that provides SNA routing or “session switching” for PU 2.0, PU 2.1 (LEN node), and APPN EN devices over ISR or HPR data link controls.

SSCP—System Services Control Point.

SSCP Services—A component within a subarea network for managing the configuration, coordinating network operator and problem determination requests, and providing directory services and other session services for end users of a network. Multiple SSCPs, cooperating as peers with one another, can divide the network into domains of control, with each SSCP having a hierarchical control relationship to the physical units and logical units within its own domain.

sysplex—A set of MVS or OS/390 systems communicating and cooperating with each other through certain multisystem hardware components and software services to process customer workloads. This term is derived from “system complex.”

Systems Network Architecture—See SNA.

System Services Control Point—See SSCP.

VDLC—Virtual Data Link Control. A facility within Cisco IOS software for communication between two software components which both use Cisco Link Services (CLS).

Virtual Data Link Control—See VDLC.