SNA Link/iX Node Manager's Guide

HP 3000 MPE/iX Computer Systems

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Palo Alto, CA 94304 U.S.A.

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Preface

This manual describes Hewlett-Packard Company's Systems Network Architecture link products for the MPE/iX operating system:

- SNA/SDLC Link/iX (HP 30291A)
- SNA/X.25 Link/iX (HP 30298A)
- SNA/Token Ring Link/iX (HP J2249A)

Systems Network Architecture (SNA) is a comprehensive specification for distributed data processing networks, developed by IBM. This manual describes the steps in configuring the HP 3000 computer system as a node in an IBM SNA network.

NOTE

MPE/iX, Multiprogramming Executive with Integrated POSIX, is the latest in a series of forward-compatible operating systems for the HP 3000 line of computers.

In Hewlett-Packard documentation and in talking with HP 3000 users, you will encounter references to MPE XL, the direct predecessor of MPE/iX. MPE/iX is a superset of MPE XL. All programs written for MPE XL will run without change under MPE/iX. You can continue to use MPE XL system documentation, although it might not refer to features added to the operating system to support POSIX (for example, hierarchical directories).

Finally, you might encounter references to MPE V, which is the operating system for HP 3000s not based on the PA-RISC architecture. MPE V software can be run on the PA-RISC HP 3000 Series 900 computers in what is known as *compatibility mode*.

Audience

This manual addresses the HP node manager responsible for planning, configuring, and monitoring the operation of an HP 3000 SNA data communications subsystem. Note that node manager (NM) or network administrator (NA) capabilities are required to configure data communications subsystems on the HP 3000.

Organization

This manual is divided into the following chapters and appendixes:

Chapter 1 , "SNA Links Overview," presents an overview of the structure and capabilities of the SNA data communications subsystem.

Chapter 2 , "SNA Node and Link Configuration," describes how to use the Node Management Configuration Manager (NMMGR) to configure an SNA node and link.

Chapter 3 , "Logging Configuration," describes how to use NMMGR to configure the logging facility.

Chapter 4 , “SNA Node Startup and Shutdown,” explains how sessions and nodes are started and stopped.

Chapter 5 , “SNA Link Troubleshooting,” gives you information about solving problems that might occur while configuring, installing, and running the SNA link products.

Chapter 6 , “MPE Commands,” describes the SNA Transport MPE commands.

Chapter 7 , “SNA Link Installation Information,” gives you the steps you must follow to install the SNA link products.

Appendix A , “Messages,” contains the messages you might encounter while using the SNA link products.

Appendix B , “Netview Alerts,” describes NetView alerts and how they are sent from an HP 3000 to the IBM host.

Related HP Publications

As an SNA link node manager, you can find related information in these manuals:

- *Using the Node Management Services Utilities*
- *SNA NRJE Node Manager's Guide*
- *SNA IMF/XL Node Manager's Guide*
- *APPC Subsystem on MPE XL Node Manager's Guide*
- *SNA DHCF/XL Node Manager's Guide*
- *SNA DHCF/XL Diagnostic Message Manual*
- *HP SNADS/XL Node Manager's Guide*
- *HP SNA Products Remote System Configuration Guide*
- *MPE/iX Commands Reference Kit*
- *HP SNA Server/Access User's Guide*

1 SNA Links Overview

HP 3000 users can communicate with an IBM SNA remote system by using one of the Hewlett-Packard SNA link products:

- **SNA/SDLC Link/iX** (referred to as SNA/SDLC Link), which works with the SNA services to provide an HP 3000-to-IBM host or AS/400 connection over an SNA network.
- **SNA/X.25 Link/iX** (referred to as SNA/X.25 Link), which works with the SNA services to provide an HP 3000-to-IBM host or AS/400 connection over an X.25 network.
- **SNA/Token Ring Link/iX** (referred to as SNA/Token Ring Link), which works with the SNA services to provide an HP 3000-to-IBM host or AS/400 connection over a token ring network.

NOTE In this manual, the term **SNA link** is used when the information is true regardless of which link is being used. When a distinction must be made about the type of link being used, the specific link name is used.

These topics are covered in this chapter:

- SNA layers implemented
- Tracing provided
- Other SNA Transport functions provided
- SNA/SDLC Link overview
  - — Host hardware and software requirements
  - — AS/400 hardware and software requirements
  - — HP 3000 hardware and software requirements
- SNA/X.25 Link overview
  - — Host hardware and software requirements
  - — AS/400 hardware and software requirements
  - — HP 3000 hardware and software requirements
- SNA/Token Ring Link overview
  - — Host hardware and software requirements
  - — AS/400 hardware and software requirements
  - — HP 3000 hardware and software requirements

SNA Layers Implemented

The SNA services implement the upper layers of the SNA architecture. SNA Transport implements a type 2.0 (T2.0) node (formerly called a Physical Unit Type 2 [PU.T2]) and type 2.1 (T2.1) node (formerly called a Physical Unit Type 2.1 [PU 2.1]) for SNA/SDLC Link, a T2.0 node for SNA/X.25 Link, and a T2.0 and T2.1 for SNA/Token Ring Link. (Note that, at this time, LU 6.2 API/XL is the only SNA service that makes use of the T2.1 node capabilities.) SNA Transport also includes the Path Control and Transmission Control layers of SNA, as well as the Configuration Services and Address Space Manager functions. It provides a direct send/receive interface for the SNA services to establish LU-LU sessions with the remote system. So, the lower layers of SNA are implemented by running the services with an SNA link.

Tracing Provided

Three levels of tracing for the SNA links are provided: node tracing, intrinsic tracing, and link-level tracing. **Node tracing** for SNA Transport is on a node basis and normally is turned off. When turned on, it traces SNA Transport internal events; so, it is a useful tool for troubleshooting SNA Transport. **Intrinsic tracing** is on a session basis and normally is turned off. When turned on, it traces the send/receive interface between SNA Transport and the SNA services. Because it includes the SNA headers as well as the data, SNA Transport intrinsic tracing is a useful tool for troubleshooting the SNA services. Both types of SNA Transport tracing are turned on and off by using MPE commands. The SDLC link driver also has a trace facility that is useful for troubleshooting SDLC link-level problems; since it drains resources, it normally is turned off. **Link-level tracing** is turned on and off by using MPE commands. Tracing is described in Chapter 5 , “SNA Link Troubleshooting,” of this manual; the commands are described in Chapter 6 , “MPE Commands.”

Other SNA Transport Functions Provided

Besides tracing, SNA Transport also provides these basic services through the MPE command interpreter:

- Starting and stopping an SNA node (see Chapter 5 , “SNA Link Troubleshooting,”and Chapter 6 , “MPE Commands.”)
- Session and link status (see Chapter 6 , “MPE Commands.”)
- Software version listing (see Chapter 6 , “MPE Commands.”)

These basic services are the responsibility of the node manager, and node manager (NM) capability is required to use the MPE commands for them.

SNA/SDLC Link Overview

SNA/SDLC Link is composed of hardware and software:

- Programmable Serial Interface (PSI) card and cables (hardware)
- SNA Transport (software)
- SDLC link driver (software)

The hardware of SNA/SDLC Link (the PSI and cables) and the downloaded SNA Transport software implement the Physical Control layer of SNA, and the SDLC link driver implements the Data Link Control layer. The SDLC link driver controls transmission over the communications line.

Figure 1-1 shows how SNA/SDLC Link and the SNA services implement HP 3000-to-IBM host communication.

Figure 1-1 SNA/SDLC Link HP-to-IBM Host Communication

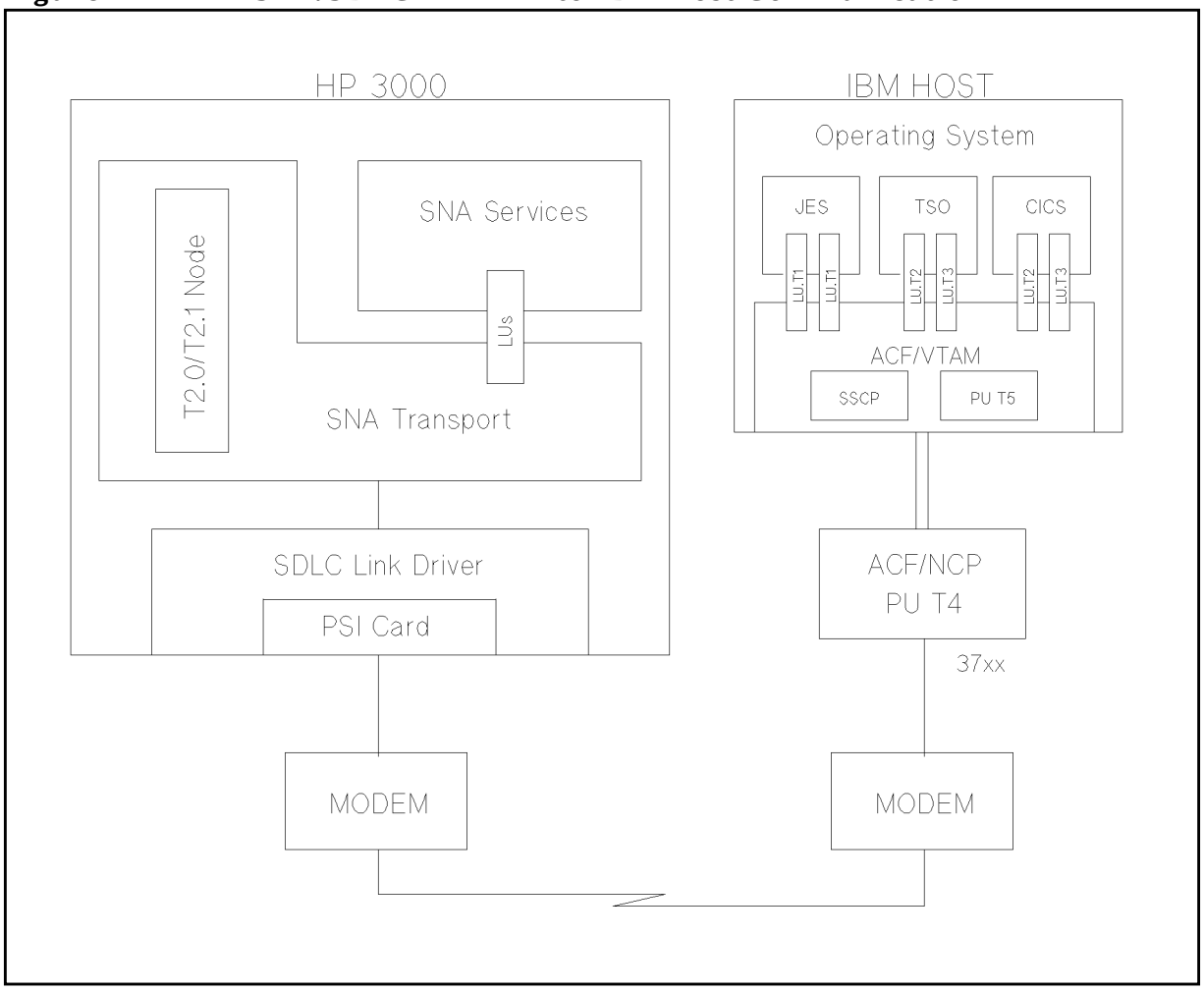
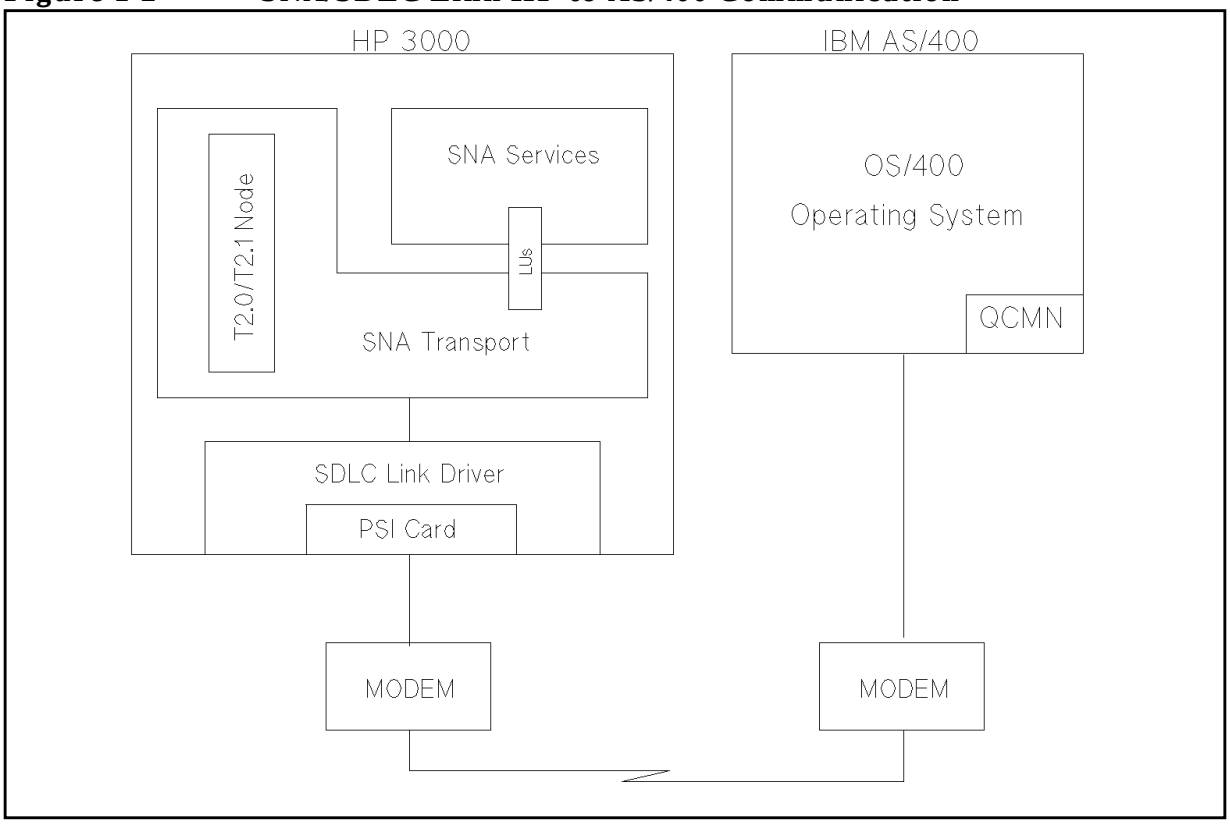


Figure 1-2 shows how SNA/SDLC Link and the SNA services implement HP 3000-to-IBM AS/400 communication.

Figure 1-2 SNA/SDLC Link HP-to-AS/400 Communication



Host Hardware and Software Requirements

SNA/SDLC Link requires this IBM host hardware:

- An **IBM System/370**-compatible mainframe (for example, Model 370, 303x, and 43xx).
- An **IBM 37xx**-compatible communications controller that supports an SNA line. An HP 3000 can also be connected to the communications controller via an **IBM 3710** network controller.

SNA/SDLC Link requires this IBM host software:

- MVS/SP, MVS/XA, VSE, or VM operating system.
- ACF/NCP network control program. (For a T2.1 node, version 5 release 2 or later is needed for the IBM 3720 and IBM 3745, and version 4 release 3 is needed for the IBM 3725.)
- ACF/VTAM telecommunications access method. (For a T2.1 node, version 3 release 2 or later is needed.)

For more-specific information, contact your Hewlett-Packard sales representative.

AS/400 Hardware and Software Requirements

SNA/SDLC Link requires this IBM AS/400 hardware:

- An **IBM AS/400** computer system with the appropriate communications controller card installed.

SNA/SDLC Link requires this IBM AS/400 software:

- OS/400 operating system (all SNA-related software is included within the OS/400 operating system).

For more-specific information, contact your Hewlett-Packard sales representative.

HP 3000 Hardware and Software Requirements

You can run SNA/SDLC Link on any HP 3000 Series 900 computer that has at least 32MB of real memory. Depending on your system configuration, more memory might be required. Contact your Hewlett-Packard sales representative for more information.

SNA/SDLC Link requires this HP 3000 hardware:

- A HP 3000 Series 900 computer system.
- A Programmable Serial Interface (PSI) card and the appropriate PSI cables (contact your Hewlett-Packard sales representative for more information). One PSI is required for each active link to the remote system.
- A switched or leased full-duplex or half-duplex data communications line between the HP 3000 and the remote system. Note that whether full-duplex or half-duplex transmission is used is determined by the remote system configuration or the modem used on the remote system.
- A block mode terminal that is supported by VPLUS, for use with the Node Management Services (NMS) NMMGR configuration manager.

SNA/SDLC Link requires this HP 3000 software:

- HP 3000 Multiprogramming Executive with Integrated POSIX (MPE/iX) operating system.

SNA/X.25 Link Overview

SNA/X.25 Link is composed of only software:

- SNA Transport
- Qualified Logical Link Control (QLLC) module

SNA/X.25 Link communicates with the X.25 network through the X.25 System Access software on the HP 3000, which is supported by a Datacommunications and Terminal Controller (DTC). The QLLC module enforces the QLLC protocol, which is a special protocol developed by IBM to resolve differences between SDLC and X.25. It uses qualified X.25 packets to send link control messages in a format similar to SDLC link control messages.

Figure 1-3 shows how SNA/X.25 Link, the SNA services, and the required NS products implement HP 3000-to-IBM host communication.

Figure 1-3 SNA/X.25 Link HP-to-IBM Host Communication

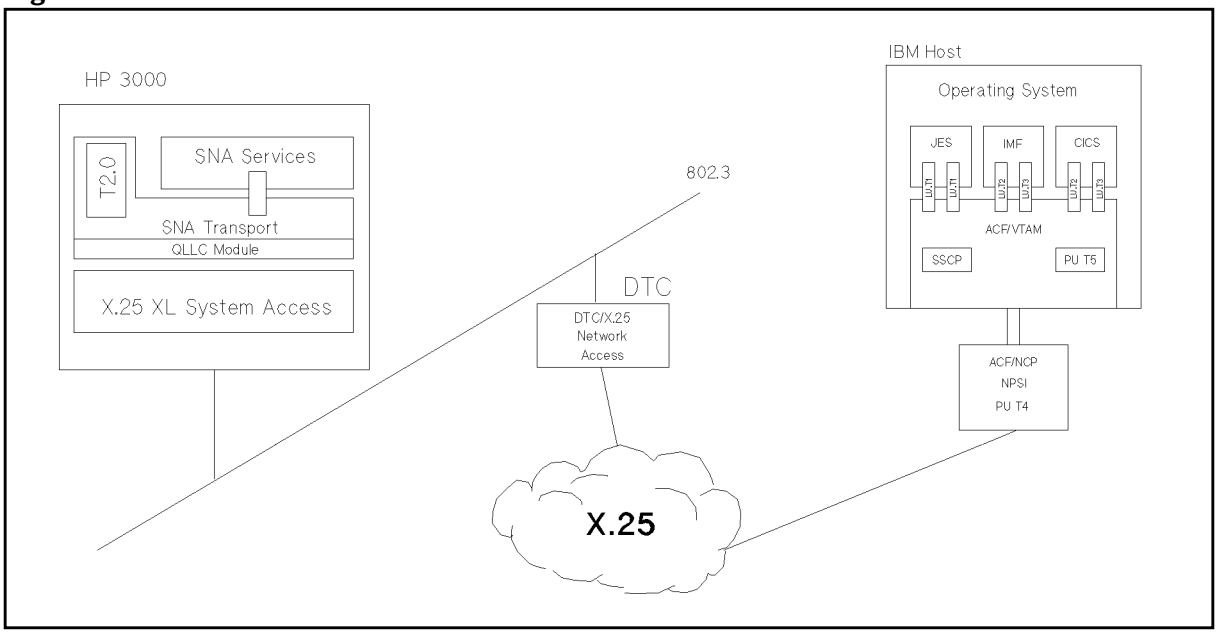
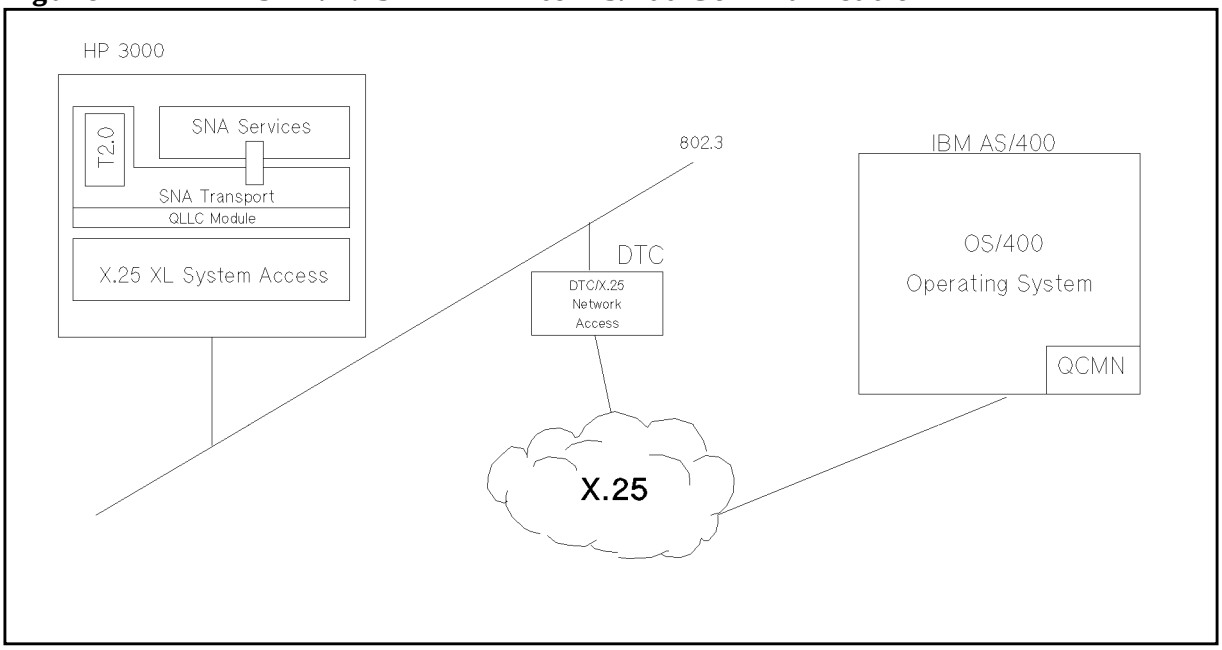


Figure 1-4 shows how SNA/X.25 Link, the SNA services, and the required NS products implement HP 3000-to-IBM AS/400 communication.

Figure 1-4 SNA/X.25 Link HP-to-AS/400 Communication



Host Hardware and Software Requirements

SNA/X.25 Link requires this IBM host hardware:

- An **IBM System/370**-compatible mainframe (for example, Model 370, 303x, and 43xx).
- An **IBM 37xx**-compatible communications controller that supports an X.25 NCP Packet Switching Interface (NPSI) line.

SNA/X.25 Link requires this IBM host software:

- MVS/SP or MVS/XA operating system.
- ACF/NCP network control program.
- ACF/VTAM telecommunications access method.
- X.25 NCP Packet Switching Interface (NPSI) software (version 2 release 1 or later for the IBM 3725, and version 3 for the IBM 3745).

For more-specific information, contact your Hewlett-Packard sales representative.

AS/400 Hardware and Software Requirements

SNA/X.25 Link requires this IBM AS/400 hardware:

- An **IBM AS/400** computer system with the appropriate communications controller card installed.

SNA/X.25 Link requires this IBM AS/400 software:

- OS/400 operating system (all SNA-related software is included within the OS/400 operating system).

For more-specific information, contact your Hewlett-Packard sales representative.

HP 3000 Hardware and Software Requirements

You can run SNA/X.25 Link on any HP 3000 Series 900 computer that has at least 32MB of real memory. Depending on your system configuration, more memory might be required. Contact your Hewlett-Packard sales representative for more information.

SNA/X.25 Link requires this HP 3000 hardware:

- A HP 3000 Series 900 computer system.
- A block mode terminal that is supported by VPLUS, for use with the Node Management Services (NMS) NMMGR configuration manager.

Note that since SNA/X.25 Link requires the X.25 XL System Access product and the DTC/X.25 Network Access product, the required hardware for those products is also required by SNA/X.25 Link. (See the *Getting Started with the DTC* manual for more information.)

SNA/X.25 Link requires this HP 3000 software:

- HP 3000 Multiprogramming Executive with Integrated POSIX (MPE/iX) operating system.
- NS X.25 System Link.
- NS X.25 Network Access.
- OpenView DTC Manager.

SNA/Token Ring Link Overview

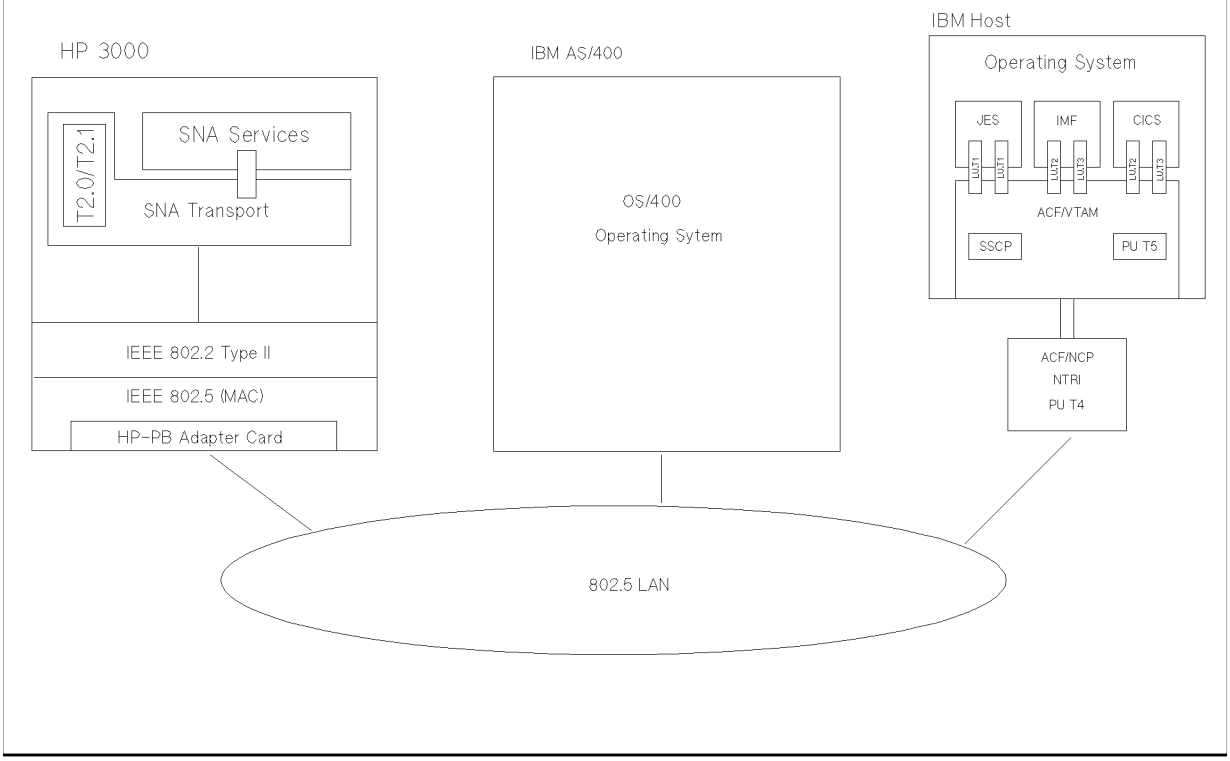
SNA/Token Ring Link is composed of hardware and software:

- Token Ring HP-Precision Bus (HP-PB) adapter card (hardware)
- SNA Transport (software)
- Token ring link module (software)
- Token ring link driver (software)

The SNA/Token Ring Link uses the HP Token Ring HP-PB adapter card to connect to the token ring LAN. The SNA/Token Ring Link implements an IEEE 802.2 type II driver to handle connection-oriented traffic and IEEE 802.5 Token-Passing Ring Medium Access Control (MAC) deterministic access method.

As a token ring allows an any-to-any connection, users on an HP 3000 can run different applications on different remote systems. Figure 1-5 shows how SNA/Token Ring Link and the SNA services implement HP 3000-to-IBM host or HP 3000-to-AS/400 communication.

Figure 1-5 SNA/Token Ring Link Communications



Host Hardware and Software Requirements

SNA/Token Ring Link requires this IBM host hardware:

- An **IBM System/370**-compatible mainframe (for example, Model 370, 303x, and 43xx).
- An **IBM 37xx**-compatible communications controller that supports an NCP Token Ring Interface (NTRI) connection or an IBM 3174 Establishment Controller that supports Token Ring.

SNA/Token Ring Link requires this IBM host software:

- MVS/SP or MVS/XA operating system.
- ACF/NCP network control program.
- ACF/VTAM telecommunications access method.
- NCP Token Ring Interface (NTRI) software (NCP version 4 release 3 or later for the IBM 3725, and version 5 release 4 for the IBM 3745).

For more-specific information, contact your Hewlett-Packard sales representative.

AS/400 Hardware and Software Requirements

SNA/Token Ring Link requires this IBM AS/400 hardware:

- An **IBM AS/400** computer system with the appropriate communications controller card installed.

SNA/Token Ring Link requires this IBM AS/400 software:

- OS/400 operating system (all SNA-related software is included within the OS/400 operating system).

For more-specific information, contact your Hewlett-Packard sales representative.

HP 3000 Hardware and Software Requirements

You can run SNA/Token Ring Link on an HP 3000 Series 900 HP-Precision Bus (HP-PB) system that has at least 32MB of real memory. Depending on your system configuration, more memory might be required. Contact your Hewlett-Packard sales representative for more information.

SNA/Token Ring Link requires this HP 3000 hardware:

- An HP 3000 Series 900 HP-PB computer system.
- An HP Token Ring HP-PB Adapter Card and the appropriate IBM Type 1 token ring cables (contact your Hewlett-Packard sales representative for more information). One Token Ring Card is required for each active link to the remote system.

- A block mode terminal that is supported by VPLUS, for use with the Node Management Services (NMS) NMMGR configuration manager.

SNA/Token Ring Link requires this HP 3000 software:

- HP 3000 Multiprogramming Executive with Integrated POSIX (MPE/iX) operating system.

2 SNA Node and Link Configuration

This chapter describes how to use the NMS configuration manager (NMMGR) to create or modify a hierarchical configuration file for the SNA node and link. To configure an SNA service, see the *Node Manager's Guide* for that service.

These topics are covered in this chapter:

- Network configuration order
- Host configuration overview
- AS/400 configuration overview
- HP 3000 configuration overview
- Data required from the host configuration
  - — SNA/SDLC information
  - — SNA/X.25 information
  - — SNA/Token Ring information
- Data required from the AS/400 configuration
  - — SNA/SDLC information
  - — SNA/X.25 information
  - — SNA/Token Ring information
- NMMGR configuration overview
  - — SNA node information
  - — Link information
  - — Configuration file validation
  - — Configuration file critical summary
- Configuring the SNA node and link
  - — "Main" screen
  - — "HP-IBM Configuration" screen
  - — "SNA Node Configuration" screen
  - — "PU Data" screen
  - — "LU Data" screen
  - — "SDLC Link Data" screen
  - — "X.25 Link Data" screen
  - — "Token Ring Link Data" screen

Network Configuration Order

We recommend that the HP 3000 system and the software components of the IBM host or AS/400 system be configured in this order:

1. The IBM host (JES2, JES3, VTAM, NCP, etc.) or AS/400 system
2. The SNA nodes on the HP 3000
3. Logging for SNA Transport on the HP 3000
4. The SNA services on the HP 3000
5. Logging for the SNA services on the HP 3000

NOTE For SNA/X.25 Link, the X.25 System Access product must be configured and verified *before* the above steps are done.

Host Configuration Overview

Before communication between the HP 3000 and the IBM SNA host system is possible, both systems must be configured. The host configuration should be done first, and it consists of changes to the system generations of one or more of the following, as applicable for the SNA link being used:

- ACF/NCP
- ACF/VTAM
- X.25 NPSI
- Host application subsystems (for example, CICS, IMS, and JES2) that have an interface with the SNA services

The ACF/NCP, ACF/VTAM, and X.25 NPSI generations must be coordinated with the SNA node configuration on the HP 3000. Coordination between the various host subsystems and the SNA services also must be done. The relationships between host parameters and HP 3000 configuration values are explained later in this chapter and in the *Node Manager's Guide* for each SNA service. Your IBM system programmer should send copies of the host configuration to you or your Hewlett-Packard support contact, so that this coordination can be accomplished.

The *HP SNA Products Remote System Configuration Guide* explains ACF/NCP, ACF/VTAM, and X.25 NPSI configuration for the SNA links.

AS/400 Configuration Overview

Before communication between the HP 3000 and the IBM SNA AS/400 system is possible, both systems must be configured. The AS/400 configuration should be done first, and it consists of specifying values for certain parameters.

The AS/400 configuration must be coordinated with the SNA node configuration on the HP 3000. Coordination between the AS/400 system and the SNA services also must be done. The relationships between AS/400 parameters and HP 3000 configuration values are explained later in this chapter and in the *Node Manager's Guide* for each SNA service. Your IBM system programmer should send copies of the AS/400 configuration to you or your Hewlett-Packard support contact, so that this coordination can be accomplished.

The *HP SNA Products Remote System Configuration Guide* explains AS/400 configuration for the SNA links.

HP 3000 Configuration Overview

Once the IBM remote system is configured, you can configure the HP 3000 system. Configuration of the HP 3000 system is accomplished through the Node Management Services configuration manager (NMMGR). The configuration consists of the creation of a configuration file, using NMMGR.

Using NMMGR to configure SNA nodes and links is described later in this chapter, and using it to configure logging (for SNA Transport as well as for the SNA services) is described in Chapter 3 , “Logging Configuration.” Configuring SNA services through NMMGR is described in the *Node Manager's Guide* for each service. The basic operation of NMMGR is described in *Using the Node Management Services Utilities*. If you are not familiar with NMMGR, read that manual before you configure any parts of the HP 3000 system.

Data Required from the Host Configuration

Data in an SNA node configuration file must correspond to information from the host configuration. So, before using NMMGR, you should have certain information from the host configuration.

The host information that corresponds to SNA node configuration information for SNA/SDLC links, SNA/X.25 links, and SNA/Token Ring links is described below.

SNA/SDLC Information

For the host and the HP 3000 to communicate, you must coordinate the SNA/SDLC node configuration with the ACF/NCP and ACF/VTAM host configurations. The *HP SNA Products Remote System Configuration Guide* explains these configurations. Table 2-1 shows the relationships between items from the host configuration and items in the SNA node configuration file for an SNA/SDLC link. Each NMMGR screen field is described later in this chapter.

Table 2-1 Host ACF/NCP and ACF/VTAM Values for SDLC

Host Configuration Macro and Operand	Field in NMMGR Screen	NMMGR Screen Name
LINE SPEED	Transmission Speed	SDLC Link Data
NRZI	NRZI	SDLC Link Data
PU *puname*	SNA Node Name	Configuration
	New Name	Configuration
ADDR	Station ID	SDLC Link Data
IDBLK	ID BLK	PU Data
IDNUM	ID NUM	PU Data
MAXDATA	MAX DATA	PU Data
PUTYPE	Node Type	PU Data
XID	Node Type	PU Data
LU *luname*	LU Name	LU Data
LOCADDR	LU#	LU Data

SNA/X.25 Information

For the host and the HP 3000 to communicate, you must coordinate the SNA/X.25 node configuration with the host configuration. The *HP SNA Products Remote System Configuration Guide* explains this configuration.

Table 2-2 shows the relationships between items from the host configuration and items in the SNA node configuration file for permanent virtual circuits (PVCs). Each NMMGR screen field is described later in this chapter.

Table 2-2 Host Macro Values for X.25 Link PVC

Host Configuration Macro and Operand	Field in NMMGR Screen	SNA Node NMMGR Screen
X25.LINE TYPE	Virtual Circuit Type	X.25 Link Data
X25.PU puname	SNA Node Name	Configuration
	New Name	Configuration
PUTYPE	Node Type	PU Data
MAXDATA	MAX DATA	PU Data
X25.LU *luname*	LU Name	LU Data
LOCADDR	LU#	LU Data

Table 2-3 shows the relationships between items from the host configuration and items in the SNA node configuration file for switched virtual circuits (SVCs) of an SNA/X.25 link. Each NMMGR screen field is described later in this chapter.

Table 2-3 Host Macro Values for X.25 Link SVC

Host Configuration Macro nd Operand	Field in NMMGR Screen	SNA Node NMMGR Screen
X25.LINE TYPE	Virtual Circuit Type	X.25 Link Data
CALL	Call Direction	X.25 Link Data
PATH DIALNO	Remote's X.25 Network Address	X.25 Link Data
PU *puname*	SNA Node Name	Configuration
	New Name	Configuration
IDBLK	ID BLK	PU Data
IDNUM	ID NUM	PU Data
MAXDATA	MAX DATA	PU Data
LU *luname*	LU Name	LU Data
LOCADDR	LU#	LU Data

Table 2-4 shows the relationships between items from the host configuration and items in the X.25 System Access configuration. The *HP SNA Products Remote System Configuration Guide* explains the host configuration. See the appropriate NS documentation for more information about the X.25 System Access configuration.

Table 2-4 Host Macro Values for X.25 System Access

Host Configuration Macro	Field in NMMGR Screen	Network Services NMMGR Screen
X25.OUFT INDEX	Set Name	X.25 User Facility Sets

Note that once the facility set to be used by SNA/X.25 Link is specified in the INDEX operand of the X25.OUFT host macro, it must also be referenced by the OUFINDX operand of the X25.LINE host macro.

Table 2-5 shows the relationship between items from the host configuration and items in the DTC Manager configuration. The *HP SNA Products Remote System Configuration Guide* explains the host configuration. See the appropriate DTC documentation for more information about the DTC Manager configuration through OpenView.

Table 2-5 Host Macro Values for DTC Manager (X.25)

Host Configuration Macro and Operand	Field in OpenView Screen	DTC Manager OpenView Screen
X25.VCCPT VWINDOW	Window Size	X.25 Level 3

NOTE Although it is not an X.25 standard requirement, we recommend that the value specified in the Window Size field *match* the VWINDOW operand of the X25.VCCPT host macro.

Table 2-6 shows the relationship between items from the host configuration and items in the DTS configuration (for NS host-based network management). The *HP SNA Products Remote System Configuration Guide* explains the host configuration. See the appropriate NS host-based network management documentation for more information about the DTS configuration through OpenView.

Table 2-6 Host Macro Values for DTS Configuration (X.25)

Host Configuration Macro and Operand	Field in NMMGR Screen	DTS NMMGR Screen
X25.VCCPT VWINDOW	Window Size	DTC X.25 Card Configuration — Level 3 & Miscellaneous

SNA/Token Ring Information

For the host and the HP 3000 to communicate, you must coordinate the SNA/Token Ring node configuration with the ACF/NCP and ACF/VTAM host configurations. The *HP SNA Products Remote System Configuration Guide* explains these configurations. Table 2-7 shows the relationships between items from the host configuration and items in the SNA node configuration file for an SNA/Token Ring link. Each NMMGR screen field is described later in this chapter.

Table 2-7 Host Macro Values for Token Ring

Host Configuration Macro and Operand	Field in NMMGR Screen	NMMGR Screen Name
LINE LOCADD	Remote Station Address	Token Ring Link Data
PU *puname*	SNA Node Name	Configuration
	New Name	Configuration
IDBLK	ID BLK	PU Data
IDNUM	ID NUM	PU Data
MAXDATA	MAX DATA	PU Data
LU *luname*	LU Name	LU Data
LOCADDR	LU#	LU Data

Data Required from the AS/400 Configuration

Data in an SNA node configuration file must correspond to information from the remote AS/400 type 2.1 parameters. So, before using NMMGR, you should have certain information from the AS/400 configuration.

The AS/400 information that corresponds to SNA node configuration information for SNA/SDLC links, SNA/X.25 links, and SNA/Token Ring links is described below.

SNA/SDLC Information

For the AS/400 and the HP 3000 to communicate, you must coordinate the SNA/SDLC node configuration with the AS/400 configuration. The *HP SNA Products Remote System Configuration Guide* explains this configuration.

Table 2-8 shows the relationships between parameters from the AS/400 configuration and items in the SNA node configuration file for an SNA/SDLC link. Each NMMGR screen field is described later in this chapter.

Table 2-8 AS/400 Parameter Values for SDLC Link

AS/400 Configuration Parameter	Field in NMMGR Screen	NMMGR Screen Name
MAXFRAME in the line description	MAX DATA	PU Data
LINESPEED in the line description	Transmission Speed	SDLC Link Data
EXCHID in the controller description	ID BLK combined with ID NUM	PU Data
STNADR in the controller description	Station ID	SDLC Link Data
RMTLOCNAME in the device description	LU Name	LU Data

SNA/X.25 Information

For the AS/400 and the HP 3000 to communicate, you must coordinate the SNA/X.25 node configuration with the AS/400 configuration. The *HP SNA Products Remote System Configuration Guide* explains this configuration.

Table 2-9 shows the relationships between parameters from the AS/400 configuration and items in the SNA node configuration file for switched virtual circuits (SVCs) of an SNA/X.25 link. Each NMMGR screen field is described later in this chapter.

Table 2-9 AS/400 Parameter Values for X.25 Link

AS/400 Configuration Parameter	Field in NMMGR Screen	NMMGR Screen Name
NETADDR in the line description	Remote's X.25 Network Address	X.25 Link Data

SNA/Token Ring Information

For the AS/400 and the HP 3000 to communicate, you must coordinate the SNA/Token Ring node configuration with the AS/400 configuration. The *HP SNA Products Remote System Configuration Guide* explains this configuration.

Table 2-10 shows the relationships between parameters from the AS/400 configuration and items in the SNA node configuration file for an SNA/Token Ring link. Each NMMGR screen field is described later in this chapter.

Table 2-10 AS/400 Parameter Values for Token Ring Link

AS/400 Configuration Parameter	Field in NMMGR Screen	NMMGR Screen Name
MAXFRAME in the line description	MAX DATA	PU Data
EXCHID in the controller description	ID BLK combined with ID NUM	PU Data
ADPTADR in the line description for the AS/400 system	Remote Station Address	Token Ring Link Data
SSAP in the controller description for the AS/400 system	Remote DSAP	Token Ring Link Data
DSAP in the controller description for the HP 3000	Local SSAP	Token Ring Link Data
ADPTADR in the controller description for the HP 3000	Local Station Address	Token Ring Link Data
RMTCPNAME in the APPC display controller description (APPC only)*	Local Control Point Name	PU Data
*If APPC is not being configured, HP recommends that you use the PU name in the Local Control Point Name field.		

NMMGR Configuration Overview

The SNA node and link configuration is done by using NMMGR to create or modify a configuration file. The file contains this information:

- SNA node information: used by SNA Transport to manage sessions with the host.
- Link information: used for SDLC data link control and phone data (for switched lines), X.25 link information, and token ring link information.

The basic operation of NMMGR is described in *Using the Node Management Services Utilities*; if you are not familiar with NMMGR, you should read that manual before continuing. Note that you must have node manager (NM) or network administrator (NA) capabilities to use NMMGR.

NOTE

When configuring an SNA node and link, the configuration file can be named anything you prefer. However, when you *start* the node and link, it looks for a configuration file named NMCONFIG.PUB.SYS. For example, you could have these configuration files:

```
XYZ.CONFIG.SYS
CONFIG1.FILES.SYS
FILE3.CONFIG.SYS
```

If you wanted to use FILE3.CONFIG.SYS when you started the SNA node and link, you would have to rename or copy the file to NMCONFIG.PUB.SYS *before* you started the node and link.

SNA Node Information

SNA node information is used by SNA Transport, which manages data transmission for the SNA services by providing an interface to establish LU-LU sessions with the host.

Before SNA Transport can allow the SNA services to establish sessions between dependent LUs, SNA Transport must establish communication with the host's System Services Control Point (SSCP). The SSCP manages the SNA network functions on the host. It also manages SNA network functions on the HP 3000, via the PU-SSCP session. For dependent LU sessions, the HP 3000 must establish a PU-SSCP session and LU-SSCP sessions. You do not have to configure any information for the PU-SSCP or LU-SSCP sessions because it is already set in the SNA Transport software.

For a session between independent LUs, an associated LU-SSCP session is not required. This is the major difference between dependent LUs and independent LUs.

For dependent LUs and independent LUs, you must provide information for the LU-LU sessions. For each LU defined in SNA Transport, an LU must be defined in the host's NCP/VTAM configuration. You must configure each LU and establish a correspondence with an LU in the NCP/VTAM configuration.

You configure these items for an SNA node:

- Node identification. This information identifies the node to the host and specifies the type of node (T2.0 or T2.1) being used.
- Link type. This information specifies whether you are configuring an SDLC link, an X.25 link, or a token ring link.
- PU data. This information identifies the PU to the host.
- LUs. A list of up to 256 LUs can be configured for an SNA node.

Link Information

After you specify configuration information for the SNA node, you specify information for the link.

For an SNA/SDLC link, you provide this information:

- Link data. This information includes the PSI physical path, timeout values, transmission speed, and link station ID.
- Phone data. This information includes the phone number and associated data for switched lines.

For an SNA/X.25 link, you provide this information:

- Link data. This information is about the Network Services (NS) network interface and the type of virtual circuit to be used.
- Virtual circuit data. This information is specifically about the permanent virtual circuit (PVC) or switched virtual circuit (SVC) to be used.

For an SNA/Token Ring link, you provide this information:

- Link data. This information is about the name and location of the token ring card, the MAC address of the remote system, the local and remote service access points (SAPs), and MAC layer timeout and retry values.

NOTE If you change the configuration for an SNA node or link while it is running, the changes will not take effect until the node or link is restarted.

Configuration File Validation

Validating the configuration file ensures that the configuration data is logically and syntactically correct. Each SNA service's data is also checked against the SNA node configuration data for correctness (for example, correct LU names). See each service's *Node Manager's Guide* for that service's validation error messages.

You should validate the configuration file after completing any of these tasks:

- An initial configuration of one or more SNA nodes
- An initial configuration of one or more SNA services
- A modification of an existing configuration

The configuration file is validated through NMMGR; see.

Configuration File Critical Summary

The critical summary is a printout of the data in the configuration file. It can be used to check current contents of the configuration file — without opening the file — to determine whether the configuration is correct. The critical summary is generated through NMMGR; see *Using the Node Management Services Utilities*.

SNA/SDLC Data

An example of a critical summary of SNA/SDLC node and link configuration data is shown below.

```
  CRITICAL SUMMARY - SNANODE CONFIGURATION

TUE, APR 20, 1993,  2:49 PM
CONFIGURATION FILE NAME: NMCONFIG.PUB.SYS
Validated subsystem.

SNANODE NAME: IBMNODE

  ID Blk: 023  ID Num: 12345  Max Data: 2057  Type: SDLC

  LU Name  LU#   LU Name  LU#   LU Name  LU#   LU Name  LU#
  - - - -  - -   - - - -  - -   - - - -  - -   - - - -  - -
  LUNAME01   1   LUNAME02   2   LUNAME03   3   LUNAME04
  LUNAME05       LUNAME06       LUNAME07   7   LUNAME08
  LUNAME09   9   LUNAME10  10   LUNAME11       LUNAME12
  LUNAME13       LUNAME14  14   LUNAME15  15   LUNAME16  16

LINKDATA

  Physical Path:   24
  Phone Number:    9-DD-415-555-3216
```

```
  Station ID:       FE   Receive Timeout: 180   Local Timeout:       30
  Connect Timeout:  900  Error Retries:   7     Transmission Speed:  9600
  NRZI:             N    Auto Dial:       Y

- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
SNANODE NAME: IBMNODE2

  ID Blk: 023  ID Num: 00001  Max Data: 265  Type: SDLC

  LU Name  LU#   LU Name  LU#   LU Name  LU#   LU Name  LU#
  - - - -  - -   - - - -  - -   - - - -  - -   - - - -  - -
  LUNAME01   1   LUNAME02   2   LUNAME03   3   LUNAME04   4

LINKDATA

  Physical Path:   2/16
  Phone Number:

  Station ID:       01   Receive Timeout: 0     Local Timeout:       0
  Connect Timeout:  0    Error Retries:   1     Transmission Speed:  1200
  NRZI:             N    Auto Dial:       N

- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
SNANODE NAME: IBMNODE5

  ID Blk: ***  ID Num: *****  Max Data: ***  Type: ****

  LU Name  LU#   LU Name  LU#   LU Name  LU#   LU Name  LU#
  - - - -  - -   - - - -  - -   - - - -  - -   - - - -  - -
(No data configured for this node)

LINKDATA

  Physical Path:
  Phone Number:

  Station ID:       01   Receive Timeout: 180   Local Timeout:       30
  Connect Timeout:  900  Error Retries:   7     Transmission Speed:  9600
  NRZI:             N    Auto Dial:       N

- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
Some fields could not be found or printed.
```

SNA/X.25 Data

An example of a critical summary of SNA/X.25 node and link configuration data is shown below.

```
  CRITICAL SUMMARY - SNANODE CONFIGURATION

TUE, APR 20, 1993,  4:04 PM
CONFIGURATION FILE NAME: NMCONFIG.PUB.SYS
Validated subsystem.
```

```
SNANODE NAME: XSIMPVC

  ID Blk: 023  ID Num: FFFF0  Max Data: 265  Type: X.25

  LU Name  LU#   LU Name  LU#   LU Name  LU#   LU Name  LU#
  - - - -  - -   - - - -  - -   - - - -  - -   - - - -  - -
  LU1        1

X25LINK:

  NS NI Name:        X25NI     Inactivity Timeout:  5
  VC Type:           PVC       Call Direction:      OUT
  Max Call Retries:  3         Call Retry Delay:    600
  PVC Number:        10        Remote Address:

- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
SNANODE NAME: XSIMOUT

  ID Blk: 023  ID Num: FFFF1  Max Data: 265  Type: X.25

  LU Name  LU#   LU Name  LU#   LU Name  LU#   LU Name  LU#
  - - - -  - -   - - - -  - -   - - - -  - -   - - - -  - -
  LU1        1

X25LINK:

  NS NI Name:        X25NI     Inactivity Timeout:  5
  VC Type:           SVC       Call Direction:      OUT
  Max Call Retries:  3         Call Retry Delay:    600
  PVC Number:                  Remote Address:      012345678901234
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
SNANODE NAME: XSIMIN

  ID Blk: 023  ID Num: FFFF2  Max Data: 265  Type: X.25

  LU Name  LU#   LU Name  LU#   LU Name  LU#   LU Name  LU#
  - - - -  - -   - - - -  - -   - - - -  - -   - - - -  - -
  LU1        1

X25LINK:

  NS NI Name:        X25NI     Inactivity Timeout:  5
  VC Type:           SVC       Call Direction:      IN
  Max Call Retries:  3         Call Retry Delay:    600
  PVC Number:                  Remote Address:      012345678901234

- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
SNANODE NAME: PVC1

  ID Blk: 023  ID Num: FFFF3  Max Data: 265  Type: X.25

  LU Name  LU#   LU Name  LU#   LU Name  LU#   LU Name  LU#
```

```
  - - - -  - -   - - - -  - -   - - - -  - -   - - - -  - -
  LU01       1   LU02       2   LU03       3   LU04       4
  LU05       5   LU06       6   LU07       7   LU08       8
  LU09       9   LU10      10   LU11      11   LU12      12
  LU13      13   LU14      14   LU15      15   LU16      16

X25LINK:

  NS NI Name:        X25NI     Inactivity Timeout:  0
  VC Type:           PVC       Call Direction:      OUT
  Max Call Retries:  3         Call Retry Delay:    600
  PVC Number:        1         Remote Address:

- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
SNANODE NAME: SVCIN16

  ID Blk: 023  ID Num: FFFF4  Max Data: 265  Type: X.25

  LU Name  LU#   LU Name  LU#   LU Name  LU#   LU Name  LU#
  - - - -  - -   - - - -  - -   - - - -  - -   - - - -  - -
  LU01       1   LU02       2   LU03       3   LU04       4
  LU05       5   LU06       6   LU07       7   LU08       8
  LU09       9   LU10      10   LU11      11   LU12      12
  LU13      13   LU14      14   LU15      15   LU16      16

X25LINK:

  NS NI Name:        X25NI     Inactivity Timeout:  0
  VC Type:           SVC       Call Direction:      IN
  Max Call Retries:  3         Call Retry Delay:    600
  PVC Number:                  Remote Address:      01

- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
SNANODE NAME: SVCOUT

  ID Blk: 023  ID Num: FFFF5  Max Data: 265  Type: X.25

  LU Name  LU#   LU Name  LU#   LU Name  LU#   LU Name  LU#
  - - - -  - -   - - - -  - -   - - - -  - -   - - - -  - -
  LU01       1   LU02       2   LU03       3   LU04       4
  LU05       5   LU06       6   LU07       7   LU08       8
  LU09       9   LU10      10   LU11      11   LU12      12
  LU13      13   LU14      14   LU15      15   LU16      16

X25LINK:

  NS NI Name:        X25NI     Inactivity Timeout:  0
  VC Type:           SVC       Call Direction:      OUT
  Max Call Retries:  3         Call Retry Delay:    600
  PVC Number:                  Remote Address:      01

- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
SNANODE NAME: TEMP
```

```
  ID Blk: 023  ID Num: FFFF6  Max Data: 265  Type: X.25

  LU Name  LU#   LU Name  LU#   LU Name  LU#   LU Name  LU#
  - - - -  - -   - - - -  - -   - - - -  - -   - - - -  - -
  LU01       1

X25LINK:

  NS NI Name:        ********  Inactivity Timeout:  *****
  VC Type:           ***       Call Direction:      ***
  Max Call Retries:  ***       Call Retry Delay:    ***
  PVC Number:        ****      Remote Address:      ***************

- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
Some fields could not be found or printed.
```

SNA/Token Ring Data

An example of a critical summary of SNA/Token Ring node and link configuration is shown below.

```
   CRITICAL SUMMARY - SNANODE CONFIGURATION

 TUE, APR 20, 1993,  4:34 PM
 CONFIGURATION FILE NAME: NMCONFIG.PUB.SYS
 Validated subsystem.

 SNANODE NAME: TRN3745

   ID Blk:   2  ID Num: DCA12  Max Data: 017  Type: TOKEN
   Node Type:  2.1    Node 2.1 Dependent LU Support:  Y

   LU Name  LU#   LU Name  LU#   LU Name  LU#   LU Name  LU#
    -    -    -    -
   LU02     2     LU03     3

 TOKEN Link:

    Remote DSAP:                04    Retry Limit:           10
    Local SSAP:                 04    Acknowledgment Timer:  10
    Unacknowledged Send Limit:  2     Error Timer:           100
    Remote Station Address:     40-00-13-74-51-01

   LINK NAME:  TOKENLNK         TYPE:  TOKEN

    Physical Path:               44
    Buffer Size:                 4096
    Factory Configured address:  Y
    Local station address:       FF-FF-FF-FF-FF-FF

-

Some optional or required fields are not configured.
```

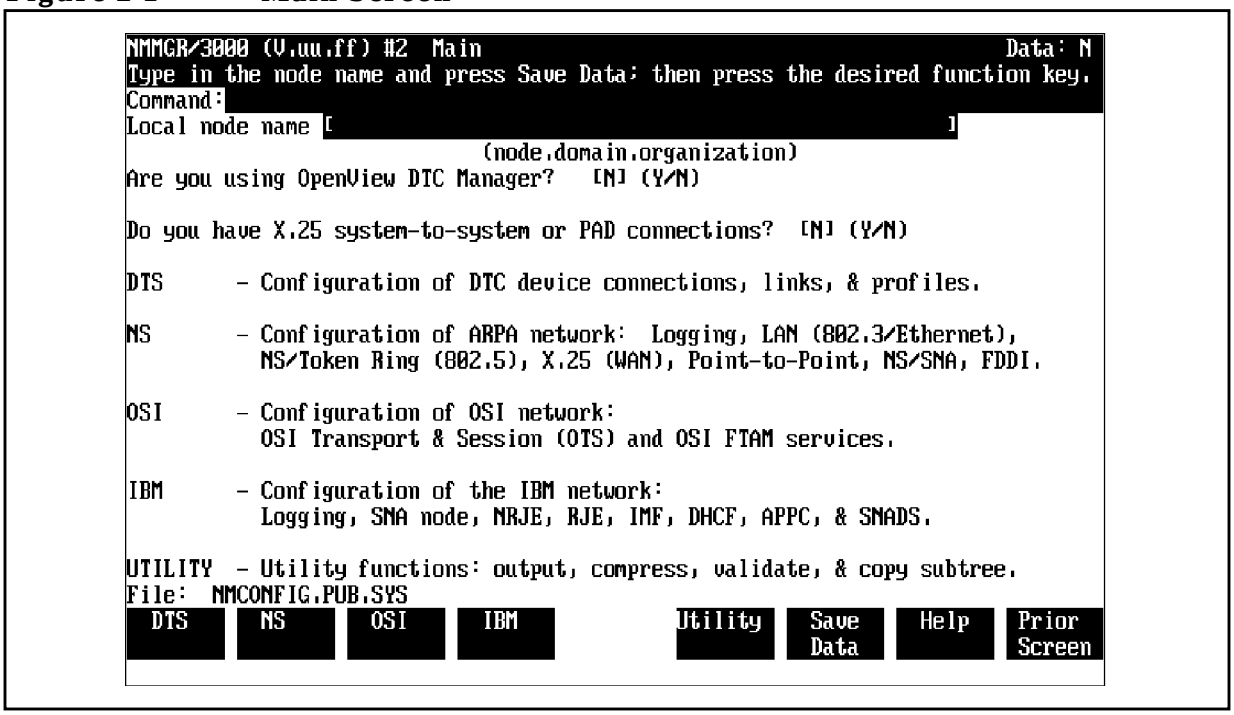
Configuring the SNA Node and Link

Once you have opened the configuration file, you are placed at the NMMGR “Main” screen.

Main Screen

From the screen shown in Figure 2-1, you can select the category of network subsystems you want to configure.

Figure 2-1 Main Screen



To access the NMMGR branch for configuring an SNA node and link, press **[f4]** (IBM). This places you at the “HP-IBM Configuration” screen.

HP-IBM Configuration Screen

From the screen shown in Figure 2-2, you can select the item you want to configure.

Figure 2-2 HP-IBM Configuration Screen

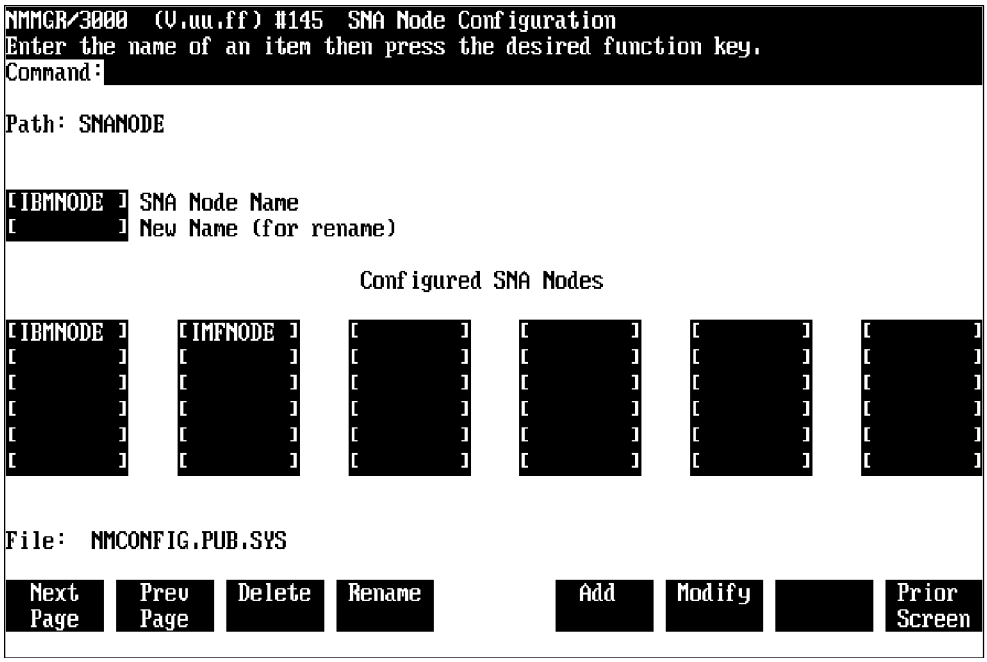
```
NMMGR/3000 (V.uu.ff) #120  HP-IBM Configuration
Select the next screen and press the corresponding function key.
Command:

LOGGING  -  Configure logging for all subsystems.

SNANODE  -  Configure SNA node, SDLC link, X.25 link, and Token Ring Link.

NRJE     -  Configure SNA NRJE subsystem.

RJE      -  Configure BSC link and RJE subsystem.

IMF      -  Configure SNA IMF subsystem.

DHCF     -  Configure SNA DHCF subsystem.

APPC     -  Configure APPC subsystem.

SNADS    -  Configure HP SNADS subsystem.

File:  NMCONFIG.PUB.SYS

[Go To LOGGING] [Go To SNANODE] [Go To NRJE] [Go To RJE]  [Go To IMF] [Next Key Labels] [ ] [Prior Screen]
```

To select SNA node and link configuration, press **[f2]** (Go To SNANODE).

SNA Node Configuration Screen

After you have selected SNA node and link configuration, NMMGR displays the “SNA Node Configuration” screen, as shown in Figure 2-3. (You can go directly to this screen from any screen by typing @SNANODE in the command window and pressing **[ENTER]**.) Here you specify information about the new SNA node you are configuring or the existing node you are modifying.

Figure 2-3 SNA Node Configuration Screen Example



Fields

Path

For display only. The NMMGR branch you are in.

SNA Node Name

The name of the new SNA node you are configuring or the existing node whose configuration you are modifying. The name can be up to eight alphanumeric characters long; the first character must be alphabetic.

Host Configuration:

- SNA/SDLC: For troubleshooting purposes, we recommend that the *puname* operand of the PU macro match this field; see Table 2-1.
- SNA/X.25 (PVC): For troubleshooting purposes, we recommend that the *puname* operand of the X25.PU macro match this field; see Table 2-2.
- SNA/X.25 (SVC): For troubleshooting purposes, we recommend that the *puname* operand of the PU macro in the VTAM switched major node match this field; see Table 2-3.
- SNA/Token Ring: For troubleshooting purposes, we recommend that the *puname* operand of the PU macro

in the VTAM switched major node match this field; see Table 2-7.

New Name

The new name of an existing SNA node. The name can be up to eight alphanumeric characters long; the first character must be alphabetic.

Host Configuration:

- SNA/SDLC: For troubleshooting purposes, we recommend that the *puname* operand of the PU macro match this field; see Table 2-1.
- SNA/X.25 (PVC): For troubleshooting purposes, we recommend that the *puname* operand of the X25.PU macro match this field; see Table 2-2.
- SNA/X.25 (SVC): For troubleshooting purposes, we recommend that the *puname* operand of the PU macro in the VTAM switched major node match this field; see Table 2-3.
- SNA/Token Ring: For troubleshooting purposes, we recommend that the *puname* operand of the PU macro in the VTAM switched major node match this field; see Table 2-7.

Once you have entered the new name, press **[f4]** (Rename); the node is then renamed.

Configured SNA Nodes

For display only. The names of the SNA nodes that have been configured. You can configure a maximum 36 nodes in a configuration file. Note that a maximum eight nodes can be active at a time; however, to make this possible, a multi-drop line must be used.

File

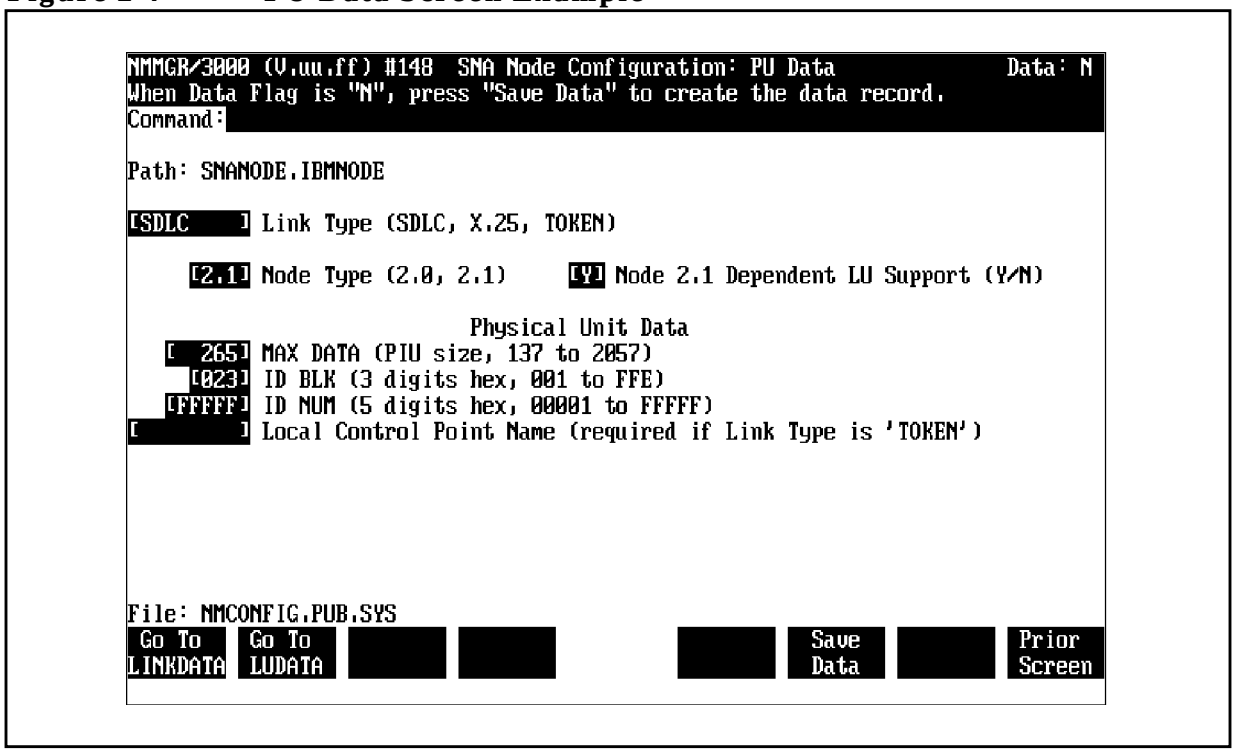
For display only. The name of the configuration file.

Once you have entered the name of the node, press **[f5]** (Add) if this is a new node, or press **[f6]** (Modify) if you are modifying an existing node. This places you at the "SNA Node Configuration: PU Data" screen.

PU Data Screen

After you have selected a node, NMMGR displays the "SNA Node Configuration: PU Data" screen, as shown in Figure 2-4. (You can go directly to this screen from any screen by typing @SNANODE.*nodename* in the command window and pressing **[ENTER]**.) Here you enter information that identifies the PU to the host. If you are configuring a new node, you must enter all of the information.

Figure 2-4 PU Data Screen Example



Fields

Path

For display only. The NMMGR path to this screen. It includes the name of the SNA node you are configuring.

Link Type

Required. The type of communications link the node is being configured for.

Values: SDLC, X.25, or TOKEN.

Default: SDLC

Node Type

Required. The type of node being configured. If you are configuring a T2.0 node, enter 2.0. If you are configuring a T2.1 node, enter 2.1.

If you are configuring a node for SNA/X.25 Link, you *must* enter 2.0 in this field.

If you are configuring a node for SNA/Token Ring Link, enter 2.1 in this field.

Values: 2.0 and 2.1

Default: 2.0

Host Configuration:

- SNA/SDLC (dependent LU): The PUTYPE operand of the PU macro must be set to 2, and the XID operand of the same PU macro must be set to NO or not specified at all.
- SNA/SDLC (independent LU): The PUTYPE operand of the PU macro must be set to 2, and the XID operand of the same PU macro must be set to YES.
- SNA/X.25 (PVC): The PUTYPE operand of the X25.PU macro must match this field; see Table 2-2.
- SNA/Token Ring (dependent and independent LUs): The PUTYPE operand of the PU macro must be set to 2, and the XID operand of the same PU macro must be set to YES.

Node 2.1 Dependent LU Support

If you entered 2.0 in the Node Type field, this field *must* be blank. If you entered 2.1 in the Node Type field and one or more dependent LUs are configured, enter Y. If you entered 2.1 in the Node Type field and no dependent LUs are configured, enter N.

Default: Blank (the node is T2.0)

Physical Unit Data

Information about the Physical Unit (PU).

MAX DATA — **Required**. The maximum size, in bytes, of the transmission buffers (frames) used to hold data for the SDLC connection, the X.25 QLLC connection, or token ring connection.

Range: 137-2057 (integer)

Default: 265

Host Configuration:

- SNA/SDLC: The MAXDATA operand of the PU macro must match this field; see Table 2-1.
- SNA/X.25 (PVC): The MAXDATA operand of the X25.PU macro must match this field; see Table 2-2.
- SNA/X.25 (SVC): The MAXDATA macro in the VTAM switched major node must match this field; see Table 2-3.
- SNA/Token Ring: The MAXDATA operand of the PU macro in the VTAM switched major node must match this field; see Table 2-7.

AS/400 Configuration: The *MAXFRAME* parameter in the line description must match this field; see Table 2-8 and Table 2-10.

ID BLK — **Required**. Three hexadecimal digits which, together with ID NUM (see below), form the exchange identifier used with exchange identification (XID) requests. This composite identifier must be unique within the SNA network.

NOTE For communication with an IBM host, this parameter (*ID BLK*) is ignored for nonswitched lines. For communication with an IBM AS/400, this parameter is required for both switched *and* nonswitched lines.

Range: 001-FFE (hexadecimal)

Default: 023 (ID BLK sent by the IBM 8100)

Host Configuration:

- SNA/SDLC: The IDBLK operand of the PU macro must match this field; see Table 2-1.
- SNA/X.25 (SVC): The IDBLK operand of the PU macro in the VTAM switched major node must match this field; see Table 2-3.

- SNA/Token Ring: The IDBLK macro must match this field; see Table 2-7.

AS/400 Configuration: The *EXCHID* parameter in the controller description is required, and must match the entire exchange identifier (this field combined with ID NUM); see Table 2-8 and Table 2-10.

ID NUM

Five hexadecimal digits that are appended to ID BLK (see above) to form the exchange identifier used with exchange identification (XID) requests. This composite identifier must be unique within the SNA network.

NOTE For communication with an IBM host, this parameter (*ID NUM*) is ignored for nonswitched lines. For communication with an IBM AS/400, this parameter is required for both switched *and* nonswitched lines.

Range: 00001-FFFFF (hexadecimal)

Default: FFFFF

Host Configuration:

- SNA/SDLC: The IDNUM operand of the PU macro must match this field; see Table 2-1.
- SNA/X.25 (SVC): The IDNUM operand of the PU macro in the VTAM switched major node must match this field; see Table 2-3.
- SNA/Token Ring: The IDNUM operand of the PU macro must match this field; see Table 2-7.

AS/400 Configuration: The *EXCHID* parameter in the controller description is required, and must match the entire exchange identifier (this field combined with ID BLK); see Table 2-8 and Table 2-10.

Local Control Point Name

(Token ring only) Required for APPC over token ring link. The name by which the HP 3000 node is known to the remote system.

Host Configuration: HP recommends that you use the PU name (the SNA Node Name field in the SNA Node Configuration screen) in this field.

AS/400 Configuration: For APPN, the RMTCPNAME in the APPC display controller description must match this field; see Table 2-10. Otherwise, HP recommends that you use the PU name (the SNA Node Name field in the SNA Node Configuration screen) in this field.

File

For display only. The name of the configuration file.

Once you have entered all of the PU information, press **[f6]** (Save Data).

After the information is saved, if you need to configure LU information, press **[f2]** (Go To LUDATA); this places you at the "SNA Node Configuration: LU Data" screen (described next in this chapter).

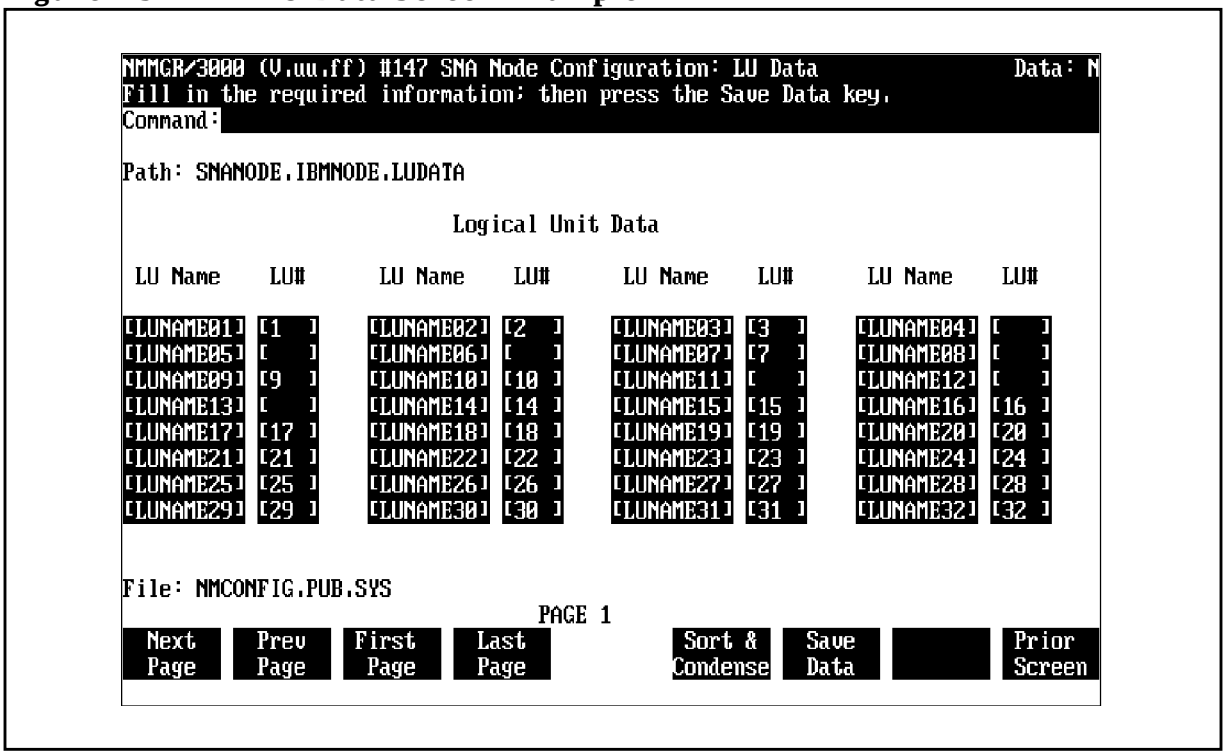
If you need to configure link information, press **[f1]** (Go To LINKDATA). If you specified SDLC for the Link Type field on the "SNA Node Configuration: PU Data" screen, you are placed at the "SNA Node Configuration: SDLC Link Data" screen. If you specified X.25 for the Link Type field, you are placed at the "SNA Node Configuration: X.25 Link Data" screen. If you specified TOKEN for the Link Type field, you are placed at the "SNA Node Configuration: Token Ring Link Data" screen. Each of the screens is described later in this chapter.

If you do not need to configure LU information or link information, press **[f8]** (Prior Screen) until you get to the screen you need next.

LU Data Screen

Once you have specified the PU information, you are ready to specify LU information. You do this on the "SNA Node Configuration: LU Data" screen as shown in Figure 2-5. Select this screen by pressing **[f2]** (Go To LUDATA) on the "SNA Node Configuration: PU Data" screen. (You can go directly to this screen from any screen by typing @SNANODE.*nodename*.LUDATA in the command window and pressing **[ENTER]**.)

Figure 2-5 LU Data Screen Example



Fields

Path

For display only. The NMMGR path to this screen. It includes the name of the SNA node you are configuring.

Logical Unit Data

Information about the LUs to be configured for this node. You can configure a maximum 256 LUs for each node.

LU Name

The remote system name (*not* the Network Addressable Unit [NAU] number) of the LU. The name can be up to eight alphanumeric characters long; the first character must be alphabetic. Note that *at least one* LU Name must be specified.

Host Configuration:

- SNA/SDLC (dependent LU): For troubleshooting purposes, we recommend that the *luname* operand of the LU macro match this field; see Table 2-1.

- SNA/SDLC (independent LU): The *luname* operand of the LU macro must match this field; see Table 2-1.
- SNA/X.25 (PVC): For troubleshooting purposes, we recommend that the *luname* operand of the X25.LU macro match this field; see Table 2-2.
- SNA/X.25 (SVC): For troubleshooting purposes, we recommend that the *luname* operand of the LU macro in the VTAM switched major node match this field; see Table 2-3.
- SNA/Token Ring: For troubleshooting purposes, we recommend that the *luname* operand of the LU macro in the VTAM switched major node match this field; see Table 2-7.

LU#

The LU (NAU) number. Note that for an independent LU this field *must* be blank.

Range: 1-255 (integer)

Default: Blank

Host Configuration:

- SNA/SDLC: The LOCADDR operand of the LU macro must match this field; see Table 2-1. Note that for an independent LU the LOCADDR operand must be set to 0.
- SNA/X.25 (PVC): The LOCADDR operand of the X25.LU macro must match this field; see Table 2-2.
- SNA/X.25 (SVC): The LOCADDR operand of the LU macro in the VTAM switched major node must match this field; see Table 2-3.
- SNA/Token Ring: The LOCADDR operand of the LU macro in the VTAM switched major node must match this field; see Table 2-7.

File

For display only. The name of the configuration file.

Note that you can enter LU information on up to eight pages of this screen. Each page contains 32 LU Name and LU # fields You do not have to fill all of the fields on a page before pressing **[f1]** (Next Page), **[f2]** (Prev Page), **[f3]** (First Page), or **[f4]** (Last Page) to display another page of the screen for entering information. That is, partially filled pages are allowed.

Once you have entered information for all of the LUs, do one of these two things:

- Press **[f5]** (Sort & Condense) to sort the information from *all* pages of this screen by LU Name. The sorted information is condensed into full pages. Note that this takes approximately as much time as validation of the configuration file. After the information is processed, press **[f6]** (Save Data).
- Press **[f6]** (Save Data). The information remains in the order it was entered on the pages of the screen, and any partially filled pages remain partially filled.

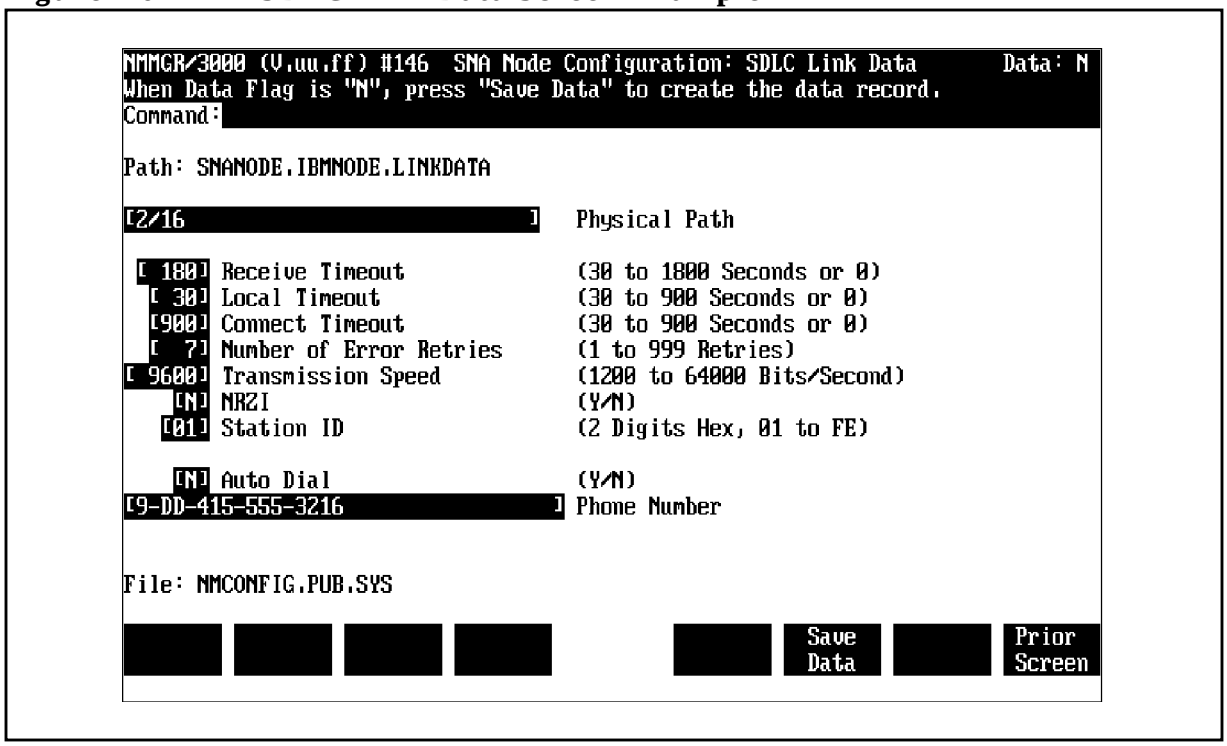
After the information is saved, if you need to configure link information, press **[f8]** (Prior Screen) until you get to the "SNA Node Configuration: PU Data" screen. Then, press **[f1]** (Go To LINKDATA). If you specified SDLC for the Link Type field on the "SNA Node Configuration: PU Data" screen, you are placed at the "SNA Node Configuration: SDLC Link Data" screen (described next in this chapter). If you specified X.25 for the Link Type field, you are placed at the "SNA Node Configuration: X.25 Link Data" screen (described later in this chapter). If you specified TOKEN for the Link Type field, you are placed at the "SNA Node Configuration: Token Ring Link Data" screen (described later in this chapter).

If you do not need to configure link information, press **[f8]** (Prior Screen) until you get to the screen you need next.

SDLC Link Data Screen

Once you have specified the PU and LU information, you are ready to configure the communications link parameters and the phone data for the SDLC link. You do this on the "SNA Node Configuration: SDLC Link Data" screen as shown in Figure 2-6. Select this screen by pressing **[f1]** (Go To LINKDATA) on the "SNA Node Configuration: PU Data" screen. (You can go directly to this screen from any screen by typing @SNANODE.*nodename*.LINKDATA in the command window and pressing **[ENTER]**).

Figure 2-6 SDLC Link Data Screen Example



Fields

Path

For display only. The NMMGR path to this screen. It includes the name of the SNA node you are configuring.

Physical Path

Required. The address of the PSI. At system start-up time, this address is assigned according to the slot the PSI is in. The value you enter here is determined by one of these formulas:

- If only one card cage is present:

`4 X SlotNumber`

where (a) `X` is the multiplication sign (*not* the character "X"), and (b) *`SlotNumber`* is the number of the slot the PSI is in.

Example:

If the PSI is in slot 6, the `Physical Path` is `24` (4 multiplied by 6).

- If two card cages are present:

  `PathNumber``/(`*`4 X SlotNumber`*`)`

  where (a) *`PathNumber`* is a number corresponding to the card cage the PSI is in:

  Card cage 0: *`PathNumber`* = 2 Card cage 1:

  `PathNumber` = 6

  (b) `/` is the slash character (*not* the division sign), (c) the parentheses are used to set off the arithmetic formula (they are *not* entered as part of the `Physical Path` value), (d) `X` is the multiplication sign (*not* the character "X"), and (e) *`SlotNumber`* is the number of the slot, within the card cage, the PSI is in.

  Examples:

  If the PSI is in card cage 0, slot number 4, the `Physical Path` is

  `2/16`

  (*`PathNumber`*, slash character, 4 multiplied by 4).

  If the PSI is in card cage 1, slot number 3, the `Physical Path` is

  `6/12`

  (*`PathNumber`*, slash character, 4 multiplied by 3).

Receive Timeout

Required. The number of seconds the SDLC link driver will wait for the remote system poll before closing the line. If `0` is specified, no timeout occurs.

Range: `0, 30-1800` (integer)

Recommended value: `180` (`30` in Europe)

Default: `180`

Local Timeout

Required. The number of seconds the SDLC link driver waits for PSI card activity, before informing SNA Transport that the PSI is down and the link driver is going down.

Note that the PSI card waits 20 seconds longer (than the value specified here) for SDLC link driver activity before bringing down the link and reporting a failure. This avoids unnecessary use of dial-up lines, which avoids excessive phone charges. (Note that since no driver activity is taking place, the driver probably will not receive the failure notice.)

If `0` is specified, no timeout occurs.

Range: `0, 30-900` (integer)

Recommended value: `30`

Default: `30`

Connect Timeout

Required. The number of seconds the SDLC link driver will wait for a link Set Normal Response Mode (SNRM) command after telling the PSI to enable the Data Terminal Ready (DTR) signal, before closing the line. This includes time waiting for either the autodialer or the operator to dial the remote phone number. If `0` is specified, no timeout occurs.

If you are using a manual-dial modem, we recommend that you specify either `0` (no timeout) or `900` (the maximum wait). You can begin to dial after this logging message is displayed on the console after issuing `SNACONTROL START`:

`Node` *`NodeName`* `ready for activation by host`

Note that if you are using a manual-dial modem, console logging must be enabled for SNA Transport logging class `CLAS0013`, so that the above message can be displayed (see Chapter 3 , “Logging Configuration.”)

Range: `0, 30-900` (integer)

Default: `900`

Number of Error Retries

Required. The maximum number of times the SDLC link manager will retry after errors or timeouts before setting the line to idle.

Range: 1-999 (integer)

Default: 7

Transmission Speed

Required. The line transmission speed (bits per second). This value is overridden by the modem, if one is used. For direct-connect, the speed must be supported by the cable.

Values: 1200 2400 4800 9600 19200 38400 56000 64000 (integer)

Default: 9600

Host Configuration: The SPEED operand of the LINE macro must match this field; see Table 2-1.

AS/400 Configuration: The LINESPEED parameter in the line description must match this field; see Table 2-7.

NRZI

Required. Enter Y to enable the Non-Return to Zero Inverted (NRZI) feature; N to disable it (and enable Non-Return to Zero [NRZ]).

Default: N

Host Configuration: The NRZI operand of the LINE macro must match this field; see Table 2-1.

Station ID

Required. This defines the HP 3000's link station identifier to the remote system's communications controller.

Range: 01-FE (hexadecimal)

Host Configuration: The ADDR operand of the PU macro must match this field; see Table 2-1.

AS/400 Configuration: The *STNADR* parameter in the controller description must match this field; see Table 2-7.

Auto Dial

Required. Enter Y only if you are using an auto-dial modem and you want the modem to dial at link startup time; N if a leased line, a manual-dial modem, or no modem is used, or if you are using an auto-dial modem but you want to defer dialing until the SNACONTROL AUTODIAL command is issued (see Chapter 6 , “MPE Commands.”)

Default: N

Phone Number

The number you want the link to dial into. Note that you specify this field *only* if you are using an auto-dial modem.

Allowable Characters:

- Any of the 12 phone characters: 0 1 2 3 4 5 6 7 8 9 * #
- - = A spacing character, used for readability purposes.
- D = Pause for three seconds.
- E = The end of the phone number. This character might be required by the modem; check your modem manual for details. Do not use this unless you know the modem/auto-call unit (ACU) requires it.
- / = Wait for a second dial tone. When the modem encounters this character, it waits for another dial tone. This can be used when an outside line must be accessed before the actual phone number is dialed.

NOTE Only 34 characters can be entered. So, if you have more than one access number to dial, you might not be able to use the dash (-) spacing character.

Example:

Suppose this is typed in the Phone Number field:

9-DD-415-555-3216

- 9 is an access number to an outside line.
- DD means to pause six seconds before dialing the next set of numbers.
- 4155553216 is the number you want to dial, where

  415 is the area code 5553216 is the specific number
- The dashes are used for readability.

File

For display only. The name of the configuration file.

Once you have entered the SDLC link information, press **[f6]** (Save Data).

After the information is saved, press **[f8]** (`Prior Screen`) until you get to the screen you need next.

X.25 Link Data Screen

Once you have specified the PU and LU information, you are ready to configure the communications link parameters and virtual circuit data for the X.25 link. You do this on the "SNA Node Configuration: X.25 Link Data" screen. Select this screen by pressing **[f1]** (`Go To LINKDATA`) on the "SNA Node Configuration: PU Data" screen. (You can go directly to this screen from any screen by typing `@SNANODE.`*`nodename`*`.X25LINK` in the command window and pressing **[ENTER]**.)

Before You Use This Screen

The PVC or SVC that SNA/X.25 Link is going to use must have already been defined in the X.25 System Access configuration and the DTC Manager configuration or the DTS configuration. So, before you configure the X.25 link parameters and virtual circuit data on the "SNA Node Configuration: X.25 Link Data" screen, you must have done the tasks described below.

For an SNA/X.25 PVC:

- Configured a logical channel identifier (LCI) range in the DTC Manager configuration or the DTS configuration. The `PVC Number` you specify on the "SNA Node Configuration: X.25 Link Data" screen must be within the LCI range you configured.
- Configured a network interface (NI) for the SNA/X.25 PVC in the X.25 System Access configuration. The value you specify for `NS Network Interface Name` on the "SNA Node Configuration: X.25 Link Data" screen must match the NI name you configured.
- Configured an address key for the SNA/X.25 PVC in the X.25 System Access network interface configuration, if you want to reserve the PVC for only SNA/X.25's use.

For an SNA/X.25 SVC:

- Configured a network interface (NI) for the SNA/X.25 SVC in the X.25 System Access configuration. The value you specify for `NS Network Interface Name` on the "SNA Node Configuration: X.25 Link Data" screen matches the NI name you configured.
- Configured a facility set in the network interface with the same parameters as the facility set on the host. The HP 3000 facility set can be configured for the SNA/X.25's SVC use only, or for use by any SVC. We recommend that you configure the facility for only SNA/X.25's use, because that ensures that SNA/X.25 receives only incoming calls intended for it.

Data Required from the NS Configurations

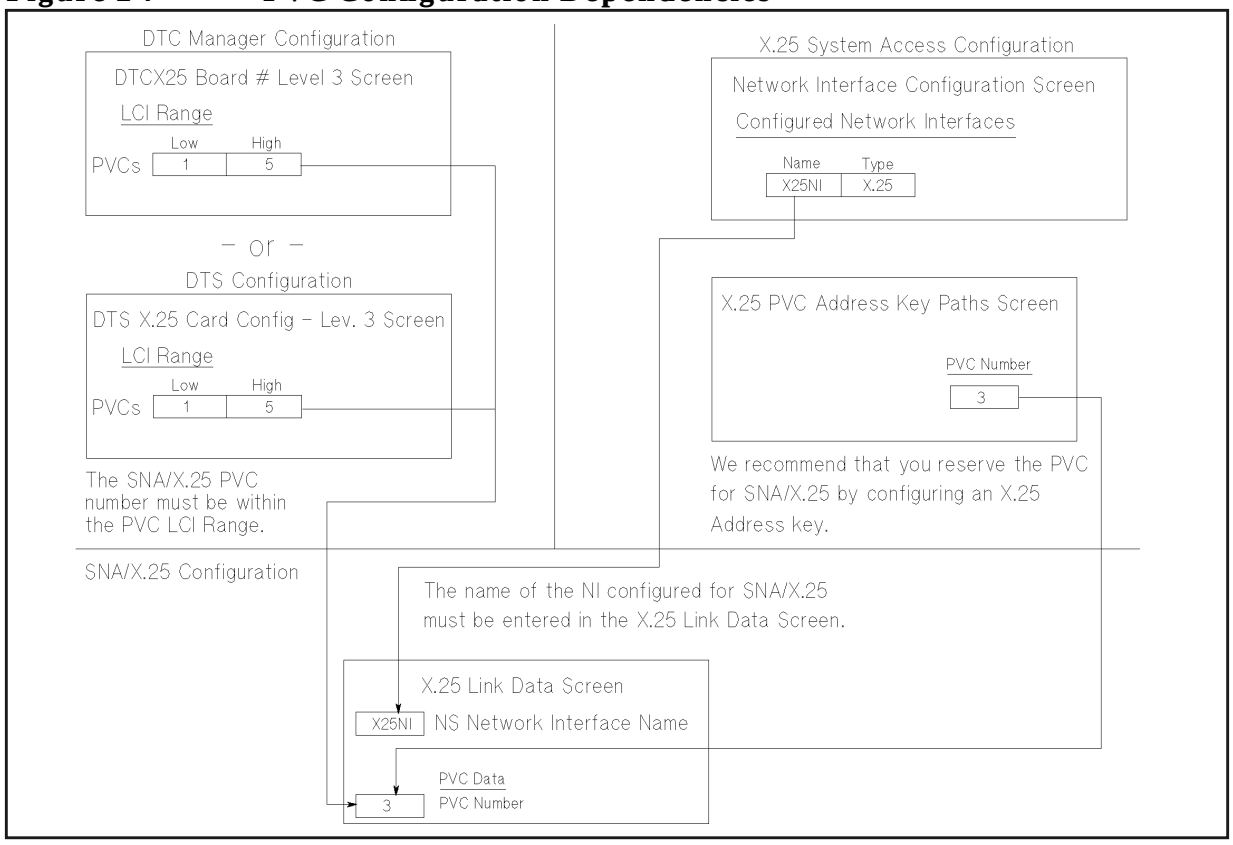
Certain items from the X.25 System Access configuration and the DTC Manager configuration or the DTS configuration must match or be compatible with items in the SNA/X.25 configuration. Listed below are the X.25 System Access configuration screens and DTC Manager configuration or DTS configuration screens that contain those items.

For an SNA/X.25 PVC:

- "DTC Manager DTCX25 Board # Level 3" screen or "DTS DTC X.25 Card Config — Level 3 &Miscellaneous" screen: The PVC `LCI Range` must include the PVC number specified for `PVC Number` on the "SNA Node Configuration: X.25 Link Data" screen.
- "Network Interface Configuration" screen: The `Configured Network Interfaces` list must include the NI name specified for `NS Network Interface Name` on the "SNA Node Configuration: X.25 Link Data" screen.
- "X.25 PVC Address Key Paths" screen: If you want to reserve an X.25 address key for the SNA/X.25 PVC's use only, the `PVC Number` must match the `PVC Number` specified on the "SNA Node Configuration: X.25 Link Data" screen.

Figure 2-7 shows the configuration dependencies for an SNA/X.25 PVC.

Figure 2-7 PVC Configuration Dependencies



For an SNA/X.25 SVC:

- "Network Interface Configuration" screen: The `Configured Network Interfaces` list must include the NI name specified for `NS Network Interface Name` on the "SNA Node Configuration: X.25 Link Data" screen.
- "X.25 SVC Address Key Paths" screen: The name of the facility set configured for the SVC must be found on this screen, even though it is not actually used in the SNA/X.25 configuration.
  - — If you follow our recommendation and reserve the facility set for the SNA/X.25 SVC's use only, the `X.25 Address` you specify for the facility set on this screen must match the address you specify for `Remote's X.25 Network Address` on the "SNA Node Configuration: X.25 Link Data" screen. Note that this address is the remote system's address. Also, the security specification in the "X.25 SVC Address Key Paths" screen must be compatible with the `Call Direction` specified on the "SNA Node Configuration: X.25 Link Data" screen.
  - — If you do not reserve the facility set for SNA/X.25's use, by associating it with the remote system's address, you must configure it as the POOL facility set. You do this by specifying the facility set as the default facility set for the POOL X.25 address key. Also, the security specification in the "X.25 SVC Address Key Paths" screen must be compatible with the `Call Direction` specified on the "SNA Node Configuration: X.25 Link Data" screen.

Figure 2-8 shows the configuration dependencies for an SNA/X.25 SVC.

Figure 2-8 SVC Configuration Dependencies

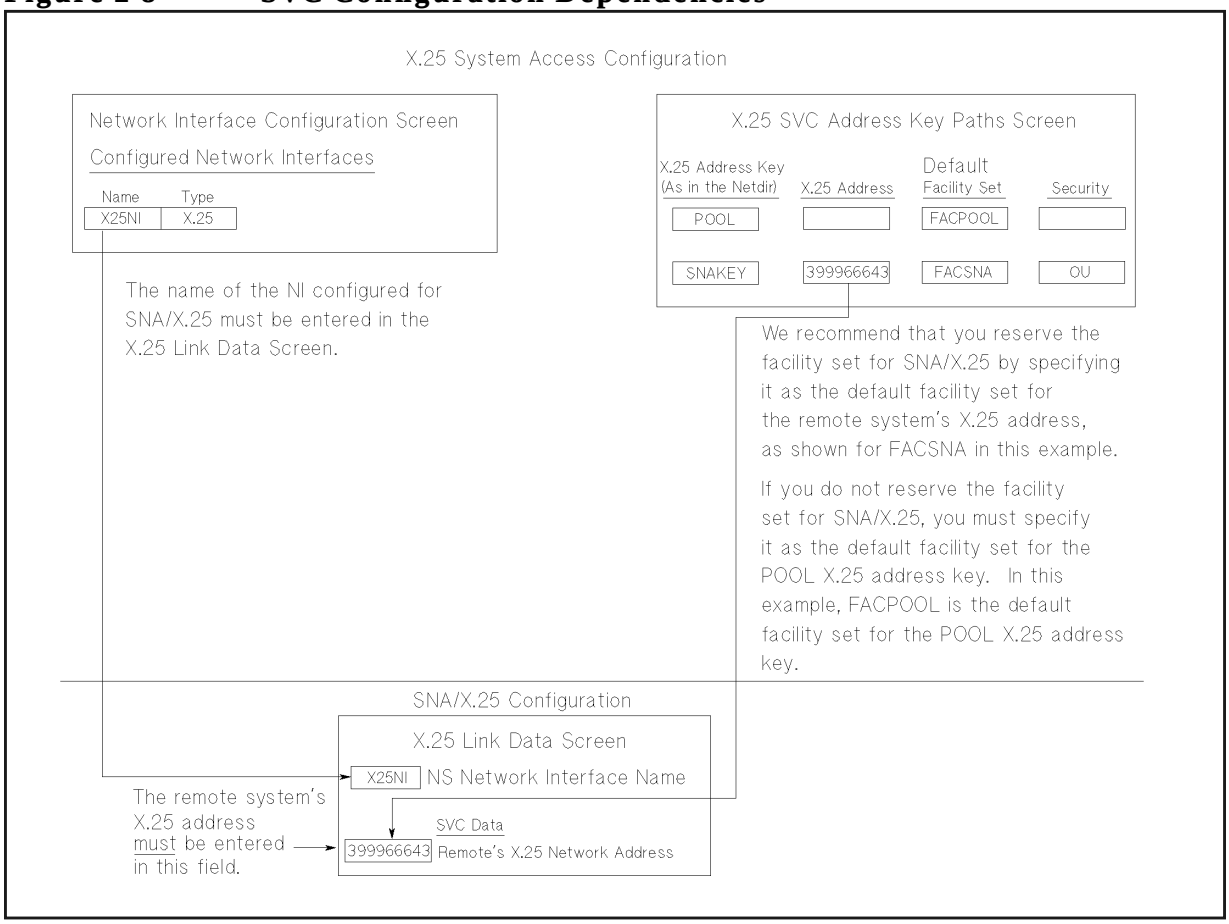


Figure 2-9 shows the X.25 Link Data Screen.

Figure 2-9 X.25 Link Data Screen Example

```
NMMGR/3000 (V.uu.ff) #149  SNA Node Configuration: X.25 Link Data       Data: N
When Data Flag is "N", press "Save Data" to create the data record.
Command:

Path: SNANODE.IBMNODE.X25LINK

       [X25N1    ] NS Network Interface Name
          [0     ] Inactivity Timeout   (in minutes)
            [SVC] Virtual Circuit Type (SVC or PVC)


                  PVC DATA
            [     ] PVC Number

                  SVC DATA
[39996123456     ] Remote's X.25 Network Address
            [OUT] Call Direction       (INcoming or OUTgoing)
            [3  ] Maximum Call Retries
            [60 ] Call Retry Delay     (in seconds)

File: NMCONFIG.PUB.SYS

                                                  Save      Prior
                                                  Data      Screen
```

Fields

Path

For display only. The NMMGR pat to this screen. It includes the name of the SNA node you are configuring.

NS Network Interface Name

Required. The NS network interface that the X.25 link will use. The name can be up to eight alphanumeric characters long; the first character must be alphabetic. See the appropriate NS documentation for more information.

X.25 System Access Configuration: An NI name in the `Configured Network Interfaces` field of the “Network Interface Configuration” screen must match this field.

Inactivity Timeout

Required. The number of minutes that the QLLC module will wait between incoming packets. The timer is reset each time a packet is received. If the specified number of minutes elapses before the next packet arrives, the virtual circuit is cleared and then released. For an incoming SVC, this results in a recoverable link failure. If `0` is specified, the timer is disabled. This can

result in an indefinite period of inactivity; however, note that it might be desirable to disable the timer for permanent virtual circuits (PVCs).

Range: 0-32767 (integer)

Default: 0

Virtual Circuit Type

Required. The type of virtual circuit to be used to connect to the host: permanent virtual circuit (PVC) or switched virtual circuit (SVC). The X.25 network subscription information and the host NPSI configuration should be used to determine the type of virtual circuits that are available for this connection.

If you specify PVC, you must also specify the PVC Number field (see below).

If you specify SVC, you must also specify the Remote's X.25 Network Address and Call Direction fields (both fields are described later in this chapter).

Values: PVC and SVC

Host Configuration:

- PVC: The TYPE operand of the X25.LINE macro for the PVC must be set to PERMANENT; see Table 2-2.
- SVC: The TYPE operand of at least one X25.LINE macro must be set to SWITCHED; see Table 2-3.

PVC DATA

Information about the permanent virtual circuit (PVC).

PVC Number — Conditionally required. The number identifying the permanent virtual circuit that will connect the HP 3000 node to the remote system. This is found in the X.25 network subscription information, and is equivalent to the Logical Channel Number (LCN).

This field is required *only* if PVC is entered for the Virtual Circuit Type field.

Range: 0-4095 (integer)

X.25 System Access Configuration: If you followed our recommendation and configured a specific address key for the SNA/X.25 PVC (in the PVC Number field

of the "X.25 PVC Address Key Paths" screen), that address key must match the value specified in this field. See Figure 2-7 for an example.

DTC Manager Configuration: The range specified for the LCI Range field (for PVCs) of the "DTC Manager DTCX25 Board # Level 3" screen must contain the value specified in this field.

DTS Configuration: The range specified for the LCI Range field (for PVCs) of the "DTS X.25 Card Config — Level 3 &Miscellaneous" screen must contain the value specified in this field.

SVC DATA

Information about the switched virtual circuit (SVC).

Remote's X.25 Network Address

Conditionally required. The X.25 network address of the remote system. This is found in the X.25 network subscription information.

This field is required *only* if SVC is entered for the Virtual Circuit Type field.

Host Configuration: If the host is configured to make outgoing calls, the DIALNO operand value of the PATH macro that defines the dial-out path to the HP 3000 node must contain the value specified in this field; see Table 2-3. For security purposes, SNA/X.25 Link compares the remote X.25 address contained in incoming calls with the value specified in this field. See the *HP SNA Products Remote System Configuration Guide* for more information about host configuration. Also, the features and names of the facility sets are found in the X.25 network subscription information.

Note that the facility set (the set of virtual circuit features and security attributes associated with the SVC) configured on the remote system must also be configured for the NS X.25 system link.

AS/400 Configuration: The NETADDR parameter in the line description must match this field; see Table 2-8.

X.25 System Access Configuration: The facility set that the SNA/X.25 SVC will use must be configured for the NS X.25 system link. If you followed our recommendation and reserved the facility set for the

SNA/X.25 SVC, the X.25 Address you specified in the "X.25 SVC Address Key Paths" screen must be the same as the address you specify in this field. See Figure 2-8 for an example.

Call Direction

Conditionally required. Enter IN if the HP 3000 will wait for the remote system to request a connection (incoming direction); OUT if the HP 3000 will initiate the connection (outgoing direction).

If you specify OUT, you might need to specify the Maximum Call Retries and Call Retry Delay fields. These fields are described below.

This field is required *only* if SVC is entered for the Virtual Circuit Type field.

NOTE Only one incoming SVC is supported per system.

Values: IN and OUT

Recommended value: OUT

Default: OUT

Host Configuration:

- If you are configuring an outgoing SVC, at least one X25.LINE host macro must specify CALL=IN and you must enter OUT in this field.
- If you are configuring an incoming SVC, at least one X25.LINE host macro must specify CALL=OUT and you must enter IN in this field.
- If CALL=INOUT is specified in at least one X25.LINE host macro, *either* IN or OUT can be specified in this field.

Maximum Call Retries

Conditionally required. The maximum number of times the QLLC module will try to connect to the remote system without success. If 0 is specified, the QLLC module will not retry if the first attempt to connect fails.

This field is required *only* if SVC is entered for the Virtual Circuit Type field.

If you specify a value greater than 0, you must also specify the Call Retry Delay field.

Note that this field is valid only when OUT is specified for the Call Direction field.

Range: 0-999 (integer)

Default: 3

Call Retry Delay

Conditionally required. The number of seconds the QLLC module waits between attempts to connect to the remote system.

This field is required *only* if a value greater than 0 is specified for the Maximum Call Retries field.

Note that this field is valid only when OUT is specified for the Call Direction field (described earlier in this chapter).

Range: 60-999 (integer)

Default: 60

File

For display only. The name of the configuration file.

Once you have entered the X.25 link information, press **[f6]** (Save Data).

After the information is saved, press **[f8]** (Prior Screen) until you get to the screen you need next.

Token Ring Link Data Screen

Once you have specified the PU and LU information, you are ready to configure the communications link parameters for the token ring link. You do this on the “SNA Node Configuration: Token Ring Link Data” screen as shown n Figure 2-10. Select this screen by pressing **[f1]** (`Go To LINKDATA`) on the “SNA Node Configuration: PU Data” screen. (You can go directly to this screen from any screen by typing `@SNANODE.`*`nodename`*`.LINKDATA` in the command window and pressing **[ENTER]**).

CAUTION

If the Token Ring 3000/iX Network Link product is already configured for the Network Services (NS) subsystem, the values that initially appear in the Token Ring Link Data screen fields reflect the NS configuration. If the same token ring card is being used for both NS and SNA communications, certain fields in the Token Ring Link Data screen must match the values of the NS token ring link configuration. (See the following field descriptions.)

If the `Link Name` configured for an SNA token ring link is the same as the name of an NS token ring link, make sure that the values of these fields in the SNA token ring link configuration match the NS token ring link configuration; otherwise, the SNA token ring link configuration will change the NS token ring link configuration. If more than one token ring link is configured for NS, the values of the first configured token ring link appear.

Figure 2-10 Token Ring Link Data Screen Example

```
NMMGR/3000 (V.uu.ff) #180  SNA Node Configuration: Token Ring Link Data Data: N
When Data Flag is "N", press "Save Data" to create the data record.
Command:

Path: SNANODE.IBMNODE.TOKNLINK

 [TOKENLNK] Link Name   [48          ] Physical Path of Device Adapter**

       [04] Remote DSAP               (2 digits hex, 04 to FC, multiple of 4)
       [04] Local SSAP                (2 digits hex, 04 to FC, multiple of 4)
      [  2] Unacknowledged Send Limit (1 to 127)
      [ 10] Retry Limit               (1 to 254)
    [    1] Acknowledgment Timer      (1 to 254; in 1/10 of second)
    [  100] Error Timer               (1 to 600; in 1/10 of second)

 [  -  -  -  -  -  ] Remote Station Address

                 [Y] Use Factory-Configured Local Station Address (Y/N)**
 [FF-FF-FF-FF-FF-FF] Local Station Address (hex)**
                     (replaces the local station address if above answer is 'N')
**Changes made to this field affect NS Token Ring link, if configured.
File: NMCONFIG.PUB.SYS
                                                  Save        Prior
                                                  Data        Screen
```

Fields

Path

For display only. The NMMGR path to this screen. It includes the name of the SNA node you are configuring.

Link Name

Required. The symbolic name of the token ring card. The name must start with an alphabetical character.

NOTE If the same token ring card is being used for both NS and SNA communications, you must use the same name in this field as is configured for the NS link.

Physical Path of Device Adapter

Required. The address of the Token Ring Card. At system start-up time, this address is assigned according to the slot in which the Token Ring Card resides.

NOTE If the same token ring card is being used for both NS and SNA communications, you must use the same value for this field as is configured for the NS link.

Remote DSAP

Required. The service access point (SAP) for the remote system. This is a two-digit hexadecimal number that is a multiple of 4.

Host Configuration: For a 3745 remote system, the `IDNUM` and `IDBLK` values in the `PU` macro must also match the `ID NUM` and `ID BLK` fields in the SNA Node Configuration: PU data screen on the HP 3000. For a 3174 or 3745 remote system, HP recommends that the value of this field be `04`. While other values may work, a value of 04 has been verified to work.

AS/400 Configuration: The `SSAP` in the controller description for the AS/400 must match this field; see Table 2-10.

Local SSAP

Required. The SAP for the HP 3000 node. This is a two-digit hexadecimal number that is a multiple of 4. Each active node on an HP 3000 system must have a unique SAP.

AS/400 Configuration: The DSAP in the controller description for the HP 3000 must match this field; see Table 2-10.

NOTE

A service access point (SAP) pair identifies a MAC type 2 connection. This pair consists of two SAPs: the destination SAP (DSAP) and the local SAP (LSAP). DSAP is the SAP of the remote computer and LSAP is the SAP of the local computer. The SAP pair, along with the remote and local station address, uniquely identifies a logical connection in the token ring network.

Unacknowledged Send Limit

Required. The maximum number of frames that a MAC type 2 connection expects to receive before sending an acknowledgment.

Range: 1-127 (integer)

Default: 2

Retry Limit

Required. The maximum number of times a MAC type 2 connection retransmits a frame before dropping the connection.

Range: 1-254 (integer)

Default: 10

Acknowledgment Timer

Required. The maximum time, in tenths of a second, that the MAC type 2 connection waits before determining that a frame has been dropped and retransmitting.

Range: 1-254 (integer)

Default: 10 (1 second)

Error Timer

Required. The amount of time, in tenths of a second, that the MAC type 2 connection waits before initiating a Poll/Find (P/F) cycle.

Range: 1-600 (integer)

Default: 100 (10 seconds)

Remote Station Address

Required.

Host Configuration: The *LOCADD* parameter in the LINE macro must match this field; see Table 2-7.

AS/400 Configuration: The ADPTADR in the line description for the AS/400 must match this field; see Table 2-10.

Use Factory-Configured Local Station Address

Enter Y to use the factory-configured local station address. Enter N to use the address to be entered in the Local Station Address field. In most IBM environments, the local station address is assigned by the IBM system manager. This is necessary since connection establishment requires knowledge of remote addresses.

NOTE If the same token ring card is being used for both NS and SNA communications, you must specify the local station address that is configured for the NS token ring link.

Local Station Address

Required (if N is specified in the Use Factory-Configured Local Station Address field.) For non-AS/400 communications, HP recommends that you use either the factory-configured address (enter Y in the Use Factory-Configured Local Station Address field) or use local station address for the NS token ring link, if it is configured.

AS/400 Configuration: The ADPTADR in the controller description for the HP 3000 must match this field; see Table 2-10.

NOTE If the same token ring card is being used for both NS and SNA communications, you must use the local station address that is configured for the NS token ring link.

File

For display only. The name of the configuration file.

3 Logging Configuration

This chapter describes how to use the NMS configuration manager (NMMGR) to create or modify a configuration file for logging. Basic information about NMMGR is contained in *Using the Node Management Services Utilities*; if you are not familiar with NMMGR, you should read that manual before continuing. Note that the logging configuration is completely HP 3000 dependent and has no corresponding remote system configuration.

Once you have configured the SNA node, you must configure logging. Logging records events such as errors and console commands, and is configured according to **subsystems**. Within each subsystem, different **classes** of events (such as internal errors) exist. You specify where you want logging recorded for each of the classes in the subsystem: to a disk file, the HP 3000 console, or the logon device of a *UserName.AccountName*. If you configure a logging class so that logging is recorded to a *UserName.AccountName*, that user will receive logged messages any time that *UserName.AccountName* has an active session.

These topics are covered in this chapter:

- Configuration file validation
- Configuring logging
  - — “Main” screen
  - — “HP-IBM Configuration” screen
  - — “IBM Logging Configuration (1)” screen
  - — “IBM Logging Configuration (2)” screen
  - — “IBM Logging Configuration (3)” screen
  - — Enabling users for a specific subsystem and class

Table 3-1 provides a summary of the logging classes for which configuration is described in this chapter, and guidelines for those configurations. For more information about logging, see Chapter 5 , “SNA Link Troubleshooting,” in this manual.

NOTE If very high volumes of logging are recorded to the console or a set of users, system performance might degrade. So, the Hewlett-Packard recommended configuration should be followed unless you are advised otherwise by your Hewlett-Packard support contact.

Table 3-1 SNA Logging Configuration Guidelines

Subsystem	Class	Events	Console Logging	Disk Logging
SNA Transport (SUB0001)	CLAS0010	Node events*	YES	YES
	CLAS0011	Protocol errors	YES	YES
	CLAS0012	LU-LU activities	NO	YES
	CLAS0013	LU-SSCP activities	NO**	YES
NRJE (SUB0002)	CLAS0010	Workstation events	NO	NO
	CLAS0012	Critical events and errors	YES	YES
	CLAS0013	Console commands and messages	NO	NO
APPC (SUB0016)	CLAS0010	Internal errors	YES	YES
	CLAS0011	Subsystem warnings	YES	YES
	CLAS0012	Subsystem information messages	YES	YES
	CLAS0013	Conversation information messages	YES	YES
	CLAS0014	Session performance statistics	NO	YES
Link trace (SUB0018)	CLAS0000	Link trace starting and stopping errors. This does *not* include link errors.	YES	YES
DHCF (SUB0020)	CLAS0010	Serious and internal errors	YES	YES
	CLAS0011	Warnings	NO	NO
	CLAS0012	Informational messages	YES	YES
	CLAS0013	Diagnostic messages	NO	YES
SDLC Link (SUB0027)	CLAS0010	Errors	NO	YES
	CLAS0012	Informational messages	NO	YES
SNADS (SUB0046)	CLAS0010	Serious and internal errors	YES	YES
	CLAS0011	Warnings	YES	YES
	CLAS0012	Subsystem information	YES	YES

Table 3-1 SNA Logging Configuration Guidelines

Subsystem	Class	Events	Console Logging	Disk Logging
Token Ring Link (SUB0061)	CLAS0001	Errors	NO	YES
	CLAS0002	Warnings	NO	YES
	CLAS0003	Informational messages	NO	YES
	*If you are using an X.25 link and you want logging information recorded, logging (console, disk, or both) for SNA Transport class CLAS0010 *must* be enabled, because the X.25 link uses the logging facilities for that SNA Transport class. **If you are using a manual-dial modem, console logging for SNA Transport class CLAS0013 *must* be enabled, so that pertinent logging messages can be displayed.			

Configuration File Validation

Validating the configuration file ensures that the configuration data is logically and syntactically correct. Each SNA service's data is also checked against the SNA node configuration data for correctness (for example, correct LU names). See each service's *Node Manager's Guide* for that service's validation error messages.

You should validate the configuration file after completing any of these tasks:

- An initial configuration of one or more SNA nodes
- An initial configuration of one or more SNA services
- A modification of an existing configuration

The configuration file is validated through NMMGR; see *Using the Node Management Services Utilities*.

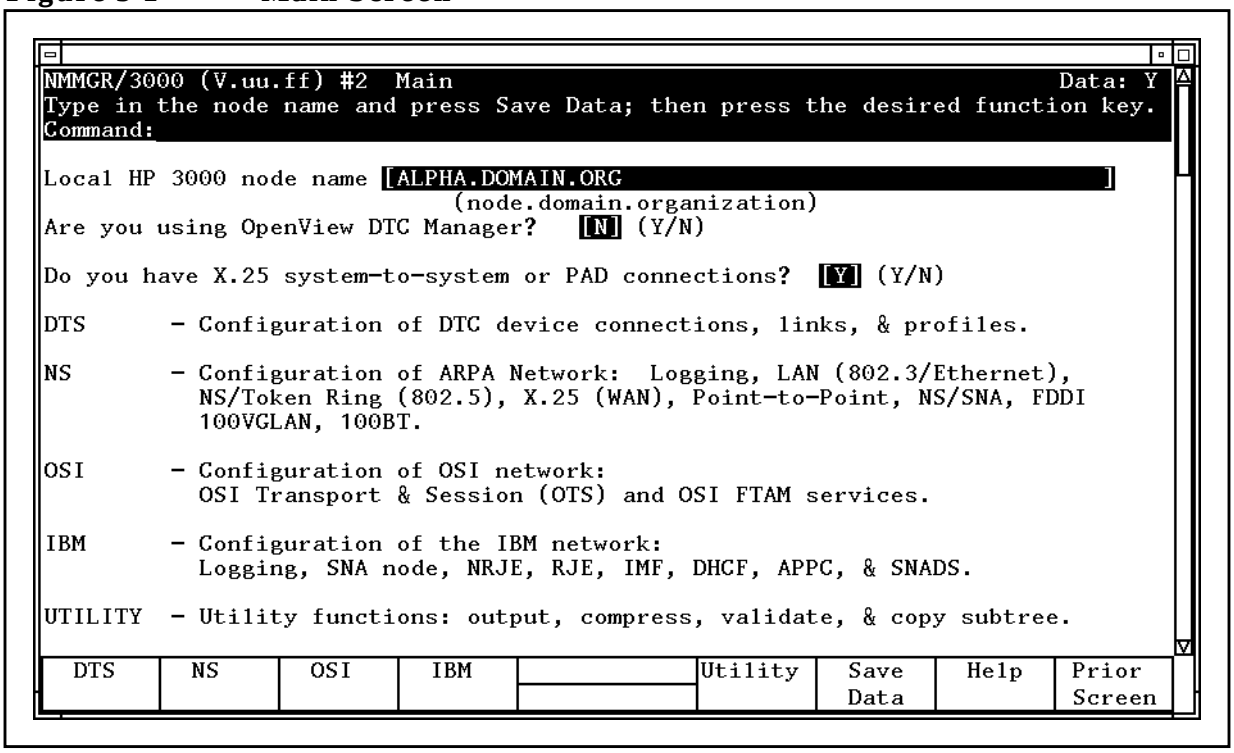
Configuring Logging

Once you have opened the configuration file, you are placed at the NMMGR “Main” screen, as shown in Figure 3-1.

Main Screen

From this screen you can select the category of network subsystems you want to configure.

Figure 3-1 Main Screen



To access the NMMGR branch for configuring logging, press **[f4]** (IBM). This places you at the “HP-IBM Configuration” screen.

HP-IBM Configuration Screen

From the screen shown in Figure 3-2 you can select the item you want to configure.

Figure 3-2 HP-IBM Configuration Screen

```
NMMGR/3000 (V.uu.ff) #120  HP-IBM Configuration
Select the next screen and press the corresponding function key.
Command:

LOGGING  -  Configure logging for all subsystems.

SNANODE  -  Configure SNA node, SDLC link, X.25 link, and Token Ring Link.

NRJE     -  Configure SNA NRJE subsystem.

RJE      -  Configure BSC link and RJE subsystem.

IMF      -  Configure SNA IMF subsystem.

DHCF     -  Configure SNA DHCF subsystem.

APPC     -  Configure APPC subsystem.

SNADS    -  Configure HP SNADS subsystem.

File:  NMCONFIG.PUB.SYS

 Go To   Go To   Go To   Go To          Go To   Next Key          Prior
LOGGING SNANODE  NRJE    RJE            IMF     Labels            Screen
```

To select logging, press **[f1]** (`Go To LOGGING`).

IBM Logging Configuration (1) Screen

After you have selected logging configuration, NMMGR displays the “IBM Logging Configuration (1)” screen, as shown in Figure 3-3. Here you specify logging information for these subsystems: SNA Transport, NRJE, and DHCF.

If you want to specify logging information for an SNA subsystem not shown on this screen, press **[f1]** (`Next Screen`) once, which places you at the “IBM Logging Configuration (2)” screen, or twice, which places you at the “IBM Logging Configuration (3)” screen. Each of these screens is described later in this chapter.

Figure 3-3 IBM Logging Configuration (1) Screen Example

```
NMMGR/3000 (V.uu.ff) #63  IBM Logging Configuration (1)                Data: Y
Fill in the required information; then press the Save Data key.
Command:
            Class    Console Disk
Subsystem   Name     Logging Logging  Event

SUB0001     CLAS0010  [Y]     [Y]     Node events
SNA         CLAS0011  [Y]     [Y]     Protocol errors
Transport   CLAS0012  [N]     [Y]     LU-LU activities
            CLAS0013  [N]     [Y]     LU-SSCP activities

SUB0002     CLAS0010  [N]     [N]     Workstation events
NRJE        CLAS0012  [Y]     [Y]     Critical events and errors
            CLAS0013  [N]     [N]     Console commands and messages

SUB0020     CLAS0010  [Y]     [Y]     Serious and internal errors
DHCF        CLAS0011  [N]     [N]     Warnings
            CLAS0012  [Y]     [Y]     Informational messages
            CLAS0013  [N]     [Y]     Diagnostic messages
To enable user logging for a class, press Save Data and then type
"@LOGGING.SUB00xx.CLAS00xx" on the command line and press ENTER.
File:  NMCONFIG.PUB.SYS
 Next    |        |        | Exit    |        Validate | Save    |        | Prior
 Screen  |        |        | Logging |        HP-IBM  | Data    |        | Screen
```

Fields

Subsystem

For display only. The names and numbers of the subsystems you can configure logging for on this screen.

Class Name

For display only. The names of the logging classes you can configure logging for on this screen.

Console Logging

Required. Enter Y if you want logging events for a class displayed at the HP 3000 console; N, otherwise.

Refer to Table 3-1 for guidelines.

Default: Each class's default is the recommended setting for that class (see Table 3-1).

NOTE If you change the console logging configuration for *any* subsystem, the changes will not take effect until the *entire HP 3000 system* is shut down and restarted.

Disk Logging

Required. Enter Y if you want logging events for a class recorded in the NM log file; N, otherwise. The file name that Node Management Services (NMS) uses is NMLG*nnnn*.PUB.SYS, where *nnnn* is a number from *0000* through *9999*. This is a common file used for logging by all logging classes in all subsystems. At each MPE system startup, or when a file is full, NMS creates a new NMLG*nnnn*.PUB.SYS file, naming each successive file by incrementing *nnnn*. When NMLG9999.PUB.SYS is full, NMS names the next file NMLG*0000*.PUB.SYS. The MPE commands RESUMENMLOG, SHOWNMLOG, and SWITCHNMLOG are used to control logging and the log file. These commands are described in Chapter 6 , "MPE Commands," of this manual.

Refer to Table 3-1 for guidelines.

Default: Each class's default is the recommended setting for that class (see Table 3-1).

NOTE If you change the disk logging configuration for a subsystem, the changes will not take effect until *that subsystem* is shut down and restarted.

Event

For display only. The type of information logged for a class.

SNA Transport (SUB0001):

- CLAS0010: node events
  - — Node activation
  - — Link activation
  - — Link errors
  - — Internal errors
  - — Node shutdown

  Note that if you are using an X.25 link and you want logging information recorded, logging (console, disk, or both) for this SNA Transport class (CLAS0010) *must* be enabled, because the X.25 link uses the logging facilities for this SNA Transport class.
- CLAS0011: protocol errors
  - — Packet discards/rejects
  - — Bad port messages

- CLAS0012: LU-LU activities
  - — OpenUser/CloseUser
  - — Session activation/Session deactivation
- CLAS0013: LU-SSCP activities
  - — OpenUser/CloseUser
  - — Session activation/Session deactivation

  Note that if you are using a manual-dial modem, console logging for this SNA Transport class (CLAS0013) *must* be enabled, so that pertinent logging messages can be displayed.

NRJE (SUB0002):

- CLAS0010: workstation events
  - — Job transmission
  - — Job output reception (including Peripheral Device Information Records [PDIRs])
  - — Noncritical errors
- CLAS0012: critical events and errors
  - — Critical errors
  - — LU startup
  - — LU shutdown
- CLAS0013: JES2, JES3, and VSE/POWER console commands and messages
  - — Console commands
  - — Console messages

DHCF (SUB0020):

- CLAS0010: serious and internal errors
  - — Errors fatal to session
  - — Errors fatal to subsystem
- CLAS0011: warnings
  - — Errors not fatal to session
  - — Errors not fatal to subsystem
- CLAS0012: informational messages
  - — Session startup
  - — Session shutdown
  - — Subsystem startup
  - — Subsystem shutdown

- CLAS0013: diagnostic messages

  — Internal data

NOTE If you want the logging events for only a specific logging subsystem and class to be displayed at the list devices of users, see "Enabling Users for a Specific Subsystem and Class" later in this chapter.

File

For display only. The name of the configuration file.

Once you have entered all of the logging information, press **[f6]** (Save Data).

Then, if you do not want to configure logging information for other SNA subsystems, press **[f5]** (Validate HP-IBM) to validate the logging configuration you just did. Once the logging configuration is validated, press **[f4]** (Exit Logging) to return to the "HP-IBM Configuration" screen.

If you want to configure logging information for other SNA subsystems, (1) press **[f1]** (Next Screen) once, which places you at the "IBM Logging Configuration (2)" screen (described next in this chapter); or (2) press **[f1]** (Next Screen) twice, which places you at the "IBM Logging Configuration (3)" screen (described later in this chapter).

IBM Logging Configuration (2) Screen

On this screen (Figure 3-4), you specify logging information for these subsystems: APPC, link trace, and SDLC link.

If you want to specify logging information for an SNA subsystem not shown on this screen, press **[f1]** (Next Screen), which places you at the "IBM Logging Configuration (3)" screen (described later in this chapter), or press **[f8]** (Prior Screen), which places you at the "IBM Logging Configuration (1)" screen (described earlier in this chapter).

Figure 3-4 IBM Logging Configuration (2) Screen Example

```
NMMGR/3000 (V.uu.ff) #64  IBM Logging Configuration (2)                Data: Y
Fill in the required information; then press the Save Data key.
Command:
           Class     Console Disk
Subsystem  Name      Logging Logging  Event

SUB0016    CLAS0010   [Y]     [Y]     Internal errors
APPC       CLAS0011   [Y]     [Y]     Subsystem warnings
           CLAS0012   [Y]     [Y]     Subsystem information
           CLAS0013   [Y]     [Y]     Conversation information
           CLAS0014   [N]     [Y]     Session performance statistics

SUB0018    CLAS0000   [Y]     [Y]     Link tracing start and stop errors
Link Trace

SUB0027    CLAS0010   [N]     [Y]     Errors
SDLC Link  CLAS0012   [N]     [Y]     Informational messages

To enable user logging for a class, press Save Data and then type
"@LOGGING.SUB00xx.CLAS00xx" on the command line and press ENTER.

File:  NMCONFIG.PUB.SYS
 Next   |        |        | Exit   |        | Validate | Save   |        | Prior
 Screen |        |        | Logging |        | HP-IBM   | Data   |        | Screen
```

Fields

Subsystem

For display only. The names and numbers of the subsystems you can configure logging for on this screen.

Class Name

For display only. The names of the logging classes you can configure logging for on this screen.

Console Logging

Required. Enter Y if you want logging events for a class displayed at the HP 3000 console; N, otherwise.

Refer to Table 3-1 for guidelines.

Default: Each class's default is the recommended setting for that class (see Table 3-1).

NOTE If you change the console logging configuration for *any* subsystem, the changes will not take effect until the *entire HP 3000 system* is shut down and restarted.

Disk Logging

Required. Enter Y if you want logging events for a class recorded in the NM log file; N, otherwise. The file name that Node Management Services (NMS) uses is NMLG*nnnn*.PUB.SYS, where *nnnn* is a number from *0000* through *9999*. This is a common file used for logging by all logging classes in all subsystems. At each MPE system startup, or when a file is full, NMS creates a new NMLG*nnnn*.PUB.SYS file, naming each successive file by incrementing *nnnn*. When NMLG*9999*.PUB.SYS is full, NMS names the next file NMLG*0000*.PUB.SYS. The MPE commands RESUMENMLOG, SHOWNMLOG, and SWITCHNMLOG are used to control logging and the log file. These commands are described in Chapter 6 , "MPE Commands," in this manual.

Refer to Table 3-1 for guidelines.

Default: Each class's default is the recommended setting for that class (see Table 3-1).

NOTE If you change the disk logging configuration for a subsystem, the changes will not take effect until *that subsystem* is shut down and restarted.

Event

For display only. The type of information logged for a class.

APPC (SUB0016):

- CLAS0010: internal errors
- CLAS0011: subsystem warnings
- CLAS0012: subsystem information messages
- CLAS0013: conversation information messages
- CLAS0014: session performance statistics

Link trace (SUB0018):

- CLAS0000: link trace starting and stopping errors
  - — Errors that occur when starting or stopping SDLC link-level tracing. This does *not* include link errors.

SDLC link (SUB0027):

- CLAS0010: errors
- CLAS0012: informational messages

NOTE If you want the logging events for only a specific logging subsystem and class to be displayed at the list devices of users, see "Enabling Users for a Specific Subsystem and Class" later in this chapter.

File

For display only. The name of the configuration file.

Once you have entered all of the logging information, press **[f6]** (`Save Data`).

Then, if you do not want to configure logging information for other SNA subsystems, press **[f5]** (`Validate HP-IBM`) to validate the logging configuration you just did. Once the logging configuration is validated, press **[f4]** (`Exit Logging`) to return to the "HP-IBM Configuration" screen.

If you want to configure logging information for other SNA subsystems, (1) press **[f8]** (`Prior Screen`), which places you at the "IBM Logging Configuration (1)" screen (described earlier in this chapter); or (2) press **[f1]** (`Next Screen`), which places you at the "IBM Logging Configuration (3)" screen (described next in this chapter).

IBM Logging Configuration (3) Screen

On this screen, you specify logging information for these subsystems: SNADS and token ring link.

NOTE Although the logging subsystem for RJE/BSC Link (`SUB0037`) is shown on the "IBM Logging Configuration (3)" screen, information for configuring RJE/BSC Link logging is not included in this manual. See the *RJE/XL Node Manager's Guide* for that information.

If you want to specify logging information for an SNA subsystem not shown on this screen, press **[f8]** (`Prior Screen`) until you are placed at either the "IBM Logging Configuration (2)" screen or the "IBM Logging Configuration (1)" screen. Each of these screens is described earlier in this chapter.

Figure 3-5 IBM Logging Configuration (3) Screen Example

```
NMMGR/3000 (V.uu.ff) #62  IBM Logging Configuration (3)                Data: Y
Fill in the required information; then press the Save Data key.
Command:
            Class      Console Disk
Subsystem   Name       Logging Logging  Event

SUB0037     CLAS0010   [N]     [Y]      Errors
RJE/        CLAS0012   [N]     [Y]      Informational messages
BSC Link

SUB0046     CLAS0010   [Y]     [Y]      Serious and internal errors
SNADS       CLAS0011   [Y]     [Y]      Warnings
            CLAS0012   [Y]     [Y]      Subsystem information

SUB0061     CLAS0001   [N]     [Y]      Errors**
Token Ring  CLAS0002   [N]     [Y]      Warnings**
Link        CLAS0003   [N]     [Y]      Informational messages**
**Changes made to this field affect NS Token Ring link, if configured.

To enable user logging for a class, press Save Data and then type
"@LOGGING.SUB00xx.CLAS00xx" on the command line and press ENTER.
File:  NMCONFIG.PUB.SYS
                          Exit                Validate  Save                Prior
                          Logging             HP-IBM    Data                Screen
```

Fields

Subsystem **For display only**. The names and numbers of the subsystems you can configure logging for on this screen.

Class Name **For display only**. The names of the logging classes you can configure logging for on this screen.

Console Logging **Required.** Enter Y if you want logging events for a class displayed at the HP 3000 console; N, otherwise.

Refer to Table 3-1 for guidelines.

Default: Each class's default is the recommended setting for that class (see Table 3-1).

NOTE If you change the console logging configuration for *any* subsystem, the changes will not take effect until the *entire HP 3000 system* is shut down and restarted.

Disk Logging **Required.** Enter Y if you want logging events for a class recorded in the NM log file; N, otherwise. The file name that Node Management Services (NMS) uses is NMLG*nnnn*.PUB.SYS, where *nnnn* is a number from *0000* through *9999*. This is a common file used for logging by all logging classes in all subsystems. At each MPE system startup, or when a file is full, NMS creates a new NMLG*nnnn*.PUB.SYS file, naming each successive

file by incrementing *nnnn*. When NMLG*9999*.PUB.SYS is full, NMS names the next file NMLG*0000*.PUB.SYS. The MPE commands RESUMENMLOG, SHOWNMLOG, and SWITCHNMLOG are used to control logging and the log file. These commands are described in Chapter 6 , "MPE Commands," of this manual.

Refer to Table 3-1 for guidelines.

Default: Each class's default is the recommended setting for that class (see Table 3-1).

NOTE If you change the disk logging configuration for a subsystem, the changes will not take effect until that *subsystem* is shut down and restarted.

Event **For display only**. The type of information logged for a class.

SNADS (SUB0046):

- CLAS0010: serious and internal errors
  - — Errors that prevent HP SNADS/XL, a Transport process, or a mapper process from continuing.
- CLAS0011: warnings
  - — Conditions that should be noticed, but which do not prevent normal operation of HP SNADS/XL.
- CLAS0012: subsystem information
  - — HP SNADS/XL subsystem information
  - — Success or failure of the VERIFY Manager command

Token ring link (SUB0061):

- CLAS0001: Errors
- CLAS0002: warnings
- CLAS0003: informational messages

NOTE If you want the logging events for only a specific logging subsystem and class to be displayed at the list devices of users, see "Enabling Users for a Specific Subsystem and Class" later in this chapter.

File **For display only**. The name of the configuration file.

Once you have entered all of the logging information, press **[f6]** (Save Data).

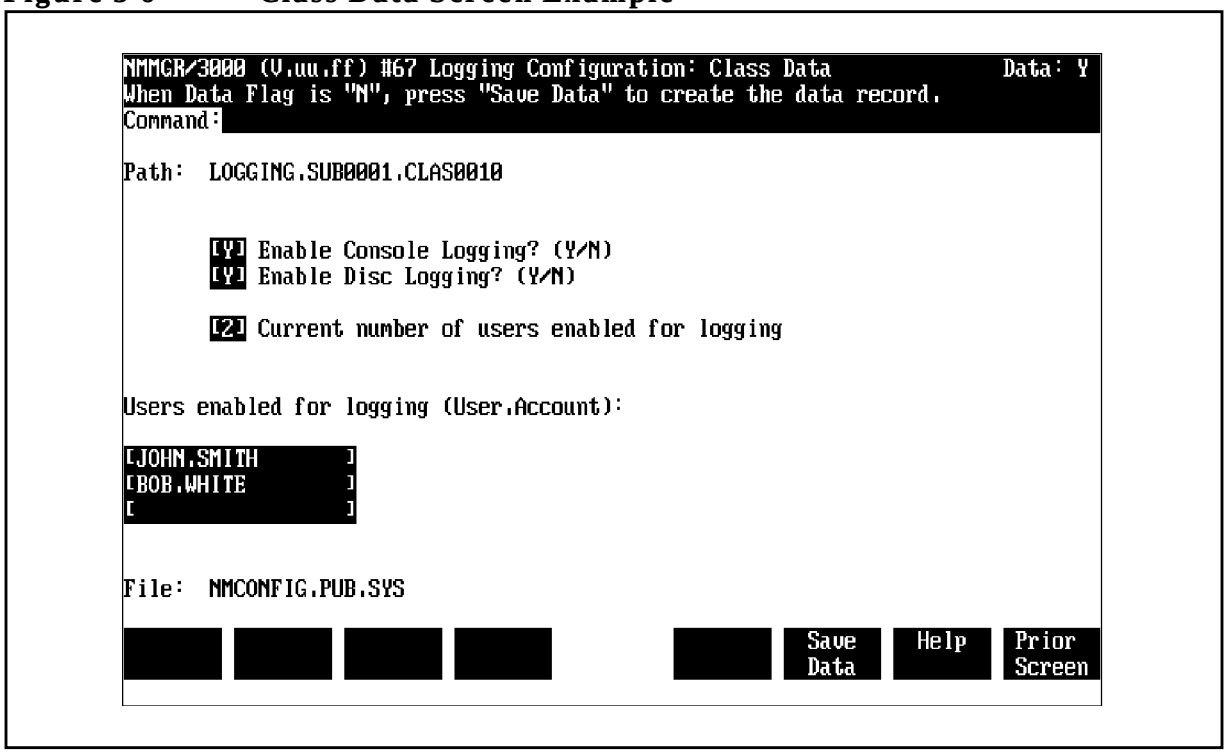
Then, if you do not want to configure logging information for other SNA subsystems, press **[f5]** (`Validate HP-IBM`) to validate the logging configuration you just did. Once the logging configuration is validated, press **[f4]** (`Exit Logging`) to return to the "HP-IBM Configuration" screen.

If you want to configure logging information for other SNA subsystems, (1) press **[f8]** (`Prior Screen`) once, which places you at the "IBM Logging Configuration (2)" screen (described earlier in this chapter); or (2) press **[f8]** (`Prior Screen`) twice, which places you at the "IBM Logging Configuration (1)" screen (described earlier in this chapter).

Enabling Users for a Specific Subsystem and Class

If you want the logging events for only a *`specific`* logging subsystem and class to be displayed at the list devices of users, you can do it through the "Logging Configuration: Class Data" screen as shown in Figure 3-6. You go directly to this screen from any screen by typing `@LOGGING.`*`subsystemname.classname`* in the command window and pressing **[ENTER]**.

Figure 3-6 Class Data Screen Example



Fields

Path

For display only. The NMMGR path to this screen. It includes the names of the subsystem and the logging class you are enabling users for.

Enable Console Logging?

Required. Enter Y if you want logging events for *only this subsystem and class* displayed at the HP 3000 console; N, otherwise.

Refer to Table 3-1 for guidelines.

Note that if the value you enter here is different from the value specified for this subsystem and class on the "IBM Logging Configuration (1)" screen, the "IBM Logging Configuration (2)" screen, or the "IBM Logging Configuration (3)" screen, the value on the other screen is overridden by the value you enter here.

Default: N

NOTE If you change the console logging configuration for *any* subsystem, the changes will not take effect until the *entire HP 3000 system* is shut down and restarted.

Enable Disc Logging?

Required. Enter Y if you want logging events for *only this subsystem and class* recorded in the NM log file; N, otherwise. The file name that Node Management Services (NMS) uses is NMLG*nnnn*.PUB.SYS, where *nnnn* is a number from *0000* through *9999*. This is a common file used for logging by all logging classes in all subsystems. At each MPE system startup, or when a file is full, NMS creates a new NMLG*nnnn*.PUB.SYS file, naming each successive file by incrementing *nnnn*. When NMLG*9999*.PUB.SYS is full, NMS names the next file NMLG*0000*.PUB.SYS. The MPE commands RESUMENMLOG, SHOWNMLOG, and SWITCHNMLOG are used to control logging and the log file. These commands are described in Chapter 6 , "MPE Commands," in this manual.

Refer to Table 3-1 for guidelines.

Note that if the value you enter here is different from the value specified for this subsystem and class on the "IBM Logging Configuration (1)" screen, the "IBM Logging Configuration (2)" screen, or the "IBM Logging

Configuration (3)" screen, the value on the other screen is overridden by the value you enter here.

Default: Y

NOTE If you change the disk logging configuration for a subsystem, the changes will not take effect until *that subsystem* is shut down and restarted.

Current number of users enabled for logging

For display only. The number of users specified for Users enabled for logging. For example, if two users are specified for Users enabled for logging, the value 2 would be displayed here when **[f6]** (Save Data) is pressed.

Users enabled for logging

You can have the logging events for *only this subsystem and class* displayed at the list devices of users. We **recommend** that you enable logging for the users responsible for installing and maintaining the SNA subsystems you are configuring logging for. Enter up to three user names in the form *UserName.AccountName*. When you press **[f6]** (Save Data), NMMGR deletes duplicate entries and enters the number of users specified into Current number of users enabled for logging.

NOTE If a user enabled for logging is logged on at the system console, and console logging is enabled, two copies of each logged message might be received.

File

For display only. The name of the configuration file.

Once you have entered the data, press **[f6]** (Save Data).

After the information is saved, press **[f8]** (Prior Screen) until you get to the screen you need next.

4 SNA Node Startup and Shutdown

This chapter describes how SNA sessions are established with the IBM remote system, how SNA nodes are started up and shut down, and how SNA sessions are terminated.

These topics are covered in this chapter:

- Establishing sessions with the remote system
  - — For a type 2.0 node
  - — For a type 2.1 node
- Establishing PU-SSCP sessions on the HP 3000
- Establishing LU-SSCP sessions on the HP 3000
- Terminating SNA sessions

Establishing Sessions with the Remote System

Remote system session establishment is slightly different for a type 2.0 (T2.0) node than for a type 2.1 (T2.1) node. Session establishment for each node type is explained below, and examples of session establishment activities between the HP 3000 and the IBM remote system are shown later in this chapter.

NOTE

When configuring a data communications subsystem on the HP 3000, the node manager can choose to display link, node, and session activation and termination status messages on the system console. SNA Transport will then display node activation, link activation, and session establishment messages as each activity is performed.

These messages are not shown in the session establishment and termination examples later in this chapter; however, you should be aware that SNA Transport will keep you informed of activity on the communications link if you configure this type of logging. More information about logging can be found in Chapter 5 , “SNA Link Troubleshooting.”

For a Type 2.0 Node

The System Services Control Point (SSCP) uses PU-SSCP sessions to control the PU in each node in its domain. Each PU, in turn, controls the resources of the node it resides in. These resources include the links which have been configured for the particular node. The SSCP transmits an ACTivate Physical Unit (ACTPU) command request to the PU to establish a session with the PU. When a PU-SSCP session is activated, the node that contains that PU becomes an active node in the SNA network. SNA Transport manages the PU-SSCP sessions of the HP 3000.

The SSCP uses LU-SSCP sessions to control dependent LUs and to establish dependent LU-LU sessions. The SSCP sends the command ACTivate Logical Unit (ACTLU) to establish LU-SSCP sessions. SNA Transport manages LU-SSCP sessions on the HP 3000.

A dependent LU-LU session enables data to be exchanged between two end users, between an end user and an application running on the host processor (such as TSO), or between a job and the Job Entry Subsystem (for example, JES2) running on the host. The LU-LU session can be thought of as a temporary logical connection that allows two LUs to exchange data.

LUs on the HP 3000 communicate with the SSCP to establish dependent LU-LU sessions. A dependent LU sends a session initiation request to the SSCP via its LU-SSCP session. The SNA services

manage the LU-LU sessions on the HP 3000.

For a Type 2.1 Node

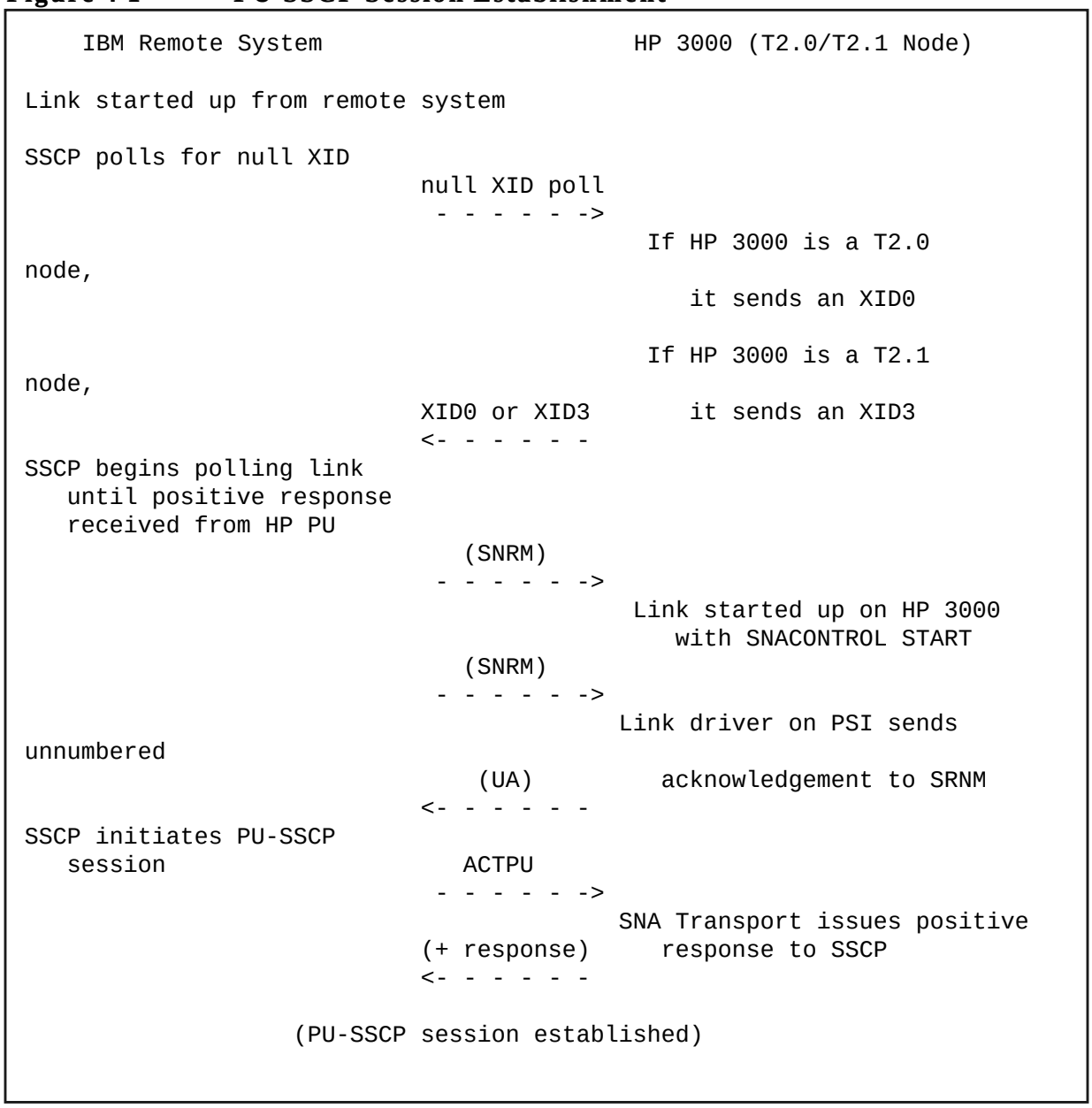
Session establishment for a T2.1 node is different than establishment for a T2.0 node in one major way: An independent LU on a T2.1 node can establish an LU-LU session with a remote system LU without the need for a corresponding LU-SSCP session. This is possible because an independent LU sends a BIND request directly to a remote system LU to establish an independent LU-LU session. The BIND is routed through the network to the remote system LU by using the remote system LU's name and node name.

NOTE At this time, LU 6.2 API/XL is the only SNA service that makes use of the T2.1 node capabilities.

Establishing PU-SSCP Sessions on the HP 3000

For each node you configure on the HP 3000, a corresponding T2.0 or T2.1 node should be in the remote system configuration. Figure 4-1 shows how a session is established between the SSCP on the remote system and the PU on the HP 3000 node (either a T2.0 node or a T2.1 node). The remote system sends out a poll on the data link, in the form of a Set Normal Response Mode (SNRM), and continues to poll the link until it receives a positive response from the HP 3000. The HP 3000 node is activated with the `SNACONTROL START` command (see Chapter 6 , “MPE Commands,” in this manual). The SSCP then sends an ACTivate PU (ACTPU) request to the HP 3000 PU. SNA Transport, as the PU services manager, sends a positive response back to the SSCP. The PU-SSCP session is now established.

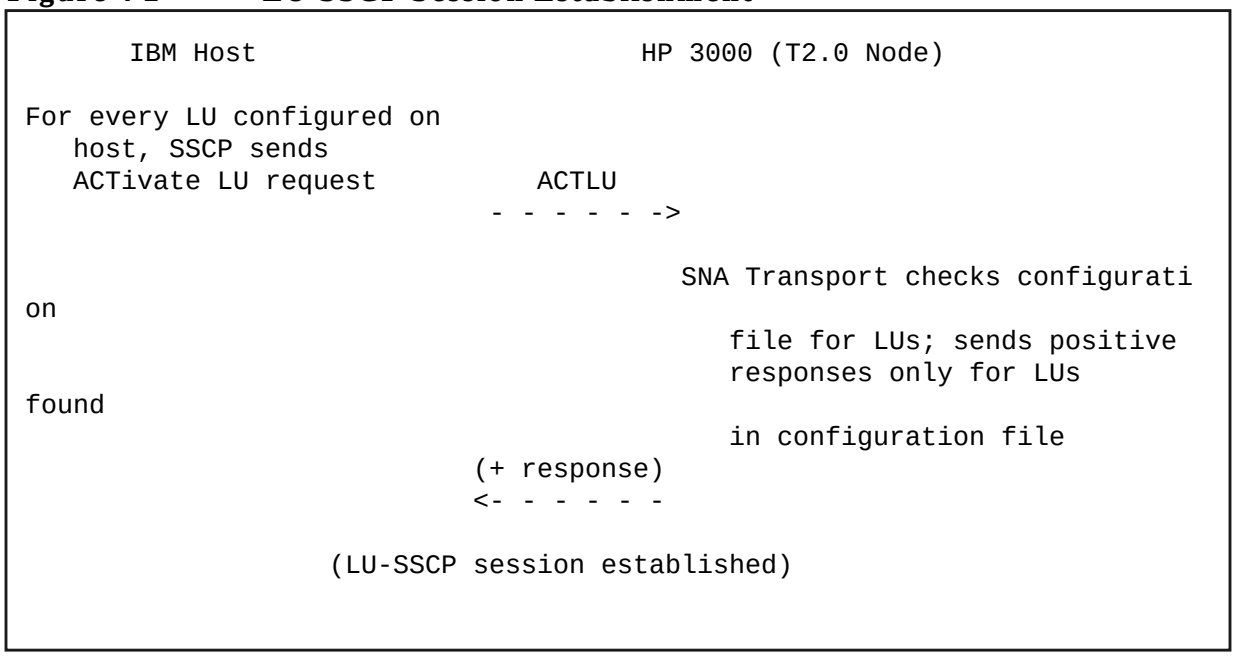
Figure 4-1 PU-SSCP Session Establishment



Establishing LU-SSCP Sessions on the HP 3000

For a dependent LU on the HP 3000 to communicate with another dependent LU, it must first have a session with the SSCP on the host system. Each LU-SSCP session is managed by SNA Transport. Figure 4-2 shows LU-SSCP session establishment with SNA Transport acting as the LU service manager. The SSCP checks the configuration on the host for the LUs defined for the HP 3000 node. The SSCP will attempt to activate each defined LU by sending an ACTivate LU (ACTLU) request. (An independent LU does not need a corresponding LU-SSCP session to help in establishing an LU-LU session, so the sequence below does not apply for an independent LU.)

Figure 4-2 LU-SSCP Session Establishment



Once an LU-SSCP session is established, a dependent LU-LU session can be initiated. The “Startup and Shutdown” chapter in the *Node Manager's Guide* for each SNA service contains an explanation of how LU-LU sessions are established and terminated for that service.

Terminating SNA Sessions

PU-SSCP and LU-SSCP sessions can be terminated from the remote system by deactivating an LU, the PU, or the link. Also, the SNA link terminates all sessions on the HP 3000 node if the link is unexpectedly interrupted or deactivated. An HP 3000 SNA node can be intentionally shut down with the SNACONTROL STOP command (see Chapter 6 , “MPE Commands,” of this manual); any SNA services that are running are also terminated.

5 SNA Link Troubleshooting

You can troubleshoot the SNA links by using the tracing and logging facilities. This chapter describes those facilities and other related topics:

- The tracing facility
  - — SNA Transport tracing
  - — Link-level tracing
- The logging facility
  - — SNA Transport logging
  - — Link-level logging
- Using NMDUMP for the SNA links
  - — SNA Transport output formats
  - — SDLC link output formats
  - — X.25 link output formats
  - — Token ring link output formats
- Using NMMAINT for the SNA links
  - — SNA/SDLC link information
  - — SNA/X.25 link information
  - — SNA/Token Ring link information
- Problem resolution
  - — Common problems
  - — Configuration problems
  - — Installation problems
  - — Submitting an SR

NOTE Depending on the type of service contract you have with Hewlett-Packard, you might be billed for assistance on a time and materials basis. For example, Hewlett-Packard does not support, correct, or attend to any customer-performed modification of the MPE operating system. Remember, if you cannot solve a problem, the more data you can supply, the faster your Hewlett-Packard support contact can pinpoint a problem and solve it.

The Tracing Facility

Tracing provides data for analysis, and can be done on many levels. The highest level of tracing is at the services level (see the *Node Manager's Guide* for each service for which tracing is available). SNA tracing is done at the SNA Transport level (an intermediate level) and at the link level (the lowest level). All of these functions are controlled through MPE commands (see Chapter 6 , "MPE Commands," in this manual).

SNA Transport Tracing

The tracing facility for SNA Transport performs two types of tracing: intrinsic tracing and node tracing.

Intrinsic Tracing

Intrinsic tracing records the interface between SNA Transport and the SNA services (LU-LU traffic). The interface consists of procedure calls to the SNA Transport intrinsics. These procedures are used to establish and maintain user sessions. Intrinsic tracing is turned on with the `INTRINSIC` parameter of the `SNACONTROL TRACEON` MPE command, and off with the `INTRINSIC` parameter of the `SNACONTROL TRACEOFF` command. (It also is stopped when the link is brought down with the `SNACONTROL STOP` command.) Intrinsic tracing is written to a disk file.

The trace file name can be specified as an argument to the `INTRINSIC` parameter when tracing is turned on. Naming the file this way allows the contents of the file to be overwritten each time a new trace is started (no warning is issued). Or you can let the default name be assigned: `NMTC`*nnnn*`.PUB.SYS`, where *nnnn* is a number from 0000 through 9999.

NOTE Regardless of whether you specify a trace file name or let the default name be assigned, the trace file that is opened when tracing is started is used until tracing is stopped. This means that if the file becomes full before tracing is stopped, the current contents of the file are overwritten with the new trace information, starting at the beginning of the file (no warning is issued). You should keep this in mind if you usually run tracing for long periods without stopping. If you want to keep the contents of a trace file from being written over, stop tracing before the file is full, and then restart it.

The trace file can be formatted through the NMDUMP utility. Using NMDUMP for SNA links (including an example of the SNA Transport tracing format) is described later in this chapter. More-detailed information about NMDUMP is contained in *Using the Node Management Services Utilities*.

NOTE

Although the format of the default trace file name is the same for all types of tracing, the same default file name will *not* be assigned for more than one trace. This is because the default trace file name is automatically assigned in numerical order. For example, suppose the last default trace file name assigned was `NMTC0004.PUB.SYS`. If you started SNA Transport intrinsic tracing, and did not specify a trace file name, the default name `NMTC0005.PUB.SYS` would be assigned. Then, if you started SNA Transport node tracing without specifying a trace file name, the default name `NMTC0006.PUB.SYS` would be assigned. Finally, if you started link-level tracing, and did not specify a file name, the default name `NMTC0007.PUB.SYS` would be assigned.

Remember, this applies only when you are using the default file-naming scheme.

Node Tracing

Node tracing records state transitions and events internal to SNA Transport for each SNA node (PU-SSCP, LU-SSCP, and a portion of LU-LU traffic). It is turned on with the *NODETRACE* parameter of the `SNACONTROL START` MPE command. Once node tracing is active, it remains active until the link is brought down with the `SNACONTROL STOP` command. Node tracing is written to a disk file.

SNA Transport tracing is not normally necessary unless recommended by the HP systems engineer for special problem-solving.

The trace file name can be specified as an argument to the *NODETRACE* parameter when tracing is turned on. Naming the file this way allows the contents of the file to be overwritten each time a new trace is started (no warning is issued). Or you can let the default name be assigned: `NMTC`*nnnn*`.PUB.SYS`, where *nnnn* is a number from 0000 through 9999.

NOTE

Regardless of whether you specify a trace file name or let the default name be assigned, the trace file that is opened when tracing is started is used until tracing is stopped. This means that if the file becomes full before tracing is stopped, the current contents of the file are overwritten with the new trace information, starting at the beginning of the file (no warning is issued). You should keep this in mind if you usually run tracing for long periods without stopping. If you want to keep the contents of a trace file from being written over, stop tracing before the file is full, and then restart it.

The trace file can be formatted through the NMDUMP utility. Using NMDUMP for SNA links (including an example of the SNA Transport tracing format) is described later in this chapter. More-detailed information about NMDUMP is contained in *Using the Node Management Services Utilities*.

NOTE

Although the format of the default trace file name is the same for all types of tracing, the same default file name will *not* be assigned for more than one trace. This is because the default trace file name is automatically assigned in numerical order. For example, suppose the last default trace file name assigned was NMTC0004.PUB.SYS. If you started SNA Transport intrinsic tracing, and did not specify a trace file name, the default name NMTC0005.PUB.SYS would be assigned. Then, if you started SNA Transport node tracing without specifying a trace file name, the default name NMTC0006.PUB.SYS would be assigned. Finally, if you started link-level tracing, and did not specify a file name, the default name NMTC0007.PUB.SYS would be assigned.

Remember, this applies only when you are using the default file-naming scheme.

Link-Level Tracing

The data link-level protocol is traced by the link driver (for the SDLC and token ring links) and the module configurator (for the X.25 link). Link-level tracing is turned on with the *LINKTRACE* parameter of the SNACONTROL START or SNACONTROL TRACEON MPE command, and off with the SNACONTROL STOP command or the *LINKTRACE* parameter of the SNACONTROL TRACEOFF command. Link-level tracing has two options: trace all bytes of each link frame (full tracing), and trace only the first 16 bytes of each link frame (partial tracing). Since full tracing uses more resources, partial tracing is the recommended default. Link-level trace output is written to a disk file.

We recommend that you use link-level tracing only for problem-solving purposes when requested by the HP systems engineer.

The trace file name can be specified as an argument to the *LINKTRACE* parameter when tracing is started. Naming the file this way allows the contents of the file to be overwritten each time a new trace is started (no warning is issued). Note that if you start link-level tracing with the SNACONTROL START command, and specify a name for the trace file, the file must be written to the SYS account. That is, if you specify an account name within the trace file name, it must be SYS. If you do not specify an account name, the file will automatically be written to the SYS account. This applies *only* when link-level tracing is started with the SNACONTROL START command.

You also can let the default name be assigned: NMTC*nnnn*.PUB.SYS, where *nnnn* is a number from 0000 through 9999.

NOTE

Regardless of whether you specify a trace file name or let the default name be assigned, the trace file that is opened when tracing is started is used until tracing is stopped. This means that if the file becomes full before tracing is stopped, the current contents of the file are overwritten with the new trace information, starting at the beginning of the file (no warning is issued). You should keep this in mind if you usually run tracing for long periods without stopping. If you want to keep the contents of a trace file from being written over, stop tracing before the file is full, and then restart it.

The trace file can be formatted through the NMDUMP utility. Using NMDUMP for SNA links (including examples of the SDLC link and X.25 link tracing formats) is described later in this chapter. More-detailed information about NMDUMP is contained in *Using the Node Management Services Utilities*.

NOTE

Although the format of the default trace file name is the same for all types of tracing, the same default file name will *not* be assigned for more than one trace. This is because the default trace file name is automatically assigned in numerical order. For example, suppose the last default trace file name assigned was `NMTC0004.PUB.SYS`. If you started SNA Transport intrinsic tracing, and did not specify a trace file name, the default name `NMTC0005.PUB.SYS` would be assigned. Then, if you started SNA Transport node tracing without specifying a trace file name, the default name `NMTC0006.PUB.SYS` would be assigned. Finally, if you started link-level tracing, and did not specify a file name, the default name `NMTC0007.PUB.SYS` would be assigned.

Remember, this applies only when you are using the default file-naming scheme.

The Logging Facility

Logging records subsystem events — significant normal events, as well as error events — for use in problem determination and monitoring network usage and resources. NMS performs SNA link logging | at two levels: for the SNA network (SNA Transport logging), and at link level (SDLC link logging, X.25 link logging, token ring link logging, and link trace logging). SNA link logging is configured through NMMGR (see Chapter 3 , "Logging Configuration," of this manual).

When you configure SNA link logging, you indicate the level you want logging configured for by specifying the level's subsystem number. Then, within each subsystem, you can indicate which events you want logged, by specifying event class numbers. Each type of SNA link logging is described below.

SNA Transport Logging

SNA Transport logging records the usage of the communications network resources, and serves as a tool in resolving network problems. It is controlled through the MPE commands `SHOWNMLOG`, `SWITCHNMLOG`, and `RESUMENMLOG`. These commands enable the node manager to determine the number of and available space in the current NM log file (`NMLG`*`nnnn`*`.PUB.SYS`, where *nnnn* is a number from 0000 through 9999), close the current NM log file and open a new one, and activate logging after a recoverable error. The MPE commands are described in Chapter 6 , "MPE Commands," of this manual.

The NM log file can be formatted through the NMDUMP utility. Using NMDUMP for SNA Transport (including an example of the SNA Transport logging format) is described later in this chapter. More-detailed information about NMDUMP is contained in *Using the Node Management Services Utilities*.

The logging subsystem number for SNA Transport is `SUB0001`, and these are the class numbers:

- `CLAS0010`: node events
  - — Node activation
  - — Link activation
  - — Link errors
  - — Internal errors
  - — Node shutdown
- `CLAS0011`: protocol errors
  - — Packet discards/rejects

— Bad port messages

- CLAS0012: LU-LU activities
  - — OpenUser/CloseUser
  - — Session activation/Session deactivation
- CLAS0013: LU-SSCP activities
  - — OpenUser/CloseUser
  - — Session activation/Session deactivation

Link-level Logging

Four types of link-level logging are available: SDLC link logging, X.25 link logging, token ring link logging, and link trace logging.

SDLC Link Logging

SDLC link logging records informational messages and error messages generated by the SDLC link. It is controlled through the MPE commands SHOWNMLOG, SWITCHNMLOG, and RESUMENMLOG. These commands enable the node manager to determine the number of and available space in the current NM log file (NMLG*nnnn*.PUB.SYS, where *nnnn* is a number from 0000 through 9999), close the current NM log file and open a new one, and activate logging after a recoverable error. The MPE commands are described in Chapter 6 , “MPE Commands,” of this manual.

The NM log file can be formatted through the NMDUMP utility. Using NMDUMP for the SDLC link (including an example of the SDLC link logging format) is described later in this chapter. More-detailed information about NMDUMP is contained in *Using the Node Management Services Utilities*.

The logging subsystem number for SDLC link is SUB0027, and these are the class numbers:

- CLAS0010: errors
- CLAS0012: informational messages

X.25 Link Logging

X.25 link logging records logging information generated by the X.25 link. Note that the X.25 link uses the logging facilities of SNA Transport. So, it does not have a separate logging subsystem number. If you are using an X.25 link and you want logging information recorded, logging (console, disk, or both) for SNA Transport (subsystem var|SUB0001|) class CLAS0010 *must* be enabled (see “SNA Transport Logging” earlier in this chapter).

Token Ring Link Logging

Token ring link logging records informational messages and error messages generated by the token ring link. It is controlled through the MPE commands SHOWNMLOG, SWITCHNMLOG, and RESUMENMLOG. These commands enable the node manager to determine the number of and available space in the current NM log file (NMLG*nnnn*.PUB.SYS, where *nnnn* is a number from 0000 through 9999), close the current NM log file and open a new one, and activate logging after a recoverable error. The MPE commands are described in Chapter 6 , "MPE Commands," of this manual.

The NM log file can be formatted through the NMDUMP utility. Using NMDUMP for the token ring link (including an example of the token ring link logging format) is described later in this chapter. More-detailed information about NMDUMP is contained in *Using the Node Management Services Utilities*.

The logging subsystem number for token ring link is SUB0061, and these are the class numbers:

- CLAS0001: errors
- CLAS0002: warnings
- CLAS0003: informational messages

Link Trace Logging

Link trace logging records only errors encountered when starting or stopping SDLC link-level tracing. Link errors are *not* logged in this class and subsystem (see "SDLC Link Logging" and "X.25 Link Logging" above). Many of the messages correspond to NMERR messages, which are documented in *Using the Node Management Services Utilities*. (Note that the error number printed in the logging record is an internal number and does not correspond to the NMERR message number.)

Link trace logging is controlled through the MPE commands SHOWLOG, SWITCHLOG, and RESUMELOG. These commands enable you to determine the name of and available space in the current system log file (LOG*nnnn*.PUB.SYS, where *nnnn* is a number from 0000 through 9999), close the current system log file and open a new one, and activate logging after a recoverable error. The MPE commands are described in the *MPE/iX Commands Reference Kit*.

The system log file can be formatted by your Hewlett-Packard support contact, using the Diagnostic User Interface (DUI).

The logging subsystem number for the link trace is *SUB0018*, and it has only one class number: CLAS0000.

Using NMDUMP for the SNA Links

The NMS utility NMDUMP can be used to format tracing and logging records for the SNA links. Described below are the tracing and logging formats produced for the SNA links by NMDUMP. Note that NMDUMP is described in more detail in *Using the Node Management Services Utilities*. If you are not familiar with NMDUMP, you should read that manual before running NMDUMP.

As stated earlier in this chapter, link trace logging information is written to the system log file, which your Hewlett-Packard support contact formats by using the DUI. So, no description of that file's format is given below.

SNA Transport Output Formats

For SNA Transport, NMDUMP formats tracing records and logging records. When NMDUMP displays the list of subsystems and IDs, and prompts you for the IDs you want to select, specify the ID for SNA Transport: 1. Then, proceed normally with NMDUMP. The format for each type of record is described below.

Tracing Records

Figure 5-1 shows a partial example of the format of a tracing record for SNA Transport.

NOTE All numeric values in the SNA Transport trace are given in hexadecimal.

Figure 5-1 SNA Transport Trace Format Example

```
*************************************************************************
HP | EVENT    :  snasendexpedited call     FEB 29, 1992, 8:27:43.022
HP | LU NAME :  INDLU1                     ROLE: Pri  Session Type:
LU-LU IND
HP | Open ID :  Not Used                   SIDH: nil  SIDL: nil  ODAI:
nil
HP | RESULT  :  Good Complete              RU Length: 0020
HP | TH:                   SNF: 0001       Send ID:     Not Used
HP | RH: REQ    SC
FI.....BCI.ECI.DR1.....................................
HP | RU: BIND   31 00 13 07 b0 b0 50                      | ......&
HP | BUFFER:    31 00 13 07 b0 b0 50 b1 03 00 85 89 80 03 | ......&...ei..
HP | BUFFER:    06 02 00 00 00 00 00 00 00 00 00 00 00 00 | ..............
HP | BUFFER:    00 00 00 00                               | ....

*************************************************************************
                                        .
                                        .
                                        .
*************************************************************************
HP | EVENT    :  snarcv call              FEB 29, 1992, 8:27:43.036
HP | LU NAME :  INDLU1                     ROLE: Pri  Session Type:
LU-LU IND
HP | Open ID :  Not Used                   SIDH: 02   SIDL: 00   ODAI:
01
HP | RESULT  :  Good Complete
*************************************************************************
                                        .
                                        .
                                        .
*************************************************************************
IBM| EVENT    :  receive completion       FEB 29, 1992, 8:27:43.046
IBM| LU NAME :  INDLU1                     ROLE: Pri  Session Type:
LU-LU IND
IBM| Open ID :  Not Used                   SIDH: 02   SIDL: 00   ODAI:
01
IBM| RESULT  :                            RU Length: 0001
IBM| TH: Whole  Expedited  SNF: 0002       Send ID:     Not Used
IBM| RH: +Rsp   SC
FI.....BCI.ECI.DR1.....................................
IBM| RU: UNBIND 32                                      | .
IBM| BUFFER:    2f 00 02 00 00 02 eb 80 00 32           | .........
*************************************************************************
```

Logging Records

Figure 5-2 is a partial example of the format for SNA Transport logging information.

Figure 5-2 SNA Transport Logging Format Example

```
SNA/TRANSPORT Logging SAT, FEB 29,1992,  4:49 PM
    Node PFAPU    ready for activation by host
SNA/TRANSPORT Logging SAT, FEB 29,1992,  4:49 PM
    Open user granted on node PFAPU
   SIDH =     0      ,SIDL =     0     ,ODAI =     0
   LUNAME IS XPORTPU
SNA/TRANSPORT Logging SAT, FEB 29,1992,  4:49 PM
    Open user granted on node PFAPU
   SIDH =     0      ,SIDL =     2     ,ODAI =     0
   LUNAME IS XPORTLU
SNA/TRANSPORT Logging SAT, FEB 29,1992,  4:49 PM
    Open user granted on node PFAPU
   SIDH =     0      ,SIDL =     3     ,ODAI =     0
   LUNAME IS XPORTLU
SNA/TRANSPORT Logging SAT, FEB 29,1992,  4:49 PM
    Open user granted on node PFAPU
   SIDH =     0      ,SIDL =     4     ,ODAI =     0
   LUNAME IS XPORTLU
                     .
                     .
                     .
SNA/TRANSPORT Logging SAT, FEB 29,1992,  4:49 PM
    Session terminated on node PFAPU
   SIDH =     0      ,SIDL =     0     ,ODAI =     0
   HP IS SECONDARY LU
   LUNAME IS XPORTPU
SNA/TRANSPORT Logging SAT, FEB 29,1992,  4:49 PM
   Close user granted on node PFAPU
   SIDH =     0      ,SIDL =     6     ,ODAI =     0
   LUNAME IS XPORTLU
```

SDLC Link Output Formats

For the SDLC link, NMDUMP formats tracing records and logging records. When NMDUMP displays the list of subsystems and IDs, and prompts you for the IDs you want to select, specify the ID for SDLC Link: 27. Then, proceed normally with NMDUMP. The format of the tracing records is shown below.

Tracing Records

Figure 5-3 is a partial example of the format of a tracing record for the SDLC link.

Figure 5-3 SDLC Link Tracing Record Format Example

```
                                                          ref  =
1.1
08:44:38:591        Start of Trace                          diff
= 9999:999
SAT, FEB 29, 1992

   $0000: 00 00 00 02  C0 00 00 00  00 00 00 00  FC 08 00 00   ................
   $0010: 00 1D 7C 9F  F7 6B 64 45  00 00 00 00  00 00 00 00   ..|..kdE........
   $0020: 00 02 02 08  80 00 00 00  00 00 00 00  FC 08 00 00   ................4
   $0030: 57 41 4E 5F  53 44 4C 43  5F 44 52 49  56 45 52 20   WAN_SDLC_DRIVER
   $0040: 20 20 20 20  20 20 20 20  41 30 30 31  30 30 36 33           A002063
   $0050: 00 00 00 00  00 00 00 00  00 00 00 00  00 00 00 00   ................
   $0060: 00 00 00 00  00 00 00 D8  20 20 20 20  20 20 20 20   ........
   $0070: 00 00 00 07  4E 45 57 59  4F 52 4B 33  20 20 20 20   ....NEWYORK3
   $0080: 20 20 20 20  20 20 20 20  20 20 20 20  20 20 20 20
   $0090: 20 20 20 20  FF FF FF C5  00 00 00 00  00 00 00 00       ............
   $00A0  SAME BYTE $00: TO $00C0-1     NOT SHOWN: #32
   $00C0: 00 00 00 00  00 00 00 00  00 00 00 00  02 AE A5 40   ...............@
   $00D0: 00 00 00 00  00 00 00 00  00 00 00 00  00 00 00 00   ................
   $00E0  SAME BYTE $00: TO $013C-1     NOT SHOWN: #92

                                                           ref  =
1.2.6
08:44:41:530        Receive from Remote                     diff
=    0:797
SAT, FEB 29, 1992   SNRM  (P)               Addr=$C1       len  =
2

   $0000: C1 93                                            Al

                                                           ref  =
1.77
08:44:41:530+       Driver Mid-plane State-Change           diff
=    0:000
SAT, FEB 29, 1992

   $0000: 00 00 00 00
```

Logging Records

Figure 5-4 is a partial example of the format for SDLC link logging information.

Figure 5-4 SDLC Link Logging Format Example

```
SAT, Feb 29, 1992, 11:02:16.6 AM                                SDLC
Link (27)
  Linkname        = SDLC24              Event Type     = Kill
Module
  Log Class       = Informational       KM Version     = A004005D

SAT, Feb 29, 1992, 11:03:05.2 AM                                SDLC
Link (27)
  Linkname        = SDLC24              Event Type     = Module
Config
  Log Class       = Informational       Path           = 24
  MC Version      = A004005D

SAT, Feb 29, 1992, 11:03:07.3 AM                                SDLC
Link (27)
  Linkname        = SDLC24              Event Type     = Driver
Startup
  Log Class       = Informational       Driver Version = A004006A
  Driver PDA Ptr  = 0000000A.C2CC02C0
                                        .
                                        .
                                        .
SAT, Feb 29, 1992, 11:31:58.7 AM                                SDLC
Link (27)
  Linkname        = SDLC24              Event Type     = Kill
Module Error
  Log Class       = Error               Path           = 20
  Error Num       = #56                 Status         = CC9000D8

SAT, Feb 29, 1992, 11:33:09.4 AM                                SDLC
Link (27)
  Linkname        = SDLC24              Event Type     = Driver
Error
  Log Class       = Error               Location       = $FF93
  Sublocation     = $0004               Error Code     = #1016
  Status          = $9C9300D9           Cause Status   = $9C9300D8
  Error Actions   = $000F

SAT, Feb 29, 1992, 11:33:44.8 AM                                SDLC
Link (27)
  Linkname        = SDLC24              Event Type     = Module
Config Error
  Log Class       = Error               Path           = 20
  Error Num       = #16                 Status         = $9C9300D8
```

X.25 Link Output Formats

For the X.25 link, NMDUMP formats tracing records. (Logging information is contained within the SNA Transport logging information.) When NMDUMP displays the list of subsystems and IDs, and prompts you for the IDs you want to select, specify the ID for X.25 Link: 38. Then, proceed normally with NMDUMP. The format of the tracing records is shown below.

Tracing Records

Figure 5-5 is a partial example of the format of a tracing record for the X.25 link.

Figure 5-5 X.25 Link Tracing Record Format Example

```
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
HP | EVENT:     Snax25_module_config Call  FEB 29, 1992,  3:47:47.033
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
HP | EVENT:     QLLC Initialization Begins FEB 29, 1992,  3:47:48.040
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
HP | EVENT:     IPCCREATE Call             FEB 29, 1992,  3:47:48.045
HP | RESULT:    GOOD COMPLETE
HP | DESC:      X 0000000A
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
HP | EVENT:     IPCDEST Call               FEB 29, 1992,  3:47:48.053
HP | RESULT:    GOOD COMPLETE
HP | DESC:      X FFFFFFFF
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
HP | EVENT:     IPCCONNECT Call            FEB 29, 1992,  3:47:49.010
HP | RESULT:    GOOD COMPLETE
HP | CALL DESC: X 0000000A
HP | VC DESC:   X 0000000B
HP | DEST DESC: X FFFFFFFF
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
```

Logging Records

As stated earlier in this chapter, X.25 link logging information is contained within the SNA Transport logging information.

Token Ring Link Output Formats

For the Token Ring link, NMDUMP formats tracing records and logging records. When NMDUMP displays the list of subsystems and IDs, and prompts you for the IDs you want to select, specify the ID for Token Ring Link: 61. Then, proceed normally with NMDUMP. The format of the tracing records is shown below.

Tracing Records

Figure 5-6 is a partial example of the format of a tracing record for the Token Ring link.

Figure 5-6 TR Link Tracing Record Format Example

```
13:06:13:082        (+9999.999) Start of Trace                          ref
= 1.1
TUE, SEP 29, 1992

   Trace level     = Partial             Subqueue mask   = $FBFC80000
   Driver status   = $00000000           Load info       = $4
   Firmware partnu = ............        Firmware date   = ....
   Firmware svers  = $00005F80           Driver vers     = A0045054
   Driver name     = HP_LANCON_DVR
   Startup time    = TUE, SEP 29, 1992  13:06:13:082

   $0000: 00 00 00 01  C0 00 00 00  FB FC 80 00  00 51 99 E9   .............Q..
   $0010: EF 87 D3 B0  00 00 00 00  00 00 00 00  00 02 02 00   ................
   $0020: 40 00 00 00  00 20 00 00  00 00 00 04  48 50 5F 4C   @...........HP_L
   $0030: 41 4E 43 4F  4E 5F 44 56  52 20 20 20  20 20 20 20   ANCON_DVR
   $0040: 20 20 20 20  41 30 30 34  35 30 35 34  00 00 00 00       A0045054....
   $0050: 00 00 00 00  00 00 00 00  00 00 00 00  00 00 5F 80   ..............._.
   $0060: 00 00 00 00  00 00 00 D8  00 00 00 00  00 00 00 00   ................
   $0070: SAME BYTE $00: TO $00F0-1     NOT SHOWN: #128
   $00F0: 00 00 00 01  00 00 00 00  00 00 00 00  00 00 00 00   ................
   $0100: 00 00 00 00  00 00 00 00  00 00 00 00  FF FF FF C1   ................
   $0110: 00 00 00 00  10 00 90 90  C8 16 FE EC                ............

13:06:02.793        (+  10.289) Driver received a message       ref  =
1.2.2
TUE, SEP 29, 1992   Do_Bind_Req_Msg                             len  =
72

   $0000: 00 03 FC 18  00 00 AB 58  FF FF FE FC  15 00 00 0B
   $0010: FF FF FE F3  FF FB E0 07  FF FA C0 00  FF F6 00 00
   $0020: 00 00 00 00  00 00 00 04  00 00 00 00  00 00 00 00
   $0030: C0 00 00 00  C0 00 00 00  00 38 C0 A4  00 39 00 11
   $0040: 00 50 93 04  0D 00 00 00
```

Logging Records

Figure 5-7 is a partial example of the format for token ring link logging information

Figure 5-7 Token Ring Link Logging Format Example

```
NOV 11, 1992,  3:51:34.6 PM                    IEEE
802.5 Token Ring LAN
   Linkname       = T2REG2              Event type     = Module config
call
   Log Class      = Informational       Path           = 48
   MC Version     = A0045019

Subsystem opened link T2REG2   (LANINFO 1)

NOV 11, 1992   4:06:04.9 PM                    IEEE 802.5 Token Ring
LAN
   Linkname       = T2REG2              Event type     = Driver error
   Log Class      = Warning             Location       = $00000044
   Sublocation    = $0000001E           Status         = $011602E4
   Actions        = $00000008           Cause          = $E8000840

Token Ring adapter detected lobe cable fault on T2REG2   (LANWARN
2105)

Cause:  An open or short circuit was detected in the lobe cable.

Action: Verify that this station is properly attached to the
        network.  Check network components (adapters, cables, MSAUs,
        etc.).  Have your network provider examine the network.

NOV 11, 1992   4:06:34.8 PM                    IEEE 802.5 Token Ring
LAN
   Linkname       = T2REG2              Event type     = Driver error
   Log Class      = Warning             Location       = $00000044
   Sublocation    = $0000001E           Status         = $011502E4
   Actions        = $00000008           Cause          = $011502E4

Token Ring adapter detected signal loss on T2REG2   (LANWARN 2101)

Cause:  The station has detected a loss of signal on the ring.

Action: Verify that this station is properly attached to the network. Check
network components (adapters, cables, MSAUs, etc.).  Have your network
provider examine the network.
```

Using NMMAINT for the SNA Links

The NMMAINT utility displays the version numbers of the HP data communications software installed on your system. NMMAINT is described in more detail in *Using the Node Management Services Utilities*. If you are not familiar with NMMAINT, you should read that manual before you run NMMAINT.

SNA/Transport Information

The example below shows the SNA/Transport-related information displayed when you run NMMAINT. Note that the modules and version numbers shown below are not necessarily current for SNA/Transport; they are shown only as an example.

```
SNA TRANSPORT 32098-20023 module versions:

NL procedure: SNACMD_VERS        Version:  B0000012
NL procedure: SNAINTR_VERS       Version:  B0000009
NL procedure: SNATC_VERS         Version:  B0000009
NL procedure: SNAPC_VERS         Version:  B0000007
NL procedure: SNACBACCS_VERS     Version:  B0000005
NL procedure: SNAUTIL_VERS       Version:  B0000010
SL procedure: SNACMSTUB_VERS     Version:  B0000002
NL procedure: SNANMSTUB_VERS     Version:  B0000005
NL procedure: SNANMFMT_VERS      Version:  B0000006
SL procedure: SNACMFMT_VERS      Version:  B0000001
NM program file: SNASSV.PUB.SYS  Version:  B0000005
NM program file: SNACSC.PUB.SYS  Version:  B0000022
NM program file: SNAOPALT.PUB.SYSVersion:  B0000003

SNA TRANSPORT 32098-20023 overall version = B.00.00

                              .
                              .
                              .
```

SNA/SDLC Link Information

The example below shows the SNA/SDLC Link-related information displayed when you run NMMAINT. Note that the modules and version numbers shown below are not necessarily current for SNA/SDLC Link; they are shown only as an example.

```
MPE/XL WAN SDLC DRIVER SUBSYSTEM 32098-20024 module versions:

NL procedure:    WANSDLCVERS                Version:  A0021065
NL procedure:    WANMCVERS                  Version:  A0021058
NL procedure:    WANDIAGVERS                Version:  A0021035
NL procedure:    WANDMPSURRVERS             Version:  A0021030
XL procedure:    SUBSYS27FMTVERS            Version:  A002100D
XL procedure:    SDLCLINKCONTROLVERS        Version:  A0021000
Download:        PSISDLC0.PUB.SYS           Version:  A002100A
Download:        PSISDLC1.PUB.SYS           Version:  A002100A

MPE/XL WAN SDLC DRIVER SUBSYSTEM 32098-20024 overall version = A.00.21
```

The SNA Transport (but not the SDLC driver) version numbers can also be displayed by using the SNACONTROL VERSION MPE command (see Chapter 6 , “MPE Commands,” of this manual).

SNA/X.25 Link Information

The example below shows the SNA/X.25 Link-related information displayed when you run NMMAINT. Note that the module and version numbers shown below are not necessarily current for SNA/X.25 Link; they are shown only as an example.

```
SNA X.25 /XL  32098 - 20060 module versions:

NL procedure:    SNAX25NMFMT_VERSVersion:  A0000004
NL procedure:    SNAX25_MC_VERS  Version:  A0000030
NM program file: SNAX25.PUB.SYS  Version:  A0000061

SNA X.25 /XL  32098 - 20060 overall version: A.00.00
```

The SNA/X.25 Link version numbers can also be displayed by using the SNACONTROL VERSION command (see Chapter 6 , “MPE Commands,” in this manual).

SNA/Token Ring Link Information

The example below shows the SNA/Token Ring Link-related information displayed when you run NMMAINT. Note that the modules and version numbers shown below are not necessarily current for SNA/Token Ring Link; they are shown only as an example.

```
HP Token Ring LAN Driver        32098-20060   module versions:

NL procedure:    LAN_8025_DRIVER_VER         Version:  A0045054
NL procedure:    LAN_8025_WRITE_VER          Version:  A0045010
NL procedure:    LAN_MC_VER                  Version:  A0045019
XL procedure:    SUBSYS_61_FMT_VER           Version:  A004505D
NL procedure:    LAN_LINKCONTROL_VER         Version:  A004505A

HP Token Ring LAN Driver        32098-20087  overall version = A.00.45
```

The SNA/Token Ring Link version numbers can also be displayed by using the SNACONTROL VERSION command (see Chapter 6 , “MPE Commands,” in this manual).

Problem Resolution

Problems that can occur while installing, configuring, and running an SNA link — and how to deal with them — are described here. Guidelines for submitting a service request (SR) are also given.

Common Problems

Some problems are common to many situations — invalid software installation, version incompatibilities, insufficient MPE resources, corrupt configuration files, and file system errors. In most cases, you can resolve these problems yourself; the resolutions to these problems are described here. However, in some cases you should submit an SR. To enable Hewlett-Packard to solve your problem in an efficient manner, you should follow certain guidelines when submitting an SR; these guidelines are listed later in this chapter.

Invalid Software Installation

A software installation might be invalid. Run NMMAINT to get a listing of all software modules and their version IDs. Check that all required modules are present, and that the first five characters of the version IDs (the *v.uu.ff* fields) of these modules are the same within each subsystem. Finally, check the version IDs with the *SYSTEM STATUS BULLETIN* or other HP source to be sure the versions of software you have are supported by the version of MPE you have. If a problem is found with any of these checks, you have an incorrect software version installed. Locate a known valid version of the suspect software (perhaps from one of your system backup tapes) and install it.

Version Incompatibilities

Version incompatibilities between NMS software and other subsystem software are possible. Run NMMAINT to get a listing of version IDs for NMS and for all of the NMS-dependent subsystems. Locate the overall version IDs for NMS and for each subsystem. Compare the first five characters of these version IDs (the *v.uu.ff* fields) with those listed as compatible with each other in the *SYSTEM STATUS BULLETIN* or other HP source. If a discrepancy is found, locate a known set of compatible software (perhaps from one of your system backup tapes) and install it.

Insufficient MPE Resources

The system might have insufficient MPE resources such as configured table sizes. Use *HP Glance/XL* (HP 50734A) to check MPE table utilization. Reconfigure MPE to fix any problems found and restart the system.

Corrupt Configuration File

The configuration file might be corrupt. Validate the configuration file to check for possible corruption. If the error persists, use NMMGR to manually check the configuration file (if possible). If bad records seem to be localized to a particular item, delete that item and reconfigure it. If necessary, RESTORE a backup copy of the file.

File System Errors

A file system error might have occurred while trying to access the configuration file. Try to access the configuration file, under the same userid, using NMMGR. Use the NMMGR error screen to find out what the underlying FSERR is. Correct the problem and retry.

Configuration Problems

Configuration problems can occur on both the HP 3000 and the host.

HP 3000 Configuration Problems

Listed below are some configuration problems that can occur on the HP 3000.

- PSI problems.

  When you run the PUs concurrently, each PSI requires a unique PU and each PU requires a unique PSI.

  Also, if you are using an SDLC link, ensure that you correctly configured the Physical Path field of the "SNA Node Configuration: SDLC Link Data" screen (see Chapter 2 , "SNA Node and Link Configuration," of this manual).

- Configuration file misnamed.

  Remember, when configuring a node, the configuration file can be named anything you prefer. However, when you start the SNA link, it looks for a configuration file named NMCONFIG.PUB.SYS.

Host Configuration Problems

Listed below are some configuration problems that can occur on the host.

- Incorrect device specified.

  Too many or the wrong type of device might have been configured for a particular line.

- Incorrect macro definition.

  Macro operands might have been incorrectly placed within the hierarchical structure. Although the operands for lower-level macros

can be defined in a higher-level macro, this structure must be followed: GROUP, LINE, SERVICE, PU, and LU.

A macro could be missing a required operand or an invalid operand might have been specified for a particular macro.

Installation Problems

Some common problems that might occur during installation, or as a result of improper or unsuccessful installation, are described below.

1. Inactive VTAM node.

   This is probably the most common problem that occurs on the host. Ensure that the proper activation commands have been issued. Setting the ISTATUS operand of the LU macro to ACTIVE will help, especially if it is moved up to either the GROUP or LINE macro. (The ACTIVE setting *sifts down* to all lower-level macros.) This problem most frequently occurs in a switched line configuration when the major node containing the VBUILD macro was never activated. In this case, an inactive macro causes the host to fail to find a match for the remote's Exchange Station Identification (XID) number. The only way you will be aware that this XID problem has happened is a message at the host operator's console. To avoid these problems remember this rule: When in doubt, *activate*.

2. Switched lines.

   Be sure the VBUILD macros are in a separate member in the VTAM parameter library (SYS1.VTAMLST).

3. Hardware problems.

   Ensure that all hardware is installed properly. Many problems are related to such things as incompatible modems, bad phone lines and cables, etc.

   Ensure that the host is up, the line is active (being polled), and the host telecommunications subsystem (for example, VTAM) is active. You might need to use a line monitor, such as an HP 4953, to check whether the line is being polled and to determine the addresses being polled. You also can use one of the other HP 495x Protocol Analyzers in addition to the standard HP 4953.

Submitting an SR

Listed below are some guidelines for submitting a service request (SR). Some of the guidelines refer to Node Management Services (NMS) programs (NMDUMP, NMMAINT, and NMMGR). Using NMDUMP and NMMAINT for an SNA link is explained earlier in this chapter. Using NMMGR for an SNA link is explained in Chapter 2 , "SNA Node and Link Configuration," of this manual. For more NMS information, see *Using the Node Management Services Utilities*.

Common Information

For any SR, include this common information, where applicable:

- A characterization of the problem. Describe the events leading up to and including the problem. Try to describe the source of the problem. Describe the symptoms of the problem.

  Your characterization should include MPE commands, communication subsystem commands, job streams, result codes and messages, and data that can reproduce the problem.

  List the context and environment in which the message occurred. Prepare copies of the HP 3000 system console information.

  Give a brief history of your site, including when the SNA link product was installed, the circumstances that usually produce problems, other data communications products installed, and any other products you were using when the problem arose.

- Obtain the version, update, and fix information for all software by running NMMAINT. This allows Hewlett-Packard to determine whether the problem is already known and if the correct software is installed at your site.

- Record all result messages and numbers that appear at the user terminal and the system console.

- Run NMDUMP to format the NM log file (`NMLG`*`nnnn`*`.PUB.SYS`) that was active when the problem occurred. You might need to issue the MPE command `SWITCHNMLOG` to free the NM log file (see chapter 6 of this manual). Inspect the formatted output and try to locate errors. Prepare the formatted output and a copy of the log file for your Hewlett-Packard support contact to analyze.

- Prepare a listing of the configuration file and the MPE configuration you are using for your Hewlett-Packard support contact to analyze. Inspect the output and try to locate errors.

- Try to determine the general area, within the software, where you think the problem exists. If you think the problem is caused by an SNA service, refer to the service's *Node Manager's Guide* and follow the guidelines there for gathering information for problems.

- Document your interim, or "workaround," solution. The cause of the problem can sometimes be found by comparing the circumstances in which it occurs with the circumstances in which it does not occur.

- *If a system failure occurs, a full memory dump must be taken.*

- Save copies of all active or in-use trace files for analysis by your Hewlett-Packard support contact.

- Save copies of all active or in-use log files for analysis by your Hewlett-Packard support contact.

- Always obtain a copy of the generation of the host system you are using for ACF/VTAM and ACF/NCP. For the host system to be compatible with the SNA link, Hewlett-Packard sets certain operands and parameters to required values (see Chapter 2 , "SNA Node and Link Configuration," of this manual). Note any differences between the actual system generation and your expectations. Keep this information for your Hewlett-Packard support contact. *This is very important.*
- Give a copy of NMCONFIG.PUB.SYS to your Hewlett-Packard support contact.

SNA Transport Information

For problems that involve SNA Transport, include the following additional information where applicable:

- *Always* issue the MPE command

SNACONTROL STATUS;NODE=*NodeName*

  to identify the state of the PU and the LUs in the problem node. Inspect the output to try to locate an identification of the problem. Keep a copy of the output from this command for your Hewlett-Packard support contact.

The SNACONTROL commands are described in Chapter 6 , "MPE Commands," of this manual.

SDLC Communications Link Information

For problems that involve the SDLC communications link, include this additional information where applicable:

- If a fatal SDLC link error has occurred, a message in this format is displayed on the operator's console:

```
Linkname       = LinkName       Event Type     = EventType
Log Class      = LogClass       Location       = Location
Sublocation    = Sublocation    Error Code     = ErrorCode
State          = State          Cause Status   = CauseStatus
Error Actions  = ErrorActions
```

- Be sure to include this error message in the SR *exactly as it appears on the operator's console.*
- If a PSI failure has taken place, give the PSI dump file NETDMP*nn*.PUB.SYS (where *nn* is a number from 00 through 99) to your Hewlett-Packard support contact for analysis.

  If the problem is easily reproducible, and link-level tracing was inactive when the problem took place, turn on link-level tracing with the MPE command SNACONTROL START or SNACONTROL TRACEON (see Chapter 6 , "MPE Commands," of this manual). When the problem has been reproduced, turn off the tracing and give the PSI dump file

and this trace file to your Hewlett-Packard support contact for analysis.

NOTE It is important to give a copy of the PSI dump that took place while link-level tracing was enabled to your Hewlett-Packard support contact for analysis.

- If a PSI failure has not taken place, turn on link-level tracing with the MPE command SNACONTROL START or SNACONTROL TRACEON (see Chapter 6 , "MPE Commands," of this manual). This allows your Hewlett-Packard support contact to study the line activity.
- If link trace logging is enabled, use the SWITCHLOG command to close the current system log file (LOG*nnnn*.PUB.SYS, where *nnnn* is a number from 0000 through 9999) and open a new one. Then, give a copy of the system log file you just closed to your Hewlett-Packard support contact to analyze.
- If link trace logging is not enabled, enable it through NMMGR so that the information will be available if the problem can be reproduced.

X.25 Communications Link Information

For problems that involve the X.25 communications link, include this additional information where applicable:

- If a fatal X.25 link error has occurred, messages in these formats might be logged:

```
Link connect failure on node NodeName
Subsystem=SubsysID, Error Code=ErrorCode

Link failure, shutting down the node NodeName
subsystem=SubsysID, procedure=ProcNum, error num=ErrorNum
SOCKERR nnn

Link failure, shutting down the node NodeName
subsystem=SubsysID, procedure=ProcNum, error num=ErrorNum
```

  Be sure to include these error messages in the SR *exactly as they appear on the operator's console*.

6 MPE Commands

This chapter describes, in alphabetical order, the MPE commands related to SNA Transport. You must have MPE node manager (NM) capability to use these commands. Table 6-1 summarizes the functions of the commands.

Table 6-1 MPE Command Summary

Command	Function
RESUMENMLOG	Resumes NM logging after a recoverable error.
SHOWNMLOG	Displays the identification number and available space of the NM log file.
SNACONTROL AUTODIAL	Causes an SNA node's auto-dial modem to dial.
SNACONTROL START	Starts an SNA node, link-level tracing, and SNA Transport node tracing.
SNACONTROL STATUS	Displays the status of a specific SNA node.
SNACONTROL STOP	Stops an SNA node and all activity on the node.
SNACONTROL STOPSESS	Stops an LU-LU session without stopping the SNA node.
SNACONTROL TRACEOFF	Turns off link-level tracing, SNA Transport intrinsic tracing, and SNA Transport node tracing.
SNACONTROL TRACEON	Turns on link-level tracing, SNA Transport intrinsic tracing, and SNA Transport node tracing.
SNACONTROL VERSION	Identifies the software version of SNA Transport, SNA/X.25 Link, and SNA/Token Ring Link.
SWITCHNMLOG	Closes the current NM log file and creates and opens a new one.

RESUMENMLOG

Resumes NM logging after a recoverable error.

Syntax

```
RESUMENMLOG
```

Use

RESUMENMLOG can be issued from a session, a job, a program, or in break. Pressing **[BREAK]** has no effect on this command.

Description

RESUMENMLOG resumes logging to the NM log file (NMLG*nnnn*.PUB.SYS) after it was suspended because of a recoverable I/O error, once the error has been corrected.

For example, assume that the system is on line, NM logging is enabled, and a recoverable error occurs. The error is corrected and the RESUMENMLOG command is issued. This message is then displayed on the system console:

```
NMLG FILE NUMBER nnnn. NM LOGGING RESUMED
NMLG FILE NUMBER nnnn ON
```

See Chapter 5 , “SNA Link Troubleshooting,” for more information about logging.

SHOWNMLOG

Displays the identification number and available space of the NM log file.

Syntax

SHOWNMLOG

Use

SHOWNNMLOG can be issued from a session, a job, a program, or in break. Pressing **[BREAK]** has no effect on this command.

Description

SHOWNMLOG displays the number of the current NM log file (NMLG*nnnn*.PUB.SYS) and the percentage of available file space currently used. The information is displayed in this format:

NMLG FILE NUMBER *nnnn* IS *mm*% FULL

where *nnnn* is the NM log file number and *mm* is the percentage of file space used.

If an irrecoverable error has disabled NM logging, this message is displayed instead of the command's normal display:

```
NMLG FILE NUMBER nnnn ERROR #nn.
NM LOGGING STOPPED. (NMCNERR 36)
```

You will have to do a warm or cool start to bring the system back up.

If NM logging is enabled but currently suspended because of a recoverable error, an explanatory message is displayed after the command's normal display:

```
NMLG FILE NUMBER nnnn IS mm% FULL
NMLG FILE NUMBER nnnn ERROR #mm. NM LOGGING SUSPENDED.
(NMCN ERR 38)
```

Once the error is corrected, you can issue the RESUMENMLOG command (described earlier in this chapter).

SNACONTROL AUTODIAL

Causes an SNA node's auto-dial modem to dial.

Syntax

SNACONTROL AUTODIAL;NODE=*NodeName*

Use

SNACONTROL AUTODIAL can be issued from a session, a job, a program, or in break. Pressing **[BREAK]** has no effect on this command.

Parameter

NodeName **Conditionally required**. The name of the active SNA node you want to cause to automatically dial. The name can be up to eight alphanumeric characters long; the first character must be alphabetic.

If only one SNA node is active, this parameter is optional: If you do not include it, the active node is caused to automatically dial. If *more* than one node is active, this parameter is required: If you do not include it, a list of all configured nodes is displayed, but no node will automatically dial; you can then reissue this command with the appropriate node name.

Description

SNACONTROL AUTODIAL causes the auto-dial modem configured for an SNA node to dial.

To use this command, these conditions must exist:

- The SNA node must be configured to use an SDLC link: SDLC must be specified in the Link Type field of the "SNA Node Configuration: PU Data" screen (see Chapter 2 , "SNA Node and Link Configuration.")
- The SDLC link must be configured to use an auto-dial modem but to defer dialing until this command (SNACONTROL AUTODIAL) is issued: N must be specified in the Auto Dial field of the "SNA Node Configuration: SDLC Link Data" screen, and a number must be specified in the Phone Number field of the same screen (see Chapter 2 , "SNA Node and Link Configuration.")

Note that this command can be issued *only after* the SNA node has been started.

Example

```
SNACONTROL AUTODIAL;NODE=IBMNODE
```

The auto-dial modem configured for node IBMNODE is caused to dial.

SNACONTROL START

Starts an SNA node, link-level tracing, and SNA Transport node tracing.

Syntax

```
SNACONTROL START;NODE=NodeName
            [;LINKTRACE[=[TraceType][,TraceFile]]]
            [;NODETRACE[=TraceFile]]
            [;ERROPT=ErrorOption]
            [;TFILESIZE=NumRecords]
```

Use

SNACONTROL START can be issued from a session, a job, a program, or in break. Pressing **[BREAK]** has no effect on this command.

Parameters

NodeName **Conditionally required**. The name of the configured SNA node you want to start. The name can be up to eight alphanumeric characters long; the first character must be alphabetic.

If only one SNA node is configured, this parameter is optional: If you do not include it, the configured node is started. If *more* than one node is configured, this parameter is required: If you do not include it, a list of all configured nodes is displayed, but no node is started; you can then reissue this command with the appropriate node name.

TraceType The kind of link-level tracing to be started:

- FULL = Full line tracing: All of the bytes of each link frame are traced.
- PARTIAL = Partial line tracing: Only the first 16 bytes of each link frame are traced.

Default: PARTIAL

TraceFile The name of the disk file that is to contain the trace data. This must be a valid MPE file name or fully qualified MPE file reference. Note that standard MPE file naming conventions apply, with one exception: When link-level tracing is started with this command (SNACONTROL START), its file *must* be written to the SYS account. If you specify an account other than SYS, an

error will occur. If you do not specify an account for a link-level trace file, the file will automatically be written to the SYS account.

If you specify a file that does not exist, NMS builds a new one and opens it to record tracing. If you specify an existing file that NMS does not currently have open to record tracing, NMS will overwrite the file's previous contents; *no warning is issued*. If you specify an existing file that NMS already has open to record tracing (even if it is recording events from a different subsystem), NMS will record trace events for this subsystem to the file in addition to the events that it is currently recording. This allows you to record tracing events from several subsystems to a single file.

Default: NMTC*nnnn*.PUB.SYS, where *nnnn* is a number from 0000 through 9999 and is incremented each time a new file is created.

ErrorOption The action to be taken if SNA Transport detects an irrecoverable internal error:

- SUB = Terminate SNA Transport. HP 3000 system processing continues.
- SYS = System failure. HP 3000 system processing stops. This allows you to dump the system when an irrecoverable internal error has occurred.

NOTE Use the SYS option only when requested by your Hewlett-Packard support contact.

Default: SUB

NumRecords The file size, in units of 128-word records, for link-level tracing.

Range: 1–32767 (integer)

Default: 1024

Description

SNACONTROL START starts an SNA node. You also can start link-level tracing (with the *LINKTRACE* parameter), and SNA Transport node tracing (with the *NODETRACE* parameter) with this command. Note that SNA Transport *intrinsic tracing* is started with SNACONTROL TRACEON. Tracing is described in Chapter 5 , "SNA Link Troubleshooting," of this manual. You must start the SNA node before starting any SNA services that use the node.

If you are using a manual-dial modem, you can begin to dial after this logging message is displayed on the console:

`Node NodeName ready for activation by host`

Note that if you are using a manual-dial modem, console logging for SNA Transport logging class `CLAS0013` *must* be enabled (see Chapter 3 , “Logging Configuration,”) so that the above message can be displayed.

Also, note that once a node is active, reissuing this command for that node causes an error. For example, if node IBMNODE is already active, and you try to start node tracing for that node by typing

```
SNACONTROL START;NODE=IBMNODE;NODETRACE
```

you will get an error message.

Examples

```
SNACONTROL START;NODE=IBMNODE;LINKTRACE;ERROPT=SUB
```

The node IBMNODE is to be started. Also, partial (the default) link-level tracing is to be started, and the trace data is to be written to the default trace file (as explained earlier, it will automatically be written to the SYS account). If SNA Transport finds an irrecoverable internal error, SNA Transport is to be terminated, but HP 3000 processing is to continue. (Note that if the *ERROPT* parameter was not specified, the same action would be taken for an irrecoverable internal error, because `ERROPT=SUB` is the default.)

```
SNACONTROL START;LINKTRACE=FULL,TF01;NODETRACE
```

The *only* configured node is to be started. Also, full link-level tracing (written to the file TF01 in the SYS account [as explained earlier]), and node tracing (written to the default file) are to be started. Note that if more than one node was configured, this command would *not* be valid: A list of configured nodes would be displayed, and the command would have to be reissued with the proper `NODE=`*NodeName* parameter included.

```
SNACONTROL START;LINKTRACE=,TF01
```

The *only* configured node is to be started. Also, partial (the default) link-level tracing is to be started, and the trace data is to be written to the file TF01 in the SYS account (as explained earlier). Note that if more than one node was configured, this command would *not* be valid: A list of configured nodes would be displayed, and the command would have to be reissued with the proper `NODE=`*NodeName* parameter included.

```
SNACONTROL START;LINKTRACE=;NODETRACE
```

This command is *not* valid because the equal sign is specified with the *LINKTRACE* parameter, but no values are specified after it (the equal sign should be included only if one or both of the values after it are specified); an error would occur.

SNACONTROL STATUS

Displays the status of a specific SNA node.

Syntax

```
SNACONTROL STATUS;NODE=NodeName
                [;LUNAME[=LUName]]
                [;NAU][NAUNumber]]
                [;LFSID[=odai,sid]]
                [;STATUS=ALL     ]
                [        ACTIVE  ]
                [        INACTIVE]
                [        PENDING ]
                [        RESET   ]
                [;SESSTYPE=ALL   ]
                [          SSCP  ]
                [          LU    ]
                [          LU_DEP]
                [          LU_IND]
                [;NCB]
                [;HSCB]
                [;ROUTE]
                [;LURECORD]
                [;LINK[=A[LL]            ]]
                [     [=L[INK[STATE]]    ]]
                [     [=C[ONF[IGURATION]]]]
                [     [=S[TAT[ISTICS]]   ]]
                [     [=D[IAG[STATS]]    ]]
                [     [=R[ESET]          ]]
```

Use

SNACONTROL STATUS can be issued from a session, a job, a program, or in break. Pressing **[BREAK]** has no effect on this command.

Parameters

NodeName **Conditionally required**. The name of the configured SNA node whose status you want displayed. The name can be up to eight alphanumeric characters long; the first character must be alphabetic.

If only one SNA node is active, this parameter is optional: If you do not include it, the active node's status is displayed. If *more* than one node is active, this parameter is required: If you do not include it, a list of all configured SNA nodes is displayed, but no status is displayed; you can then reissue this command with the appropriate node name.

LUName The name of the LU whose session status you want displayed. The name can be up to eight alphanumeric characters long. The first character must be alphabetic. If this parameter is specified, neither the *NAU* nor *LFSID* parameters can be specified. Specifying this parameter without an LU name causes the sessions to be displayed in alphabetical order.

NAU The NAU number of the dependent session whose status you want to display. The NAU number must be a decimal number between 0 and 255. If this parameter is specified, neither the *LUNAME* nor *LFSID* parameters can be specified. Specifying this parameter without an NAU number causes the sessions to be displayed in numerical order.

LFSID The LFSID number of the independent session whose status you want to display. The LFSID must consist of the ODAI followed by the SID, with a comma as a separator. The ODAI must be either 0 or 1. The SID must be a hex number between $0000 and $FFFE. If this parameter is specified, neither the *LUNAME* nor *NAU* parameters can be specified. Specifying this parameter without an LFSID number causes the sessions to be displayed in numerical order.

STATUS Specifies the status of the sessions that are to be displayed. Possible values for this parameter are ALL (all sessions), ACTIVE (only active sessions), INACTIVE (only inactive sessions), PENDING (only sessions that are pending activation or pending reset), and RESET (only reset sessions).

SESSTYPE Specifies the session type of the sessions that are to be displayed. Possible values for this parameter are ALL (all sessions), SSCP (only PU-SSCP and LU-SSCP sessions), LU (only LU-LU dependent and LU-LU independent sessions), LU_DEP (only LU-LU dependent sessions), and LU_IND (only LU-LU dependent sessions).

NCB Specifies that the node's Node Control Block (NCB) is to be displayed. This parameter is for Hewlett-Packard debugging purposes, and should be used only under HP recommendation.

HSCB Specifies that the session's Half Session Control Block (HSCB) is to be displayed.

This parameter is for Hewlett-Packard debugging purposes, and should be used only under HP recommendation.

ROUTE Specifies that the session's Routing Table entry (packets received) is to be displayed.

This parameter is for Hewlett-Packard debugging purposes, and should be used only under HP recommendation.

LURECORD Specifies that the session's LU record is to be displayed.

This parameter is for Hewlett-Packard debugging purposes, and should be used only under HP recommendation.

LINK This is the same as specifying the ALL link status parameter (described below).

ALL All of the status information for the link is displayed:

- Link state status (see the *LINKSTATE* parameter description)
- Link configuration data (see the *CONFIGURATION* parameter description)
- Link statistics (see the *STATISTICS* parameter description)

Note that if no other link status parameter (*LINKSTATE*, *CONFIGURATION*, *STATISTICS*, *DIAGSTATS*, and *RESET*) is specified, this parameter (*ALL*) is the default.

LINKSTATE State status information for the link is displayed:

SDLC:

- Link name
- Link type
- Link state

X.25:

- Link name
- Link type
- Link state
- Tracing status
- Trace file name

Token Ring:

- Link name
- Link type
- Link state

This information is explained in more detail after the examples later in this command description.

CONFIGURATION Configuration data for the link is displayed:

SDLC:

- Link name
- Link type
- Link state
- Physical path
- Phone number
- Auto dial status
- Station ID
- XID
- Receive timeout
- Error retries
- Cable type
- Buffer size
- Connect timeout
- Local timeout
- Transmission speed

X.25:

- Link name
- Link type
- Link state
- Tracing status
- Trace file name
- Network interface (NI) name
- Inactivity timeout
- Virtual circuit (VC) type
- For a permanent virtual circuit (PVC):
  - — PVC number
- For a switched virtual circuit (SVC):
  - — Remote address

— Call direction

— Maximum call retries

— Call retry delay

— Call retry count

Token Ring:

- Link name
- Link type
- Link state
- Physical path
- Data rate
- Current station address
- Default station address
- Functional address mask

This information is explained in more detail after the examples later in this command description.

STATISTICS Statistics for the link, for both inbound (sent) and outbound (received) paths of the link, are displayed:

SDLC:

- Link name
- Link type
- Link state
- Connect duration
- Data bytes sent
- Overhead bytes sent
- Total frames sent
- Data frames sent
- Bytes retransmitted
- Frames retransmitted
- DSR losses
- CTS losses unexpected
- DCD carrier losses
- Tracing status
- Data bytes received

- Overhead bytes received
- Total frames received
- Data frames received
- Oversized frames received
- Aborted frames received
- Receive overruns
- CRC errors
- Statistics resets

X.25:

- Link name
- Link type
- Link state
- Tracing status
- Trace file name
- Total bytes sent and received
- Data bytes sent and received
- Control bytes sent and received
- Total packets sent and received
- Data packets sent and received
- Control packets sent and received

Token Ring:

- Link name
- Link type
- Link state
- Physical path
- Data rate
- Number of frames sent and received without errors
- Number of bytes sent and received without errors
- Number of frames not successfully transmitted
- Number of frames received with errors

This information is explained in more detail after the examples later in this command description.

DIAGSTATS All of the status information for the link is displayed:

- Link state status (see the *LINKSTATE* parameter description)
- Link configuration data (see the *CONFIGURATION* parameter description)
- Link statistics (see the *STATISTICS* parameter description)
- Link diagnostics

This parameter is for Hewlett-Packard debugging purposes, and should be used only under HP recommendation.

RESET Link statistics are gathered from the time the link is started. This parameter resets those statistics to 0. To gather link statistics for a specific time period, issue this command (SNACONTROL STATUS) with this parameter (*RESET*) specified, to reset the statistics to 0. Once the statistics have been gathered for the desired time period, issue this command again, with the *ALL* or *STATISTICS* parameter specified.

Description

You can use SNACONTROL STATUS to display the status of sessions on a specific SNA node. The status of a session can be displayed only when a Half Session Control Block (HSCB) has been created for that session by SNA Transport. An HSCB is created when an SNA service initiates a session with SNA Transport, or if tracing is turned on for a session. The status of a session is not displayed if an LU has only been configured.

SDLC Link-Level Status Information

An example of an SDLC link-level status display is given below, and the terminology used is described after the example. Note that when link-level status information is displayed, the corresponding session-level status information is also displayed. (Since the session-level status terminology is described later under “Session-Level Status Information,” it is not described here.)

Example If an SDLC link is being used, typing

```
SNACONTROL STATUS;NODE=IBMNODE;LINK=ALL
```

where IBMNODE is already active could generate this display:

```
Linkname: IBMNODE     Linktype: SNA/SDLC    Linkstate:
CONNECTING LEVEL 1
Physical Path                 40
Phone Number
Auto Dial                      0         Cable Type             None
Station ID                    C1         Buffer Size              265   bytes
XID                 XID6789012           Connect Timeout          900   sec
Receive Timeout            180 sec       Local Timeout             30   sec
Error Retries                7           Transmission Speed     9600    bps

Connect Duration          135:09:19  Tracing                          OFF
Data Bytes Sent                   0  Data Bytes Rcvd                    0
Overhead Bytes Sent               0  Overhead Bytes Rcvd                0
Total Frames Sent                 0  Total Frames Rcvd                  0
Data Frames Sent                  0  Data Frames Rcvd                   0
Bytes Retransmitted               0  Oversized Frames Rcvd              0
Frames Retransmitted              0  Aborted Frames Rcvd                0
DSR Losses                        0  Receive Overruns                   0
CTS Losses Unexpected             0  CRC Errors                         0
DCD Carrier Losses                0  Statistics Resets                  0


NAME     TYPE    NAU    STATE      USER            TRACE FILE
======== ======= ====== ========== =============== ========================
XPORTPU  PU_SSCP   0    ACTIVE     MANAGER.SYS     OFF
XPORTLU  LU_SSCP   1    ACTIVE     MANAGER.SYS     OFF
XPORTLU  LU_SSCP   2    ACTIVE     MANAGER.SYS     OFF
XPORTLU  LU_SSCP   3    ACTIVE     MANAGER.SYS     OFF
XPORTLU  LU_SSCP   4    ACTIVE     MANAGER.SYS     OFF
XPORTLU  LU_SSCP   5    ACTIVE     MANAGER.SYS     OFF
XPORTLU  LU_SSCP   6    RESET      MANAGER.SYS     OFF
PFA2     DEP_LU    2    PEND_ACT_R PITEST.PUT21R40 NMTC0090.PUB.SYS
PFA3     DEP_LU    3    ACTIVE     PITEST.PU2140   OFF
PFA4     DEP_LU    4    PEND_RST_R PITEST.PU2140   OFF
PFA5     DEP_LU    5    PEND_SON   PITEST.PU2140   OFF
PFACLASS DEP_LU    1    RESET      PITEST.PU2140   OFF

NAME     TYPE    LFSID  STATE      USER            TRACE FILE
======== ======= ====== ========== =============== ========================
INDLU1   IND_LU  1,0200 PEND_ACT_L PITEST.PUT21R40 OFF
INDLU2   IND_LU  1,0201 PEND_RST_L PITEST.PUT21R40 OFF
INDLU3   IND_LU  1,0202 PEND_RST_N PITEST.PUT21R40 OFF
INDLU4   IND_LU   RESET      PITEST.PUT21R40 OFF
```

Terminology

The linkname is the same as the node name.

The linktype is “SNA/SDLC”.

The linkstate is one of the following:

- NOT CONNECTED = The connection is closed.
- CONNECTED LEVEL 1 = A level 1 connection has been established.

- CONNECTED LEVEL 2 = A level 2 connection has been established.
- CONNECTING LEVEL 1 = A level 1 connection is in progress.
- CONNECTING LEVEL 2 = A level 2 connection is in progress.
- DISCONNECTING LVL 1 = A level 1 disconnection is in progress.
- DISCONNECTING LVL 2 = A level 2 disconnection is in progress.
- ERROR = The SDLC link driver has detected a link error.

The physical path is the address of the PSI.

The phone number is the number the link dials into, if an auto-dial modem is being used.

Auto dial is “0” if a leased line, a manual-dial modem, or no modem is being used; “1” if an auto-dial modem is being used.

The station ID is the HP 3000’s link station identifier to the remote system’s communications controller.

The XID is the station identification that is transmitted to the remote system whenever the HP 3000 receives an Exchange Station Identification (XID) request frame.

The receive timeout is the number of seconds the link-level software will wait for the remote system poll before closing the line.

Error retries is the maximum number of times the SDLC link manager will retry after errors or timeouts before setting the line to idle.

The cable type is one of the following:

- None
- Loopback
- Modem eliminator
- RS232
- RS366
- RS449
- V35
- X21

The buffer size is the longest frame (in bytes) that the PSI is allowed to receive.

The connect timeout is the number of seconds the SDLC link driver will wait for a link Set Normal Response Mode (SNRM) command after telling the PSI to enable the Data Terminal Ready (DTR) signal, before closing the line.

The local timeout is the number of seconds the SDLC link driver will wait for PSI card activity before reporting a PSI failure.

The transmission speed is the transmission speed (in bits per second) of the line being used by the link if a modem is not being used. If a modem is being used, the modem determines the speed.

The connect duration is how long a level 2 connection has been maintained.

Data bytes sent is the total number of bytes that have been sent in the information field of an Information (I) frame.

Overhead bytes sent is the total number of SDLC bytes that have been sent. The total includes flags and Frame Check Sequence (FCS) bytes.

Total frames sent is the total number of frames that have been sent.

Data frames sent is the total number of Information (I) frames that have been sent.

Bytes retransmitted is the number of non-SDLC data bytes that have been retransmitted.

Frames retransmitted is the number of frames that have been retransmitted because the frame was not acknowledged.

DSR losses is the total number of times the Data Set Ready (DSR) signal has dropped unexpectedly.

CTS losses unexpected is the total number of times the Clear To Send (CTS) signal has dropped unexpectedly.

DCD carrier losses is the total number of times the Data Carrier Detector (DCD) signal has dropped unexpectedly.

Tracing is “ON” if link-level tracing is on, or “OFF” if the tracing is off.

Data bytes rcvd is the total number of bytes that have been received in the information field of an Information (I) frame.

Overhead bytes rcvd is the total number of SDLC bytes that have been received. The total includes flags and Frame Check Sequence (FCS) bytes.

Total frames rcvd is the total number of frames that have been received.

Data frames rcvd is the total number of Information (I) frames that have been received.

Oversized frames rcvd is the total number of received frames that exceed the maximum configured frame size.

Aborted frames rcvd is the total number of aborted frames that were received.

Receive overruns is the total number of received frames that contained no control bytes.

CRC errors is the total number of received frames that contained a Cyclical Redundancy Check (CRC) error.

Statistics resets is the total number of times the statistics have been cleared.

X.25 Link-Level Status Information

Two examples of X.25 link-level status displays are given below, and the terminology used is described after the examples. Note that when link-level status information is displayed, the corresponding session-level status information is also displayed. (Since the session-level status terminology is described later under “Session-Level Status Information,” it is not described here.)

Example 1 If an X.25 link is being used, typing

```
SNACONTROL STATUS;NODE=IBMNODE;LINK=ALL
```

where IBMNODE is already active, and a permanent virtual circuit (PVC) is being used, could generate this display:

```
LINKNAME : IBMNODE    LINKTYPE : SNA X.25   LINKSTATE:
SNA CONNECTED

TRACING  : ON          TRACEFILE: TRACE.PUB.SYS

LINK CONFIGURATION DATA:

     NINAME            :           X25NI

     INACTIVITY TIMEOUT:              0

     VC TYPE           :            PVC

     PVC NUMBER        :             10

LINK STATISTICS:

                SENT                                  RECEIVED
                - -                                   - - - -
TOTAL BYTES    :                8100    TOTAL BYTES    :            8100
DATA BYTES     :                8080    DATA BYTES     :            8080
CONTROL BYTES  :                  20    CONTROL TYPES  :              20
TOTAL PACKETS  :                  10    TOTAL PACKETS  :              10
DATA PACKETS   :                   8    DATA PACKETS   :               8
CONTROL PACKETS:                   2    CONTROL PACKETS:               2

NAME     TYPE    NAU    STATE      USER            TRACE FILE
======== ======= ====== ========== =============== ========================
XPORTPU  PU_SSCP   0    ACTIVE     MANAGER.SYS     OFF
XPORTLU  LU_SSCP   1    ACTIVE     MANAGER.SYS     OFF
XPORTLU  LU_SSCP   2    ACTIVE     MANAGER.SYS     OFF
XPORTLU  LU_SSCP   3    ACTIVE     MANAGER.SYS     OFF
XPORTLU  LU_SSCP   4    ACTIVE     MANAGER.SYS     OFF
XPORTLU  LU_SSCP   5    ACTIVE     MANAGER.SYS     OFF
XPORTLU  LU_SSCP   6    RESET      MANAGER.SYS     OFF
PFA2     DEP_LU    2    PEND_ACT_R PITEST.PUT21R40 NMTC0090.PUB.SYS
PFA3     DEP_LU    3    ACTIVE     PITEST.PU2140   OFF
PFA4     DEP_LU    4    PEND_RST_R PITEST.PU2140   OFF
PFA5     DEP_LU    5    PEND_SON   PITEST.PU2140   OFF
PFACLASS DEP_LU    1    RESET      PITEST.PU2140   OFF

NAME     TYPE    LFSID  STATE      USER            TRACE FILE
======== ======= ====== ========== =============== ========================
INDLU1   IND_LU  1,0200 PEND_ACT_L PITEST.PUT21R40 OFF
INDLU2   IND_LU  1,0201 PEND_RST_L PITEST.PUT21R40 OFF
INDLU3   IND_LU  1,0202 PEND_RST_N PITEST.PUT21R40 OFF
INDLU4   IND_LU   RESET      PITEST.PUT21R40 OFF
```

Example 2 If an X.25 link is being used, typing

```
SNACONTROL STATUS;NODE=IBMNODE;LINK=ALL
```

where IBMNODE is already active, and a switched virtual circuit (SVC) is being used, could generate this display:

```
LINKNAME : IBMNODE    LINKTYPE : SNA X.25   LINKSTATE:
SNA CONNECTED

TRACING  : ON          TRACEFILE: TRACE.PUB.SYS

LINK CONFIGURATION DATA:

     NINAME            :           X25NI    CALL DIRECTION  :         OUT

     INACTIVITY TIMEOUT:               0    MAX CALL RETRIES:          10

@COMPUTERTEXTW =      VC TYPE           :             SVC    CALL
RETRY DELAY:          60

     REMOTE ADDRESS    :  FFFFFFFFFFFFF    CALL RETRY COUNT:           0

LINK STATISTICS:

                SENT                                    RECEIVED
                - -                                     - - - -
TOTAL BYTES    :                 8100    TOTAL BYTES    :            8100
DATA BYTES     :                 8080    DATA BYTES     :            8080
CONTROL BYTES  :                   20    CONTROL TYPES  :              20
TOTAL PACKETS  :                   10    TOTAL PACKETS  :              10
DATA PACKETS   :                    8    DATA PACKETS   :               8
CONTROL PACKETS:                    2    CONTROL PACKETS:               2

NAME     TYPE    NAU    STATE      USER            TRACE FILE
======== ======= ====== ========== =============== ========================
XPORTPU  PU_SSCP   0    ACTIVE     MANAGER.SYS     OFF
XPORTLU  LU_SSCP   1    ACTIVE     MANAGER.SYS     OFF
XPORTLU  LU_SSCP   2    ACTIVE     MANAGER.SYS     OFF
XPORTLU  LU_SSCP   3    ACTIVE     MANAGER.SYS     OFF
XPORTLU  LU_SSCP   4    ACTIVE     MANAGER.SYS     OFF
XPORTLU  LU_SSCP   5    ACTIVE     MANAGER.SYS     OFF
XPORTLU  LU_SSCP   6    RESET      MANAGER.SYS     OFF
PFA2     DEP_LU    2    PEND_ACT_R PITEST.PUT21R40 NMTC0090.PUB.SYS
PFA3     DEP_LU    3    ACTIVE     PITEST.PU2140   OFF
PFA4     DEP_LU    4    PEND_RST_R PITEST.PU2140   OFF
PFA5     DEP_LU    5    PEND_SON   PITEST.PU2140   OFF
PFACLASS DEP_LU    1    RESET      PITEST.PU2140   OFF

NAME     TYPE    LFSID  STATE      USER            TRACE FILE
======== ======= ====== ========== =============== ========================
INDLU1   IND_LU  1,0200 PEND_ACT_L PITEST.PUT21R40 OFF
INDLU2   IND_LU  1,0201 PEND_RST_L PITEST.PUT21R40 OFF
INDLU3   IND_LU  1,0202 PEND_RST_N PITEST.PUT21R40 OFF
INDLU4   IND_LU   RESET      PITEST.PUT21R40 OFF
```

Terminology

The linkname is the same as the node name.

The linktype is “SNA X.25”.

The linkstate is one of the following:

- SNA CONNECT PENDING = The virtual circuit to the remote system has been established and an SNA connection (which must use the virtual circuit) is in the process of being established.
- SNA CONNECTED = The SNA and X.25 connections to the remote system have been established.
- SNA DISCONNECT PENDING = The SNA connection is in the process of terminating. However, the X.25 connection still exists.
- SNA ERROR RECOVERY = The X.25 link has received invalid frames from the remote system and is in the process of recovery. Note that the SNA connection, the X.25 connection, and the SNA node are all still active.
- VC CONNECT PENDING = A request for a virtual circuit from the X.25 network has been made, but the virtual circuit has not been obtained. *Note that this state is valid for a switched virtual circuit (SVC) only*.
- VC CONNECTED = The virtual circuit to the remote system has been established; however, no SNA connection has been made. *Note that this state is valid for a switched virtual circuit (SVC) only*.

Tracing is “ON” if link-level tracing is on, or “OFF” if the tracing is off.

The tracefile is the name of the link trace file.

The NI name is the NS network interface that the link is using.

The inactivity timeout is the number of minutes the Qualified Logical Link Control (QLLC) module will wait between incoming packets. If the value is “0”, the timer is disabled.

The VC type is “PVC” for an X.25 permanent virtual circuit, or “SVC” for an X.25 switched virtual circuit.

The PVC number is the number that identifies the permanent virtual circuit for the X.25 link. *Note that this information is displayed for a PVC only*.

The remote address is the X.25 network address of the remote system. *Note that this information is displayed for an SVC only*.

The call direction is “IN” if the remote system initiated the call, or “OUT” if the HP 3000 initiated the call. *Note that this information is displayed for an SVC only*.

Max call retries is the maximum number of times the Qualified Logical Link Control (QLLC) module will try to connect to the remote system

without success. *Note that this information is displayed for an outgoing SVC only.*

The call retry delay is the number of seconds the QLLC module will wait between attempts to connect to the remote system. *Note that this information is displayed for an outgoing SVC only.*

The call retry count is the number of times call retries have been attempted. *Note that this information is displayed for an outgoing SVC only.*

Total bytes is the total number of bytes sent from and received by the link.

Data bytes is the total number of bytes of data sent from and received by the link.

Control bytes is the total number of bytes of control information sent from and received by the link.

Total packets is the total number of packets sent from and received by the link.

Data packets is the total number of packets of data sent from and received by the link.

Control packets is the total number of packets of control information sent from and received by the link.

Token Ring Link-Level Status Information

An example of a Token Ring link-level status display is given below, and the terminology used is described after the example. Note that when link-level status information is displayed, the corresponding session-level status information is also displayed. (Since the session-level status terminology is described later under “Session-Level Status Information,” it is not described here.)

Example

If a Token Ring link is being used, typing

```
SNACONTROL STATUS;NODE=IBMNODE;LINK=ALL
```

where IBMNODE is already active could generate this display:

```
Linkname: IBMNODE     Linktype: IEEE8025    Linkstate:
CONNECTED

Physical Path:  48      Data Rate: 16 Mbps

Current Station Address:  10-00-90-00-00-07
Default Station Address:  10-00-90-90-C8-46
Functional Address Mask:        00-00-00-00

Transmits no error:          6614976    Receives no error:          6620830
Transmit byte count:      2368752825    Receives byte count:     2367702513
Transmit errors:                   0    Receive errors:                    0

NAME     TYPE    NAU    STATE      USER            TRACE FILE
======== ======= ====== ========== =============== ========================
XPORTPU  PU_SSCP   0    ACTIVE     MANAGER.SYS     OFF
XPORTLU  LU_SSCP   1    ACTIVE     MANAGER.SYS     OFF
XPORTLU  LU_SSCP   2    ACTIVE     MANAGER.SYS     OFF
XPORTLU  LU_SSCP   3    ACTIVE     MANAGER.SYS     OFF
XPORTLU  LU_SSCP   4    ACTIVE     MANAGER.SYS     OFF
XPORTLU  LU_SSCP   5    ACTIVE     MANAGER.SYS     OFF
XPORTLU  LU_SSCP   6    RESET      MANAGER.SYS     OFF
PFA2     DEP_LU    2    PEND_ACT_R PITEST.PUT21R40 NMTC0090.PUB.SYS
PFA3     DEP_LU    3    ACTIVE     PITEST.PU2140   OFF
PFA4     DEP_LU    4    PEND_RST_R PITEST.PU2140   OFF
PFA5     DEP_LU    5    PEND_SON   PITEST.PU2140   OFF
PFACLASS DEP_LU    1    RESET      PITEST.PU2140   OFF

NAME     TYPE    LFSID  STATE      USER            TRACE FILE
======== ======= ====== ========== =============== ========================
INDLU1   IND_LU  1,0200 PEND_ACT_L PITEST.PUT21R40 OFF
INDLU2   IND_LU  1,0201 PEND_RST_L PITEST.PUT21R40 OFF
INDLU3   IND_LU  1,0202 PEND_RST_N PITEST.PUT21R40 OFF
INDLU4   IND_LU   RESET      PITEST.PUT21R40 OFF
```

Terminology

The linkname is the same as the node name.

The linktype is “IEEE8025”.

The linkstate is one of the following:

- NOT CONNECTED = The Token Ring device adapter has not been inserted into the network.
- CONNECTED = The Token Ring device adapter has been inserted into the network.
- RETRY = The Token Ring device adapter is retrying to insert into the network.

The physical path is the address of the token ring adapter card.

The data rate is the speed of the token ring (in megabits per second).

The current station address is the currently-active station address.

The default station address is the factory-configured default station address.

The function address mask is the address mask as described in the IBM Token-Ring Network Architecture Reference.

Transmits no error is the number of frames transmitted without errors.

Receives no error is the number of frames received without errors.

Transmit byte count is the number of bytes transmitted without errors.

Receive byte count is the number of bytes received without errors.

Transmit errors is the number of frames not successfully transmitted because of errors.

Receive errors is the number of frames received with errors.

Session-Level Status Information

Regardless of the type of link being used, the same session-level status information is displayed. An example of a session-level status display is given below, and the terminology used is described after the example.

Example If either an SDLC, X.25, or token ring link is being used, typing

```
SNACONTROL STATUS;NODE=IBMNODE
```

where IBMNODE is already active could generate this display:

```
SESSION STATE STATUS FOR NODE : IBMNODE

NAME     TYPE    NAU    STATE      USER              TRACE FILE
======== ======= ====== ========== ================ ========================
XPORTPU  PU_SSCP   0    ACTIVE     MANAGER.SYS      OFF
XPORTLU  LU_SSCP   1    ACTIVE     MANAGER.SYS      OFF
XPORTLU  LU_SSCP   2    ACTIVE     MANAGER.SYS      OFF
XPORTLU  LU_SSCP   3    ACTIVE     MANAGER.SYS      OFF
XPORTLU  LU_SSCP   4    ACTIVE     MANAGER.SYS      OFF
XPORTLU  LU_SSCP   5    ACTIVE     MANAGER.SYS      OFF
XPORTLU  LU_SSCP   6    RESET      MANAGER.SYS      OFF
PFA2     DEP_LU    2    PEND_ACT_R PITEST.PUT21R40 NMTC0090.PUB.SYS
PFA3     DEP_LU    3    ACTIVE     PITEST.PU2140    OFF
PFA4     DEP_LU    4    PEND_RST_R PITEST.PU2140    OFF
PFA5     DEP_LU    5    PEND_SON   PITEST.PU2140    OFF
PFACLASS DEP_LU    1    RESET      PITEST.PU2140    OFF

NAME     TYPE    LFSID  STATE      USER              TRACE FILE
======== ======= ====== ========== ================ ========================
INDLU1   IND_LU  1,0200 PEND_ACT_L PITEST.PUT21R40 OFF
INDLU2   IND_LU  1,0201 PEND_RST_L PITEST.PUT21R40 OFF
INDLU3   IND_LU  1,0202 PEND_RST_N PITEST.PUT21R40 OFF
INDLU4   IND_LU   RESET      PITEST.PUT21R40 OFF
```

Terminology

The name is the PU or LU name. Note that XPORTPU and XPORTLU are the internal names that are used by SNA Transport. XPORTPU is a PU name used for maintaining the PU-SSCP session. XPORTLU is the LU name used for maintaining the LU-SSCP sessions (for dependent LUs).

The type is the type of the session. This is either PU-SSCP for PU-SSCP sessions, LU-SSCP for LU-SSCP sessions, DEP_LU for dependent LU-LU sessions, or IND_LU for independent LU-LU sessions.

The NAU is the session's Network Addressable Unit number in decimal. All PU-SSCP, LU-SSCP, and dependent LU-LU sessions have a NAU.

The LFSID is the session's Local-form session identifier. It consists of the OAF-DAF assignor indicator (ODAI) followed by the session identifier (SID) in hexadecimal. Only independent LU-LU sessions have an LFSID. If an independent LU-LU session is in RESET state, it will not have an LFSID.

The session state is one of the following:

- ACTIVE = The session with the remote system has been established. Note that the SNA services are connected to the remote system in this state only.
- PEND_ACT_L = Pending activation local. An activation request has been sent by the HP 3000. However, a response to the activation request has not yet been received.
- PEND_ACT_R = Pending activation remote. An activation request has been received by the HP 3000. However, a response to the activation request has not yet been sent.
- PEND_RST_B = Pending reset both. Both the HP 3000 and the remote system have sent UNBIND requests. The HP 3000 received the remote system's UNBIND request before receiving the response to the UNBIND the HP 3000 sent.
- PEND_RST_L = Pending reset local. An UNBIND has been sent to the remote system, but no response has been received.
- PEND_RST_N = Pending reset negative response. A BIND has been sent to the remote LU session, a negative response (-RSP) has been received from an intermediate routing node, and the SNA service must generate an UNBIND to send to the remote LU session.
- PEND_RST_R = Pending reset remote. A deactivation request has been received from the remote system, but no response has been sent.

- PEND_SON = Pending session outage notification. A Session Outage Notification (SON) deactivation request has been generated internally or received on the link. However, no response has been sent.
- RESET = The initial state. No sessions exist.

The user is the name of the user or program that owns the session.

The trace file is the name of the trace file, if tracing has been turned on. If tracing is off, OFF is displayed.

SNACONTROL STOP

Stops an SNA node and all activity on the node.

Syntax

SNACONTROL STOP;NODE=*NodeName*[;TYPE=*StopType*]

Use

SNACONTROL STOP can be issued from a session, a job, a program, or in break. Pressing **[BREAK]** has no effect on this command.

Parameters

NodeName **Conditionally required**. The name of the active SNA node you want to stop. The name can be up to eight alphanumeric characters long; the first character must be alphabetic.

If only one SNA node is active, this parameter is optional: If you do not include it, the active node is stopped. If *more* than one node is active, this parameter is required: If you do not include it, a list of all configured SNA nodes is displayed, but no node is stopped; you can then reissue this command with the appropriate node name.

StopType How SNA Transport is to stop the node:

- K = (Kill) The node is stopped immediately. To the users of the node, this is like a link failure. The remote system is not notified that SNA Transport is stopping.

CAUTION Data can be lost in a kill shutdown.

- P = (Protocol) SNA Transport notifies the SNA services that it is stopping. Each service interrupts sending and receiving all active data sets, and tries to stop the LU-LU sessions. SNA Transport then stops the LU-SSCP sessions and the PU-SSCP session, but it does *not* stop the node until all SNA Transport users have terminated their sessions.

- Q = (Quiesce) The node is stopped in an orderly way. SNA Transport notifies the SNA services that it is stopping. Each service completes sending and receiving all active data sets. As the LUs become inactive, the services stop the LU-LU sessions, and SNA Transport stops the LU-SSCP sessions. Then, SNA Transport shuts down the PU-SSCP session.

Default: Q

Description

SNACONTROL STOP stops an SNA node and all activity on the node: link-level tracing, SNA Transport intrinsic tracing, SNA Transport node tracing, and any SNA services that are running (and their associated tracing). Once all sessions are closed, a logging message is generated and SNA Transport begins releasing its resources. When all resources are released, SNA Transport logs a "SHUTDOWN COMPLETE" message and terminates.

Examples

```
SNACONTROL STOP;NODE=PU8100F
```

Node PU8100F is to be stopped in an orderly way (a quiesce). A quiesce is done because no *StopType* was specified.

```
SNACONTROL STOP;TYPE=K
```

The *only* active node is to be immediately stopped (a kill). Note that if more than one node was active, this command would *not* be valid: A list of configured nodes would be displayed, and the command would have to be reissued with the proper NODE=*NodeName* parameter included.

SNACONTROL STOPSESS

Stops an LU-LU session without stopping the SNA node.

Syntax

```
SNACONTROL STOPSESS;NODE=NodeName;LUNAME=LUName
                   [;TYPE=StopType]
```

Use

SNACONTROL STOPSESS can be issued from a session, a job, a program, or in break. Pressing **[BREAK]** has no effect on this command.

Parameters

NodeName **Conditionally required**. The name of the active SNA node the LU-LU session is on. The name can be up to eight alphanumeric characters long; the first character must be alphabetic.

If only one SNA node is active, this parameter is optional: If you do not include it, the specified LU-LU session on the active node is stopped. If *more* than one node is active, this parameter is required: If you do not include it, an error message is displayed and no LU-LU session is stopped.

LUName **Required**. The name of the LU whose session you want to stop. The name can be up to eight alphanumeric characters long; the first character must be alphabetic.

StopType How SNA Transport is to stop the session:

- K = (Kill) The session is stopped immediately. To the users of the session, this is like a link failure.

CAUTION Data can be lost in a kill shutdown.

- P = (Protocol) SNA Transport notifies the SNA services that it is stopping the specified LU. Each service interrupts sending and receiving all active data sets for the LU-LU session and tries to stop the specified LU.

- Q = (Quiesce) The session is stopped in an orderly way. SNA Transport notifies the SNA services that it is stopping the specified LU. Each service completes sending and receiving all active data sets in the LU-LU session. Once the session is stopped, a logging message specifying that the LU-LU session has terminated is generated.

Default: Q

Description

SNACONTROL STOPSESS stops an LU-LU session without stopping the SNA node. Only an LU-LU session can be stopped with this command.

NOTE SNACONTROL STOPSESS will not terminate a “hung session.”

Example

```
SNACONTROL STOPSESS;NODE=ALPHA;LUNAME=LU1
```

The LU-LU session for LU1 on node ALPHA is to be stopped in an orderly way (a quiesce). A quiesce is done because no *StopType* was specified.

SNACONTROL TRACEOFF

Turns off link-level tracing, and SNA Transport node tracing.

Syntax

```
SNACONTROL TRACEOFF;NODE=NodeName;LINKTRACE
                   ;NODETRACE
                   ;INTRINSIC=LUName
```

Use

SNACONTROL TRACEOFF can be issued from a session, a job, a program, or in break. Pressing **[BREAK]** has no effect on this command.

Parameters

NodeName **Conditionally required**. The name of the active SNA node for which you want to turn tracing off. The name can be up to eight alphanumeric characters long; the first character must be alphabetic.

If only one SNA node is active, this parameter is optional: If you do not include it, the specified tracing for the active node is turned off. If *more* than one node is active, this parameter is required: If you do not include it, an error message is displayed and no tracing is stopped.

LINKTRACE **Conditionally required**. Specifies that link-level tracing is to be turned off.

You must specify at least one type of tracing; if you do not, an error occurs.

NODETRACE **Conditionally required**. Specifies that SNA Transport node tracing is to be turned off.

You must specify at least one type of tracing; if you do not, an error occurs.

LUName **Conditionally required**. The name of the LU for which SNA Transport intrinsic tracing is to be turned off. The name can be up to eight alphanumeric characters long; the first character must be alphabetic.

You must specify at least one type of tracing; if you do not, an error occurs.

Description

SNACONTROL TRACEOFF turns off link-level tracing (with the *LINKTRACE* parameter), SNA Transport intrinsic tracing (with the *INTRINSIC* parameter, and SNA Transport node tracing and NS over SNA tracing (with the *NODETRACE* parameter). Note that SNA Transport node tracing is also turned off with SNACONTROL STOP. Tracing is described in Chapter 5 , "SNA Link Troubleshooting," of this manual.

NOTE You must specify at least one type of tracing. That is, you must specify the *LINKTRACE* parameter, the *INTRINSIC* parameter, the *NODETRACE* parameter, or any combination of the three. If you do not, an error occurs.

Examples

```
SNACONTROL TRACEOFF;NODE=PU8100F;LINKTRACE
```

Link-level tracing is to be turned off for node PU8100F.

```
SNACONTROL TRACEOFF;LINKTRACE;INTRINSIC=LU01
```

Intrinsic tracing (for LU01) and link-level tracing are to be turned off for the *only* active node. Note that if more than one node was active, this command would *not* be valid: A list of configured nodes would be displayed, and the command would have to be reissued with the proper NODE=*NodeName* parameter included.

```
SNACONTROL TRACEOFF;NODE=PU8100F
```

This command is *not* valid because at least one type of tracing is not specified; an error would occur.

SNACONTROL TRACEON

Turns on link-level tracing, SNA Transport intrinsic tracing, and SNA Transport node tracing.

Syntax

```
SNACONTROL TRACEON;NODE=NodeName
           [;LINKTRACE[=[TraceType][,TraceFile]]]
           [;INTRINSIC=LUName[,TraceFile]]
           [;NODETRACE[=TraceFile]]
           [;TFILESIZE=NumRecords]
```

Use

SNACONTROL TRACEON can be issued from a session, a job, a program, or in break. Pressing **[BREAK]** has no effect on this command.

Parameters

NodeName **Conditionally required**. The name of the active SNA node for which you want to turn tracing on. The name can be up to eight alphanumeric characters long; the first character must be alphabetic.

If only one SNA node is active, this parameter is optional: If you do not include it, the specified tracing for the active node is turned on. If *more* than one node is active, this parameter is required: If you do not include it, an error message is displayed and no tracing is started.

TraceType The kind of link-level tracing to be started:

- FULL = Full line tracing: All of the bytes of each link frame are traced.
- PARTIAL = Partial line tracing: Only the first 16 bytes of each link frame are traced.

Default: PARTIAL

TraceFile The name of the disk file that is to contain the trace data. This must be a valid MPE file name or fully qualified MPE file reference. Standard MPE file naming conventions apply.

If you specify a file that does not exist, NMS builds a new one and opens it to record tracing. If you specify an existing file that NMS does not currently have open to record tracing, NMS will overwrite the file's previous

contents; no warning is issued. If you specify an existing file that NMS already has open to record tracing (even if it is recording events from a different subsystem), NMS will record trace events for this subsystem to the file in addition to the events that it is currently recording. This allows you to record tracing events from several subsystems to a single file.

Default: NMTC*nnnn*.PUB.SYS, where *nnnn* is a number from 0000 through 9999 and is incremented each time a new file is created.

LUName **Required**. The name of the LU for which SNA Transport intrinsic tracing is to be turned on. The name can be up to eight alphanumeric characters long; the first character must be alphabetic.

NOTE Activate SNA Transport intrinsic tracing with this command only when recommended by your Hewlett-Packard support contact.

NumRecords The file size, in units of 128-word records, for link-level tracing.

Range: 1-32767 (integer)

Default: 1024

Description

SNACONTROL TRACEON turns on link-level tracing (with the *LINKTRACE* parameter), SNA Transport intrinsic tracing (with the *INTRINSIC* parameter), and SNA Transport node tracing (with the *NODETRACE* parameter). Note that SNA Transport node tracing is also turned on with SNACONTROL START. Tracing is described in Chapter 5 , “SNA Link Troubleshooting,” of this manual. You can use intrinsic tracing to verify SNA Transport procedure calls. For an SDLC link, you can use link-level tracing to verify data passed between SNA and the SDLC link driver and between the link driver and the PSI card.

Examples

```
SNACONTROL TRACEON;NODE=IBMNODE;LINKTRACE
```

Partial (the default) link-level tracing is to be started for all LUs on node IBMNODE. The trace data is to be written to the default trace file.

```
SNACONTROL TRACEON;LINKTRACE=FULL,TF01
;INTRINSIC=LU02
```

Full link-level tracing is to be started for the *only* active SNA node, and the trace data is to be written to file TF01. Also, intrinsic tracing is to be started for LU02 on the node and that trace data is to be written to the default trace file. Note that if more than one node was active, this command would not be valid: A list of configured nodes would be

displayed, and the command would have to be reissued with the proper NODE=*NodeName* parameter included.

```
SNACONTROL TRACEON;LINKTRACE=,TF01
```

Partial (the default) link-level tracing is to be started for the *only* active SNA node, and the trace data is to be written to the file TF01. Note that if more than one node was active, this command would *not* be valid: A list of configured nodes would be displayed, and the command would have to be reissued with the proper NODE=*NodeName* parameter included.

```
SNACONTROL TRACEON;LINKTRACE=;INTRINSIC=LU02
```

This command is *not* valid because the equal sign is specified with the *LINKTRACE* parameter, but no values are specified after it (the equal sign should be included only if one or both of the values after it are specified); an error would occur.

SNACONTROL VERSION

Identifies the software version of SNA Transport, SNA/X.25 Link, and SNA/Token Ring Link.

Syntax

```
SNACONTROL VERSION
```

Use

SNACONTROL VERSION can be issued from a session, a job, a program, or in break. Pressing **[BREAK]** has no effect on this command.

Description

SNACONTROL VERSION identifies versions of SNA Transport program files, NL procedures, and SL procedures, as well as the overall version. It also identifies versions of the SNA/X.25 Link program file and NL procedures, as well as the overall version. Version ID numbers include version, update, and fix levels (*v.uu.ff*), as well as an internal fix level. For example, the version ID number A0102111 represents version level A, update level 01, fix level 02, and internal fix level 111. Ignore the internal fix level; this is used only within Hewlett-Packard.

Output from SNACONTROL VERSION is sent to $STDLIST.

Example

Typing

```
SNACONTROL VERSION
```

generates a display like this:

```
SNA TRANSPORT 32098-20023 module versions:

NL procedure: SNACMD_VERS        Version:  B0000012
NL procedure: SNAINTR_VERS       Version:  B0000009
NL procedure: SNATC_VERS         Version:  B0000009
NL procedure: SNAPC_VERS         Version:  B0000007
NL procedure: SNACBACCS_VERS     Version:  B0000005


NL procedure: SNAUTIL_VERS        Version:  B0000010
SL procedure: SNACMSTUB_VERS      Version:  B0000002
NL procedure: SNANMSTUB_VERS      Version:  B0000005
NL procedure: SNANMFMT_VERS       Version:  B0000006
SL procedure: SNACMFMT_VERS       Version:  B0000001
NM program file: SNASSV.PUB.SYS   Version:  B0000005
NM program file: SNACSC.PUB.SYS   Version:  B0000022
NM program file: SNAOPALT.PUB.SYS Version:  B0000003
NM program file: SNASDLC.PUB.SYS  Version:  B0047001
NM program file: SNATOKEN.PUB.SYS Version:  B0047001

SNA TRANSPORT 32098-20023 overall version = B.00.00
```

If SNA/X.25 Link is also installed, the display includes this listing:

```
SNA X.25 /XL  32098 - 20060 module versions:

NL procedure:    SNAX25NMFMT_VERS Version:  A0000004
NL procedure:    SNAX25_MC_VERS   Version:  A0000030
NM program file: SNAX25.PUB.SYS   Version:  A0000061

SNA X.25 /XL 32098 - 20060 overall version: A.00.00
```

If SNA/Token Ring Link is also installed, the display includes this listing:

```
HP Token Ring LAN Driver   32098-20060   module versions:

NL procedure: LAN_8025_DRIVER_VER Version:  A0045054
NL procedure: LAN_8025_WRITE_VER  Version:  A0045010
NL procedure: LAN_MC_VER          Version:  A0045019
XL procedure: SUBSYS_61_FMT_VER   Version:  A004505D
NL procedure: LAN_LINKCONTROL_VER Version:  A004505A

HP Token Ring LAN Driver 32098-20087 overall version = A.00.45
```

Note that the version numbers shown above are not necessarily the current version numbers for SNA Transport, SNA/X.25 Link, or SNA/Token Ring Link; they are shown only as examples.

SWITCHNMLOG

Closes the current NM log file and creates and opens a new one.

Syntax

```
SWITCHNMLOG  [UPDATE    ]
             [filenumber]
```

Use

SWITCHNMLOG can be issued from a session, a job, a program, or in break. Pressing **[BREAK]** has no effect on this command.

Parameters

UPDATE Updates logging configuration for all subsystems. If you change the logging configuration using NMMGR, you can update the configuration without stopping the transport or links by issuing the SWITCHNMLOG command with the UPDATE option.

filenumber Closes the current NMLG file and opens a new file with the specified number. The number can be any number from 0 to 9999.

Description

SWITCHNMLOG closes the current NM log file (NMLG*nnnn*.PUB.SYS) and creates and opens a new one.

When this command is issued, NMS displays this message:

```
NMLG FILE NUMBER nnnn IS mm% FULL
NMLG FILE NUMBER pppp ON
```

where *nnnn* is the number of the current NM log file that was just closed, *mm* is the percentage of file space used by the file, and *pppp* is the newly opened file, numbered one more than the closed file's number (*nnnn*).

If an irrecoverable error has disabled NM logging, this message is displayed instead of the command's normal display:

```
NMLG FILE NUMBER nnnn ERROR #nn.
NM LOGGING STOPPED.  (NMCNERR 36)
```

You will have to do a warm or cool start to bring the system back up.

If NM logging is enabled but currently suspended because of a recoverable error, an explanatory message is displayed after the

command's normal display:

```
NMLG FILE NUMBER nnnn IS mm% FULL
NMLG FILE NUMBER nnnn ERROR #nn. NM LOGGING SUSPENDED.
(NMCNERR 38)
```

Once the error is corrected, you can issue the RESUMENMLOG command (described earlier in this chapter).

7 SNA Link Installation Information

This chapter contains information you need to know about installation of the SNA link products.

To run an SNA link product on the HP 3000, you must install the product, and then your Hewlett-Packard support contact must configure your HP 3000 environment to support the product.

Before the Hewlett-Packard support contact arrives to do the minimum configuration of the SNA link product on the HP 3000, you must do these things:

1. Ensure that the remote system has the required hardware and software as listed in Chapter 1 , “SNA Links Overview,” in this manual.
2. Ensure that the remote system has been configured according to the procedures detailed in the *ACF/NCP and ACF/VTAM Guide Host System Programmer's Reference* or the *AS/400 Guide Host System Programmer's Reference*.
3. Obtain a copy of the new remote system configuration listing; your Hewlett-Packard support contact will need this information later during the minimum configuration of the SNA link product.
4. Ensure that the modem link between the HP 3000 and the remote system is operational.
5. Ensure that the HP 3000 is at the proper release level.
6. Use the AUTOINST utility to load the SNA link product software. See the *HP 3000 MPE XL Installation and Update Manual* or the *HP 3000 MPE XL Add-On Manual* for more information.
7. Run NMMAINT to ensure that all of the necessary software modules have been successfully installed by AUTOINST and are at the correct version levels.

After you do these installation tasks, your Hewlett-Packard support contact installs the PSI card and completes the minimum configuration required to verify minimum SNA link product functionality.

A Messages

This appendix contains messages that are unique to SNA link activity. These messages are described:

- SDLC link startup error messages: These are messages that can occur when you start the SDLC link. These messages occur when the SNACONTROL START command calls the WAN_Module_Config procedure and encounters an error. They are logged in this format:

```
Linkname        = LinkName      Event Type   = EventType
Log Class       = LogClass      Path         = Path
Error Num       = ErrorNumber   Status       = Status
```

- SDLC link driver error messages: These are messages that are generated when errors are encountered by the SDLC link driver. They are logged in this format:

```
Linkname        = LinkName      Event Type   = EventType
Log Class       = LogClass      Location     = Location
Sublocation     = Sublocation   Error Code   = ErrorCode
State           = State         Cause Status = CauseStatus
Error Actions   = ErrorActions
```

- SNACONTROL error messages: These are error messages generated by SNACONTROL commands. Each message has this suffix:

  SNACIERR

- SNA Transport error messages: These are run-time error messages that can occur when SNA Transport intrinsics are used. Each message has this suffix:

  SNAERR

- SNA Transport logging messages: These are messages that are logged for SNA Transport.

- SDLC link shutdown error messages: These are messages that can occur when you stop the SDLC link. These messages occur when the SNACONTROL STOP command calls the WAN_Kill_Module procedure and encounters an error. They are logged in this format:

```
Linkname        = LinkName      Event Type   = EventType
Log Class       = LogClass      Path         = Path
Error Num       = ErrorNumber   Status       = Status
```

- X.25 link failure error codes: These are codes that are generated for X.25 link failures by the Qualified Logical Link Control (QLLC) module. They are applicable based on the *ErrorNum* displayed as part of these SNA Transport logging messages:

```
Link connect failure on node NodeName
subsystem = SubsysID, procedure = ProcNum, error num = ErrorNum

Link failure, recovery in progress on node NodeName
subsystem = SubsysID, procedure = ProcNum, error num = ErrorNum

Link failure, shutting down the node NodeName
subsystem = SubsysID, procedure = ProcNum, error num = ErrorNum
```

- X.25 link module configurator error codes: These are codes that are generated by the X.25 link module configurator. They are applicable based on the *ErrorCode* displayed as part of these SNA Transport logging messages:

  ```
  Attempt to close link failed on node NodeName
  Subsystem = 734, Error Code = ErrorCode

  Attempt to open link failed on node NodeName
  Subsystem = 734, Error Code = ErrorCode
  ```

- X.25 link QLLC internal error codes: These are codes that are generated by the X.25 link Qualified Logical Link Control (QLLC) module when a QLLC internal error occurs. They are applicable based on the *ProcNum* displayed as part of these SNA Transport logging messages:

```
Link connect failure on node NodeName
subsystem = SubsysID, procedure = ProcNum, error num = ErrorNum

Link failure, recovery in progress on node NodeName
subsystem = SubsysID, procedure = ProcNum, error num = ErrorNum

Link failure, shutting down the node NodeName
subsystem = SubsysID, procedure = ProcNum, error num = ErrorNum
```

- NetView alerts error messages: These are the error messages that can occur when an operator-generated NetView alert is sent.
- Network Dump Manager error messages: These are error messages that are generated when errors occur while the SDLC link is being dumped. Each message has this prefix:

  ```
  **** DUMP ERROR
  ```

- Token Ring LAN error messages: These are messages generated by the token ring driver or token ring card. Messages have the following format:

  ```
  Internal driver error in SYSLINK (LANWARN ####) or
  (LANERR ####)
  ```

  where #### is an error number.

SDLC Link Startup Error Messages

Listed below are the messages that might occur when you are starting the SDLC link. These messages occur when the SNACONTROL START command calls the WAN_Module_Config procedure and encounters an error. Depending on the logging configuration for the SDLC Link subsystem, these messages are logged to the console, to disk, or both. The messages are logged in this format:

```
Linkname      = LinkName      Event Type    = EventType
Log Class     = LogClass       Path          = Path
Error Num     = ErrorNumber   Status        = Status
```

(Note that *LinkName* is the same as the name of the node.) The messages are listed below in numerical order according to *ErrorNumber*.

1 **MESSAGE: The link type is not SDLC or LAP-B or RJEBSC.**

CAUSE: The caller of this module did not set the link type to SDLC, LAP-B, or RJE BSC. For an SDLC link, the link type must be set to SDLC.

ACTION: Write down the error information displayed on the console and call your Hewlett-Packard support contact.

2 **MESSAGE: Could not open NMCONFIG.PUB.SYS.**

CAUSE: The configuration file NMCONFIG.PUB.SYS was purged or renamed.

ACTION: Restore the file from a backup tape and try to start the SDLC link again.

CAUSE: The configuration file NMCONFIG.PUB.SYS might be opened with exclusive access.

ACTION: Wait for the program or process that has this file opened exclusively to close it.

3 **MESSAGE: Link data not found in NMCONFIG.PUB.SYS.**

CAUSE: The link data was not found in the configuration file NMCONFIG.PUB.SYS.

ACTION: Use NMMGR to create the link data for the link you are trying to start (use the “SNA Node Configuration: SDLC Link Data” screen), and try to start the SDLC link again.

4 **MESSAGE: Could not close NMCONFIG.PUB.SYS.**

CAUSE: The configuration file NMCONFIG.PUB.SYS could not be closed. This did not prevent the link from starting, but it is worth noting

because this should not happen. The file system integrity might be questionable.

ACTION: Write down the error information displayed on the console and call your Hewlett-Packard support contact.

5 **MESSAGE: Could not open download file.**

CAUSE: The file PSISDLC0.PUB.SYS or PSISDLC1.PUB.SYS was purged or renamed.

ACTION: Restore the file from a backup tape and try to start the SDLC link again.

CAUSE: The file PSISDLC0.PUB.SYS or PSISDLC1.PUB.SYS might be opened with exclusive access.

ACTION: Wait for the program or process that has this file opened exclusively to close it.

6 **MESSAGE: Could not determine size of download file.**

CAUSE: The file PSISDLC0.PUB.SYS or PSISDLC1.PUB.SYS is corrupted.

ACTION: Restore the file from a backup tape and try to start the SDLC link again.

7 **MESSAGE: Could not freeze download file in memory.**

CAUSE: Memory shortage problems are occurring.

ACTION: Write down the error information displayed on the console and call your Hewlett-Packard support contact.

8 **MESSAGE: Could not open trace file *TraceFileName*.**

CAUSE: The indicated trace file might be invalid.

ACTION: Try specifying a different file name or let it default to NMTC*nnnn*.PUB.SYS (*nnnn* is the next available four-digit number).

CAUSE: The indicated trace file might be opened with exclusive access.

ACTION: Wait for the program or process that has the trace file opened exclusively to close it.

9 **MESSAGE: Could not start trace.**

CAUSE: Many causes exist; the *Status* field provides more-detailed information about the specific cause of the problem.

ACTION: Write down the error information displayed on the console and call your Hewlett-Packard support contact. You also can try running without tracing on.

10 **MESSAGE: Could not stop trace.**

CAUSE: Tracing might have been turned off with the SNACONTROL TRACEOFF command, but the link software status indicates that it was on.

ACTION: Ignore this problem unless you are experiencing other problems. If you are, write down the error information displayed on the console and call your Hewlett-Packard support contact.

11 **MESSAGE: Could not freeze the driver configuration data.**

CAUSE: Memory shortage problems are occurring.

ACTION: Write down the error information displayed on the console and call your Hewlett-Packard support contact.

12 **MESSAGE: Could not send the configuration message.**

CAUSE: An internal system ports problem has occurred.

ACTION: Write down the error information displayed on the console and call your Hewlett-Packard support contact.

13 **MESSAGE: Could not receive the config reply message.**

CAUSE: An internal system ports problem has occurred.

ACTION: Write down the error information displayed on the console and call your Hewlett-Packard support contact.

14 **MESSAGE: Timeout waiting for the config reply message.**

CAUSE: The link software or the PSI card could not be configured.

ACTION: Write down the error information displayed on the console and call your Hewlett-Packard support contact.

15 **MESSAGE: Received message was not the config reply.**

CAUSE: A wrong message was left on the process port data communications subqueue.

ACTION: Try to start the SDLC link again. If the problem continues, write down the error information displayed on the console and call your Hewlett-Packard support contact.

16 **MESSAGE: Link configuration data is invalid.**

CAUSE: The configuration information has been corrupted.

ACTION: Use NMMGR to recreate the link data for the node (use the “SNA Node Configuration: SDLC Link Data” screen), and try to start the SDLC link again. If this does not correct the problem, write down the error information displayed on the console and call your Hewlett-Packard support contact.

17 **MESSAGE: Could not unfreeze the configuration data.**

CAUSE: Memory problems are occurring.

ACTION: Write down the error information displayed on the console and call your Hewlett-Packard support contact.

18 **MESSAGE: Unable to obtain dump/diag ports.**

CAUSE: The Diagnostic User Interface (DUI) software or the Network Dump Process was not installed properly.

ACTION: Write down the error information displayed on the console and call your Hewlett-Packard support contact.

19 **MESSAGE: Could not create the auxiliary buffer pool.**

CAUSE: An internal error has occurred.

ACTION: Write down the error information displayed on the console and call your Hewlett-Packard support contact.

20 **MESSAGE: Could not create or bind with the driver.**

CAUSE: (*Status* = C3*xx*00D8) The wrong path number is configured for the installed PSI card.

ACTION: Use NMMGR to correct the Physical Path for the link.

CAUSE: (*Status* = CD*xx*00D5) The card for the configured path number is bad.

ACTION: Use NMMGR or the configuration file critical summary to check that the Physical Path configured for the link corresponds to a good PSI card. To determine whether the PSI card is good, your Hewlett-Packard support contact will have to run diagnostics on the PSI.

CAUSE: (*Status* = DA*xx*00D5) No card is in the slot for the path number configured for the link.

ACTION: Use NMMGR or the configuration file critical summary to check the configured Physical Path for the link, and correct it if necessary. Or, call your Hewlett-Packard support contact to install a PSI card.

CAUSE: (*Status* = E0*xx*00D5) The bus converter is not configured.

ACTION: Your local Hewlett-Packard support contact will have to check the bus converter configuration in SYSGEN and reconfigure it, if necessary (for Series 950 only).

CAUSE: (*Status* = FA*xx*00D8) The I/O subsystem still has the card configured and marked active.

ACTION: First, try shutting down the link. If the problem continues, restart the system. If this does not correct the problem, write down the

error information displayed on the console and call your Hewlett-Packard support contact.

21 **MESSAGE: Could not add the link name to the link table.**

CAUSE: Another link with the same name has already started.

ACTION: Try shutting down the link and starting it up again.

CAUSE: The link table does not exist.

ACTION: Write down the error information displayed on the console and call your Hewlett-Packard support contact.

CAUSE: The link table has been corrupted.

ACTION: Restart the system.

22 **MESSAGE: Could not unfreeze the download file *DownloadFileName*.**

CAUSE: Memory problems are occurring.

ACTION: Write down the error information displayed on the console and call your Hewlett-Packard support contact.

23 **MESSAGE: Could not close download file *DownloadFileName*.**

CAUSE: File system problems are occurring.

ACTION: Write down the error information displayed on the console and call your Hewlett-Packard support contact.

24 **MESSAGE: Manager entry not found in the system library.**

CAUSE: The link software was not installed properly.

ACTION: Write down the error information displayed on the console and call your Hewlett-Packard support contact.

25 **MESSAGE: The link has already been started.**

CAUSE: Another link of the same name is currently active. You cannot start the same link twice.

ACTION: Stop the link and try starting it up again. If you cannot stop the link, restart the system.

26 **MESSAGE: The Path Name does not point to a PSI card.**

CAUSE: The wrong path number is configured for the installed PSI card.

ACTION: Use NMMGR to correct the Physical Path for the link, or call your Hewlett-Packard support contact to install a PSI card.

SDLC Link Driver Error Messages

Listed below are the messages that are generated by the SDLC link driver. Depending on the logging configuration for the SDLC Link subsystem, these messages are logged to the console, to disk, or both. The messages are logged in this format:

```
Linkname        = LinkName      Event Type     = EventType
Log Class       = LogClass      Location       = Location
Sublocation     = Sublocation   Error Code     = ErrorCode
State           = State         Cause Status   = CauseStatus
Error Actions   = ErrorActions
```

(Note that *LinkName* is the same as the name of the node.) If you must submit an SR or call your Hewlett-Packard support contact, please copy the error *exactly as it appears on the operator's console*; it will make determining the cause of the problem easier.

The messages are listed below in numerical order according to *ErrorCode*.

1000 **MESSAGE: The download file is too small.**

CAUSE: The download file PSISDLC0.PUB.SYS or PSISDLC1.PUB.SYS is corrupt.

ACTION: Replace the download file from your latest system update tape.

CAUSE: An incorrect version of the download file PSISDLC0.PUB.SYS or PSISDLC1.PUB.SYS is installed.

ACTION: Check the version of the download file with NMMAINT and call your Hewlett-Packard support contact if it is incorrect.

1001 **MESSAGE: The download file is too large.**

CAUSE: The download file PSISDLC0.PUB.SYS or PSISDLC1.PUB.SYS is corrupt.

ACTION: Replace the download file from your latest system update tape.

CAUSE: An incorrect version of the download file PSISDLC0.PUB.SYS or PSISDLC1.PUB.SYS is installed.

ACTION: Check the version of the download file with NMMAINT and call your Hewlett-Packard support contact if it is incorrect.

1002 **MESSAGE: No STEPs data structures are available.**

CAUSE: A catastrophic internal resource error was found.

ACTION: Write down the error information displayed on the console, submit an SR, and call your Hewlett-Packard support contact.

CAUSE: The host system is transmitting data before the HP 3000 sends a final bit in its frame to relinquish control of the line.

ACTION: Run the SNACONTROL STATUS command, and check the Frames Retransmitted value in the link-level status information (see Chapter 6 , "MPE Commands," of this manual). If the value is *not* zero, ensure that the REPLYTO operand of the GROUP macro in the IBM host's ACF/NCP generation is large enough to account for all network delays

1003 **MESSAGE: An unknown interrupt type was received from IO_Services.**

CAUSE: Unknown.

ACTION: Write down the error information displayed on the console, submit an SR, and call your Hewlett-Packard support contact.

1004 **MESSAGE: PSI fatal error, dinmode.**

CAUSE: The download file PSISDLC0.PUB.SYS or PSISDLC1.PUB.SYS is corrupt.

ACTION: Replace the download file from your latest system update tape.

CAUSE: Bad PSI hardware.

ACTION: Your Hewlett-Packard support contact will have to run diagnostics on the PSI.

1005 **MESSAGE: PSI fatal bus error.**

CAUSE: The download file PSISDLC0.PUB.SYS or PSISDLC1.PUB.SYS is corrupt.

ACTION: Replace the download file from your latest system update tape.

CAUSE: Bad PSI hardware.

ACTION: Your Hewlett-Packard support contact will have to run diagnostics on the PSI.

1006 **MESSAGE: PSI fatal internal error.**

CAUSE: The download file PSISDLC0.PUB.SYS or PSISDLC1.PUB.SYS is corrupt.

ACTION: Replace the download file from your latest system update tape.

CAUSE: Bad PSI hardware.

ACTION: Your Hewlett-Packard support contact will have to run diagnostics on the PSI.

1007 **MESSAGE: PSI fatal internal error.**

CAUSE: The download file PSISDLC0.PUB.SYS or PSISDLC1.PUB.SYS is corrupt.

ACTION: Replace the download file from your latest system update tape.

CAUSE: Bad PSI hardware.

ACTION: Your Hewlett-Packard support contact will have to run diagnostics on the PSI.

1007 **MESSAGE: Unknown PSI fatal error.**

CAUSE: The download file PSISDLC0.PUB.SYS or PSISDLC1.PUB.SYS is corrupt.

ACTION: Replace the download file from your latest system update tape.

CAUSE: Bad PSI hardware.

ACTION: Your Hewlett-Packard support contact will have to run diagnostics on the PSI.

1009 **MESSAGE: The PSI received more data from your HP system than its internal buffers could handle.**

CAUSE: Unknown.

ACTION: Write down the error information displayed on the console, submit an SR, and call your Hewlett-Packard support contact.

1010 **MESSAGE: The PSI Received a bad command from the driver.**

CAUSE: Unknown.

ACTION: Write down the error information displayed on the console, submit an SR, and call your Hewlett-Packard support contact.

1011 **MESSAGE: PSI received a bad DMA command from the driver**

CAUSE: Unknown.

ACTION: Write down the error information displayed on the console, submit an SR, and call your Hewlett-Packard support contact.

1012 **MESSAGE: Unknown PSI module dependent hard error.**

CAUSE: Unknown.

ACTION: Write down the error information displayed on the console, submit an SR, and call your Hewlett-Packard support contact.

1013 **MESSAGE: The PSI detected a bad length count during download.**

CAUSE: The download file PSISDLC0.PUB.SYS or PSISDLC1.PUB.SYS is corrupt.

ACTION: Replace the download file from your latest system update tape.

CAUSE: An incorrect version of the download file PSISDLC0.PUB.SYS or PSISDLC1.PUB.SYS is installed.

ACTION: Check the version of the download file with NMMAINT and call your Hewlett-Packard support contact if it is incorrect.

1014 **MESSAGE: PSI detected a bad checksum during download.**

CAUSE: The download file PSISDLC0.PUB.SYS or PSISDLC1.PUB.SYS is corrupt.

ACTION: Replace the download file from your latest system update tape.

CAUSE: An incorrect version of the download file PSISDLC0.PUB.SYS or PSISDLC1.PUB.SYS is installed.

ACTION: Check the version of the download file with NMMAINT and call your Hewlett-Packard support contact if it is incorrect.

1015 **MESSAGE: PSI received download blocks out of sequence.**

CAUSE: The download file PSISDLC0.PUB.SYS or PSISDLC1.PUB.SYS is corrupt.

ACTION: Replace the download file from your latest system update tape.

CAUSE: An incorrect version of the download file PSISDLC0.PUB.SYS or PSISDLC1.PUB.SYS is installed.

ACTION: Check the version of the download file with NMMAINT and call your Hewlett-Packard support contact if it is incorrect.

1016 **MESSAGE: Attempt to download to a bad card address.**

CAUSE: The download file PSISDLC0.PUB.SYS or PSISDLC1.PUB.SYS is corrupt.

ACTION: Replace the download file from your latest system update tape.

CAUSE: An incorrect version of the download file PSISDLC0.PUB.SYS or PSISDLC1.PUB.SYS is installed.

ACTION: Check the version of the download file with NMMAINT and call your Hewlett-Packard support contact if it is incorrect.

1017 **MESSAGE: PSI reported an undefined error during download.**

CAUSE: Unknown.

ACTION: Write down the error information displayed on the console, submit an SR, and call your Hewlett-Packard support contact.

1018 **MESSAGE: PSI detected a severe internal error.**

CAUSE: Unknown.

ACTION: Write down the error information displayed on the console, submit an SR, and call your Hewlett-Packard support contact.

1019 **MESSAGE: PSI detected a severe error on the backplane.**

CAUSE: Unknown.

ACTION: Write down the error information displayed on the console, submit an SR, and call your Hewlett-Packard support contact.

1020 **MESSAGE: PSI reported an unknown severe error type.**

CAUSE: Unknown.

ACTION: Write down the error information displayed on the console, submit an SR, and call your Hewlett-Packard support contact.

1023 **MESSAGE: Unable to obtain IODC information from IO_GET_MODULE_REC during initialization.**

CAUSE: Unknown.

ACTION: Write down the error information displayed on the console, submit an SR, and call your Hewlett-Packard support contact.

1024 **MESSAGE: Unsupported module type in IODC.**

CAUSE: Bad PSI hardware.

ACTION: Your Hewlett-Packard support contact will have to run diagnostics on the PSI.

CAUSE: Wrong path name in NMMGR.

ACTION: Use NMMGR or the configuration file critical summary to verify that the configured `Physical Path` is correct.

CAUSE: Wrong card type.

ACTION: Verify that the target card is a PSI card.

1025 **MESSAGE: Unsupported software model in IODC.**

CAUSE: Bad PSI hardware.

ACTION: Your Hewlett-Packard support contact will have to run diagnostics on the PSI.

CAUSE: Wrong path name in NMMGR.

ACTION: Use NMMGR or the configuration file critical summary to verify that the configured `Physical Path` is correct.

CAUSE: Wrong card type.

ACTION: Verify that the target card is a PSI card.

1026 **MESSAGE: Incompatible software version in IODC.**

CAUSE: The version of the PSI is not compatible with this driver.

ACTION: Write down the error information displayed on the console, submit an SR, and call your Hewlett-Packard support contact.

1027 **MESSAGE: PSI did not return to a ready state after a reset was issued.**

CAUSE: Bad PSI hardware.

ACTION: Your Hewlett-Packard support contact will have to ru2 diagnostics on the PSI.

1028 **MESSAGE: A call to IO_CONFIG_INT failed during driver initialization.**

CAUSE: Unknown.

ACTION: Write down the error information displayed on the console, submit an SR, and call your Hewlett-Packard support contact.

1030 **MESSAGE: PSI register test failed during PSI initialization.**

CAUSE: Bad PSI hardware.

ACTION: Your Hewlett-Packard support contact will have to run diagnostics on the PSI.

1031 **MESSAGE: User attempted PSI register access failed.**

CAUSE: Bad PSI hardware.

ACTION: Your Hewlett-Packard support contact will have to run diagnostics on the PSI.

1032 **MESSAGE: User invoked dump caused the driver to fail.**

CAUSE: The driver was manually instructed to dump via diagnostic utilities, but the driver had not encountered previous errors.

ACTION: If the dump was taken as a snapshot of a problem, call your Hewlett-Packard support contact, and save the dump file to show to the HP person.

1033 **MESSAGE: Dump-sequence failure.**

CAUSE: The dump module WANDMPSURRVERS is missing.

ACTION: Run NMMAINT to verify that the dump module is present.

CAUSE: The driver encountered an error while trying to produce a dump. The driver has unlocked itself and reported to upper levels the error which originally caused the dump attempt; these levels will now destroy the driver. Any dump file produced is probably incomplete.

ACTION: Write down the error information displayed on the console, submit an SR, and call your Hewlett-Packard support contact.

1034 **MESSAGE: An input message is being ignored.**

CAUSE: A message received by the driver was not recognized or processing of it could not begin. It also is possible the source port is not operating with the required capabilities. The message was logged and dropped.

ACTION: The diagnostic system log file should contain a partial image of the ignored message. Write down the information from this log file as well as the error information displayed on the console, submit an SR, and call your Hewlett-Packard support contact.

1035 **MESSAGE: No TAB data structures available.**

CAUSE: Top-plane Activity Block (TAB) internal data structures are used whenever the driver tries to start new hardware activity. A limited number of these data structures are available. Unexpected use of an incorrect port and subqueues might have created excessive pending hardware activity. This problem can also occur if a buffer manager buffer could not be obtained.

ACTION: Unsupported programs must not contact the driver through incorrect subqueues. This problem should produce a dump. Keep the dump file along with the error information displayed on the console, call your Hewlett-Packard support contact, and submit an SR.

1036 **MESSAGE: Download file is incorrect for this driver.**

CAUSE: The hardware was successfully downloaded, but the downloaded code is for a different driver. A download file might have been incorrectly renamed to have the name of the file expected by the driver, or your download file or installed driver might be extremely old and not matched.

ACTION: Run NMMAINT to verify the version of the download file (PSISDLC0.PUB.SYS or PSISDLC1.PUB.SYS) and driver (WANSDLCVERS). If the file is incorrect, try to restore a copy from a system backup tape. If this does not solve the problem, you might have to update your system and download file. Call your Hewlett-Packard support contact.

1037 **MESSAGE: Download file is too old for this driver.**

CAUSE: The hardware was successfully downloaded, but the revision of the download file cannot be used with the version of the corresponding installed driver because their interfaces are incompatible.

ACTION: Ensure that the latest download file (PSISDLC0.PUB.SYS or PSISDLC1.PUB.SYS) was restored during a recent system update. If not, try restoring the file from a system backup tape. If this does not solve the problem, you might have to update your system and download file. Call your Hewlett-Packard support contact.

1038 **MESSAGE: Unable to obtain a buffer manager buffer.**

CAUSE: Terminating user programs have not freed buffers or buffer pools they were using.

ACTION: Warmstart the system and correct the user programs.

CAUSE: Some other process has obtained buffers reserved for use by the driver while the driver was trying to initialize itself.

ACTION: Try restarting the driver. If repeated link restarts fail, a system dump will be required. Call your Hewlett-Packard support contact.

1039 **MESSAGE: Unable to release a buffer manager buffer.**

CAUSE: The driver tried to free memory that the buffer manager did not recognize as a valid buffer because of a driver problem or memory data corruption. Also, a problem somewhere might have caused the driver to try to free a buffer that was not in use

ACTION: A system dump will probably be required. Call your Hewlett-Packard support contact.

1040 **MESSAGE: Unable to obtain an I/O Services timer.**

CAUSE: A call to obtain a timer resource returned in error. Too many timers might be in use.

ACTION: If you suspect your system might be low on timer resources because of heavy loading, try restarting the link later. If repeated attempts fail, try warmstarting your system. If the problem continues, a system dump will be required. Call your Hewlett-Packard support contact.

1041 **MESSAGE: Unable to reset an I/O Services timer.**

CAUSE: The system rejected an attempt by the driver to reset a timer supposedly owned by the driver. Memory data corruption might have occurred.

ACTION: Write down the error information displayed on the console, submit an SR, and call your Hewlett-Packard support contact.

1042 **MESSAGE: Unable to release an I/O Services timer.**

CAUSE: The driver tried to free a timer that was not recognized by the system as a valid timer. Memory data corruption might have occurred.

ACTION: Write down the error information displayed on the console, submit an SR, and call your Hewlett-Packard support contact.

1043 **MESSAGE: Unable to obtain an I/O Services message frame.**

CAUSE: The driver could not obtain a reply message frame from the source port of a newly-arrived request message, or from a transport port in the case of a driver-detected asynchronous event. If the system is operating well otherwise, modules trying to communicate with the driver might not be operating with the required capabilities.

ACTION: Write down the error information displayed on the console, submit an SR, and call your Hewlett-Packard support contact.

1044 **MESSAGE: Unable to send an I/O Services message to another process.**

CAUSE: A call to the system message send routine returned in error. The destination port might belong to a process that no longer exists or is not operating with the required capabilities.

ACTION: Write down the error information displayed on the console, submit an SR, and call your Hewlett-Packard support contact.

1045 **MESSAGE: Unable to release an I/O Services message frame.**

CAUSE: A call to the system message freeing routine returned in error. The port might belong to a process that no longer exists or is not operating with the required capabilities. Also, the message frame might not have been recognized by the system as a valid message frame.

ACTION: Write down the error information displayed on the console, submit an SR, and call your Hewlett-Packard support contact.

1046 **MESSAGE: Attempt to find I/O Services message on port failed.**

CAUSE: The system rejected an attempt by the driver to locate message frames on its own port. Memory data corruption might have occurred.

ACTION: Write down the error information displayed on the console, submit an SR, and call your Hewlett-Packard support contact.

1047 **MESSAGE: Attempted impossible state after a request or completion.**

CAUSE: The driver tried to enter a state that it should never be able to get into, and ceased operations. Memory data corruption, a driver bug, or a problem with the execution priorities of the driver or its hardware might exist. The hardware might also be confused.

ACTION: This problem should produce a dump. Keep the dump along with the error information displayed on the console, call your Hewlett-Packard support contact, and submit an SR.

1048 **MESSAGE: Driver notified of powerfail by system.**

CAUSE: The driver was notified that power returned after a power failure of any duration.

ACTION: The driver is not capable of recovering from power failures, and modem connections were probably lost. Restart the link.

1049 **MESSAGE: Request received when driver broken.**

CAUSE: The driver had to reject a request message because it had previously stopped working for another reason. The rejected request cannot be processed while the driver is not working.

ACTION: Write down the error information displayed on the console, submit an SR, and call your Hewlett-Packard support contact.

1050 **MESSAGE: Request received when driver dead.**

CAUSE: The driver received a request message during a short time interval after shutdown completed, but before the driver's port had been destroyed by the system. The driver should not be receiving new requests after shutdown, and it cannot successfully complete them.

ACTION: If this problem occurs repeatedly, call your Hewlett-Packard support contact.

1051 **MESSAGE: Request received when hardware in bad state.**

CAUSE: The hardware was not ready to process a request message that required hardware participation.

ACTION: Retry the request at a later time. If the problem continues, call your Hewlett-Packard support contact.

1052 **MESSAGE: Not enough TARs available to process request.**

CAUSE: The driver could not obtain enough context storage to begin processing a request, so the request was rejected. Unexpected use of incorrect port subqueues might have created excessive pending hardware activity.

ACTION: Write down the error information displayed on the console, submit an SR, and call your Hewlett-Packard support contact.

1053 **MESSAGE: Request received in invalid state.**

CAUSE: The driver received a sequencing message at the wrong time. This was a startup, shutdown, or dump control message that arrived out of sequence.

ACTION: Write down the error information displayed on the console, submit an SR, and call your Hewlett-Packard support contact.

1054 **MESSAGE: Unimplemented request received.**

CAUSE: The driver recognized a request message but the feature it requested is not applicable to that driver. The message descriptor was known but the message or its subfunction codes are not implemented.

ACTION: Call your Hewlett-Packard support contact and explain what you were trying to do.

1055 **MESSAGE: One or more do_bind config addresses is zero (0).**

CAUSE: The path to the hardware might not be configured correctly.

ACTION: Use NMMGR or the configuration file critical summary to ensure that the configured `Physical Path` is correct for the slot the PSI is in.

CAUSE: The physical path to the hardware might be faulty, or a previously undetected hardware failure might have occurred since system startup.

ACTION: Write down the error information displayed on the console, submit an SR, and call your Hewlett-Packard support contact.

1056 **MESSAGE: Critical configuration message data is incorrect.**

CAUSE: The configuration buffer that was passed to the driver during startup was not correctly formatted for the driver it was sent to. That

driver did not find its own subsystem number in the expected buffer field.

ACTION: Run NMMAINT to verify that the software versions between the driver (WANSDLCVERS) and module configurator (WANMCVERS) are correct. Also check your configuration screens, and if necessary, restore NMCONFIG.PUB.SYS from a system backup tape. If the problem continues, call your Hewlett-Packard support contact.

1057 **MESSAGE: Input buffer passed in a message is too small.**

CAUSE: Data was requested from the driver but the length of the buffer specified in the request was too small to accept all of the data. The driver is not capable of returning partial data. The driver also imposes a minimum size limit on trace buffers.

ACTION: If the problem occurred when starting a trace, try specifying a larger trace buffer size. A version mismatch between your driver (WANSDLCVERS) and other supporting software might exist; call your Hewlett-Packard support contact.

1058 **MESSAGE: Driver tracing is already off.**

CAUSE: The driver received a trace disable request when tracing was already off. The trace manager module should not have passed the request to the driver when tracing was off.

ACTION: This is intended as a warning. You do not have to turn tracing off when it is not on.

1059 **MESSAGE: Driver tracing is already on.**

CAUSE: The driver received a trace enable request when tracing was already on. The trace manager module should not have passed the request to the driver when tracing was on. The driver does not support altering the active trace level in this way.

ACTION: This is intended as a warning. You cannot turn tracing on when it is already on.

1060 **MESSAGE: Bad download file address in configuration data.**

CAUSE: The memory address of an open download file must be in a configuration buffer passed during startup. However, the driver found an address of zero, which is an invalid address. The module configurator should not have sent the configure message if it could not open the download file. Also, configuration buffer formats might be mismatched.

ACTION: Run NMMAINT to verify the versions of the driver (WANSDLCVERS), module configurator (WANMCVERS), and download file (PSISDLC0.PUB.SYS or PSISDLC1.PUB.SYS). If the problem cannot be solved by using this information, call your Hewlett-Packard support contact.

1061 **MESSAGE: Bad middle plane buffer pool in configuration data.**

CAUSE: The buffer pool ID of a pool that is to be used for read/write data communications line frames must be in a configuration buffer passed during startup. However, the driver found an ID of zero, which is an invalid ID. The transport should not have invoked the module configurator if the buffer pool could not be opened. Also, configuration buffer formats might be mismatched.

ACTION: See whether the transport reported any initialization errors. Run NMMAINT to verify the versions of the driver (WANSDLCVERS), module configurator (WANMCVERS), and download file (PSISDLC0.PUB.SYS or PSISDLC1.PUB.SYS). If the problem cannot be solved by using this information, call your Hewlett-Packard support contact.

1062 **MESSAGE: Bad top plane buffer pool in configuration data.**

CAUSE: The buffer pool ID of a pool that is to be used for PSI tracing and other internal I/O must be in a configuration buffer passed during startup. However, the driver found an ID of zero, which is an invalid ID. The module configurator should not have sent the configure message if the buffer pool could not be opened. Also, configuration buffer formats might be mismatched.

ACTION: Run NMMAINT to verify the versions of the driver (WANSDLCVERS), module configurator (WANMCVERS), and download file (PSISDLC0.PUB.SYS or PSISDLC1.PUB.SYS). If the problem cannot be solved by using this information, call your Hewlett-Packard support contact.

1063 **MESSAGE: Timeout during startup.**

CAUSE: The driver startup timer expired between the time the driver received its configure message and the time it completed all hardware and software startup. The PSI is probably hung because of a hardware failure, download bug, or corrupt download data not otherwise found. Though unlikely, it also is possible that completions for driver requests were excessively delayed due to heavy system loading.

ACTION: The driver normally allows about 30 seconds for all of startup. On a heavily loaded system, this problem might appear intermittently; try restarting the link. If the problem continues, call your Hewlett-Packard support contact.

1064 **MESSAGE: Timeout during selftest.**

CAUSE: The driver selftest timer expired between the time the driver received its DO_BIND message and the time the hardware completed selftest. The PSI probably failed selftest so badly it was unable to report the selftest error.

ACTION: The driver normally allows about 30 seconds for selftest to complete. Your PSI hardware is probably not working. Write down the

error information displayed on the console, submit an SR, and call your Hewlett-Packard support contact.

1065 **MESSAGE: Local timer popped.**

CAUSE: This timeout should occur only if the PSI hardware hangs because of a hardware failure or a bug in the downloaded code. The driver solicited activity from the hardware "local timeout" seconds ago, and that activity has still not completed. The driver has stopped the hardware and requested a dump

ACTION: This problem should produce a dump. Submit an SR, keep the dump, and call your Hewlett-Packard support contact.

1066 **MESSAGE: Unknown driver problem.**

CAUSE: The driver detected an error, but did not say what type of error was found.

ACTION: Write down the error information displayed on the console, submit an SR, and call your Hewlett-Packard support contact.

2000 **MESSAGE: Connect timer popped before any connection established.**

CAUSE: The DCE's level 1 signals were never enabled. Your cabling might be broken or improperly installed, or your modem might be turned off or broken.

ACTION: Check the cabling and the modem.

2001 **MESSAGE: Connect timer popped after the autodial completed.**

CAUSE: The automatic dial completed, but the level 1 connection was not established. You might have a broken cable or modem.

ACTION: Check the cabling and the modem.

2002 **MESSAGE: Connect timer popped after the level 1 connection was established.**

CAUSE: The remote system never sent a Set Normal Response Mode (SNRM) frame with the POLL bit set.

ACTION: See whether the remote system is running. Also check the receive data line in the cabling.

2003 **MESSAGE: Connect timer popped after a SNRM frame was received.**

CAUSE: The remote system sent a Set Normal Response Mode (SNRM) frame with the POLL bit set, but never sent a Receive Reader (RR), Receive Not Ready (RNR), or Information (I) frame.

ACTION: See whether the remote system is still running. Use NMMGR to ensure that the configured `Connect Timeout` value is large enough. Also, check the transmit data link in the cabling.

2004 **MESSAGE: Disconnect timer popped before outstanding I-frames acknowledged.**

CAUSE: The remote system never acknowledged one or more Information (I) frames sent to it. You might have a very noisy line, or the remote system might not be running.

ACTION: See whether the remote system is still running.

2005 **MESSAGE: Disconnect timer popped attempting to sever level 2 connection.**

CAUSE: The remote system never sent the DISConnect (DISC) frame response to the HP 3000's Request for Disconnect (RD) frame.

ACTION: See whether the remote system is still running.

2006 **MESSAGE: Disconnect timer popped after level 2 connection severed.**

CAUSE: The PSI or the backplane bus the PSI is attached to is broken.

ACTION: Call your Hewlett-Packard support contact.

2007 **MESSAGE: Disconnect timer popped after remote sent unintelligible frame.**

CAUSE: The remote system sent an unrecognized frame before acknowledging one or more Information (I) frames sent to it.

ACTION: Call the remote system's operator to ensure that the remote system is functioning properly.

2008 **MESSAGE: Receive timer popped.**

CAUSE: The remote system did not send a frame with the POLL bit set after the PSI transmitted a frame with the FINAL bit set. Either the connection to the remote system was severed or the remote system is down.p

ACTION: Check your cabling and modem, ensure that the remote system is still running, and check with your phone company representative to ensure that the connection is still active.

2009 **MESSAGE: Transmit retry limit exceeded.**

CAUSE: The driver attempted to retransmit an Information (I) frame larger than the configured transmit retry limit. This I frame was never acknowledged by the remote system. You might have noisy lines or the remote system might have a problem.

ACTION: Check with your phone company representative to see if your phone lines are noisy, and check to see if the remote system is having problems.

CAUSE: The I frame was never acknowledged, because the frame was delayed by the network longer than the configured *REPLYTO* parameter on the host system.

ACTION: Check all possible network delays, and increase the REPLYTO operand of the GROUP macro in the host's ACF/NCP generation accordingly.

2010 **MESSAGE: PSI detects an internal error.**

CAUSE: The PSI is experiencing problems.

ACTION: Write down the error information displayed on the console, submit an SR, and call your Hewlett-Packard support contact.

CAUSE: The host system is transmitting data before the HP 3000 sends a final bit in its frame to relinquish control of the line.

ACTION: Run the SNACONTROL STATUS command, and check the Frames Retransmitted value in the link-level status information (see Chapter 6 , "MPE Commands," of this manual). If the value is *not* zero, ensure that the REPLYTO operand of the GROUP macro in the IBM host's ACF/NCP generation is large enough to account for all network delays.

2011 **MESSAGE: PSI detects level 1 line loss.**

CAUSE: The level 1 connection was severed. The PSI detects this when Data Set Ready (DSR) or Clear To Send (CTS) is disabled unexpectedly.

ACTION: Ensure that your modem is still on and functional, and that the cables are connected properly. Also, check with your phone company to ensure that your line is still active.

2012 **MESSAGE: A PSI internal timer popped.**

CAUSE: In SDLC, the only PSI internal timer not noted elsewhere is the Clear To Send (CTS) timer. The CTS timer pops when the modem never enables CTS in response to the PSI enabling Request To Send (RTS).

ACTION: Ensure that your modem is still on and functional.

2013 **MESSAGE: Unknown error while attempting to autodial.**

CAUSE: Before attempting to automatically dial, the PSI detected something wrong. Specifically, the PSI detected an active ACR line before attempting to automatically dial.

ACTION: Check your automatic dialer and the modem.

2014 **MESSAGE: Autodial phone number configured incorrectly.**

CAUSE: The configured automatic dial phone number is wrong.

ACTION: Use NMMGR or the configuration file critical summary to ensure that the Phone Number configured for the link is correct.

2015 **MESSAGE: Autodial not completed.**

CAUSE: The automatic dial was not completed. This can happen when the remote system's modem is not turned on or is not functional.

ACTION: Check with the remote system to ensure that its modems are turned on and functional.

2016 **MESSAGE: Local autodial modem not powered on.**

CAUSE: Your local automatic-dial modem has not been turned on.

ACTION: Turn on your local automatic-dial modem.

2017 **MESSAGE: Local autodial modem is busy.**

CAUSE: Someone else is using your automatic-dial modem.

ACTION: Check with other users of your system to see whether they are using the modem. If they are not, powercycle the modem and try again.

CAUSE: A previous user of the modem failed to disconnect from it.

ACTION: Powercycle the modem and try again. If you try again and get the same error message, your automatic-dial modem might be broken.

2018 **MESSAGE: Cannot autodial because of cabling problems.**

CAUSE: No cable is attached, a non-automatic-dial cable is attached, or a bad automatic-dial cable is attached.

ACTION: Ensure that the cable is properly attached. If it is, try another cable. If you still get this error, write down the error information displayed on the console, submit an SR, and call your Hewlett-Packard support contact.

2019 **MESSAGE: PSI is confused.**

CAUSE: The PSI sent an asynchronous event with bad data in it.

ACTION: Write down the error information displayed on the console, submit an SR, and call your Hewlett-Packard support contact.

2020 **MESSAGE: SDLC driver failed to get an initialization buffer.**

CAUSE: Some other process used one of the buffers reserved for the SDLC driver during the driver's initialization. This can happen when some higher priority process interrupts the driver while it is initializing, and the higher priority process gets some of the buffers reserved for the driver by the buffer manager.

ACTION: Try to start the driver again. You might have to warmstart your system. If repeated attempts fail and the warmstart fails, call your Hewlett-Packard support contact.

SNACONTROL Error Messages

Listed below are the error messages that can be returned by SNACONTROL commands. They are listed in numerical order according to message number. These messages are written to $STDLIST; they are not logged.

NMS messages might also be returned in response to SNACONTROL commands. For a list of those messages and their meanings, see the *Using the Node Management Services Utilities* manual.

SNACIERR 1 **MESSAGE: SNA COMMAND ESCAPE CODE: SUBSYS=*SubsysID* INFO=*ErrorNum*. (SNACIERR 1)**

CAUSE: This message provides troubleshooting information. It is added to many SNA command interpreter (CI) error messages and aids in locating the possible source of a problem.

ACTION: None.

SNACIERR 2 **MESSAGE: SNA TRANSPORT NOT PROPERLY INSTALLED. CHECK VERSIONS. (SNACIERR 2)**

CAUSE: A version check of SNA Transport failed because of differences in module versions or because of missing modules.

ACTION: Write down the circumstances and call your Hewlett-Packard support contact.

SNACIERR 3 **MESSAGE: TRACE ALREADY IN PROGRESS FOR THIS ENTITY. (SNACIERR 3)**

CAUSE: The SNACONTROL TRACEON command was issued for an *LUName* or link that is already executing tracing.

ACTION: If you are turning on intrinsic tracing, ensure that you are specifying the correct *LUName* in the SNACONTROL TRACEON command. If you are, issue the SNACONTROL STATUS command to see whether tracing is already on for that LU. If you are turning on link-level tracing, ensure that you are specifying the *LINKTRACE* parameter in the SNACONTROL TRACEON command.

SNACIERR 4 **MESSAGE: TRACE NOT IN PROGRESS FOR THIS ENTITY. (SNACIERR 4)**

CAUSE: The SNACONTROL TRACEOFF command was issued for an *LUName* or link that is not executing tracing.

ACTION: If you are turning off intrinsic tracing, ensure that you are specifying the correct *LUName* in the SNACONTROL TRACEOFF command. If you are, issue the SNACONTROL STATUS command to see whether tracing is already off for that LU. If you are turning off link-level

tracing, ensure that you are specifying the *LINKTRACE* parameter in the SNACONTROL TRACEOFF command.

CAUSE: The SNACONTROL TRACEOFF command was issued after the SNA node has started to shut down.

ACTION: None; tracing is automatically turned off when a node is shutting down.

SNACIERR 5 **MESSAGE: COULDN'T OPEN TRACE FILE. (SNACIERR 5)**

CAUSE: An illegal *TraceFile* parameter was specified in an SNACONTROL START or SNACONTROL TRACEON command.

ACTION: Ensure that the specified *TraceFile* is a legal file name (see the description of the command you issued).

CAUSE: The user who issued the command might not have the proper system capabilities.

ACTION: Verify that the user has the proper system capabilities.

CAUSE: A trace manager problem might exist.

ACTION: Write down the circumstances and call your Hewlett-Packard support contact.

SNACIERR 6 **MESSAGE: COULDN'T CLOSE TRACE FILE. (SNACIERR 6)**

CAUSE: A trace manager problem might exist.

ACTION: Write down the circumstances and call your Hewlett-Packard support contact.

SNACIERR 7 **MESSAGE: COULDN'T GET NODE CONFIGURATION DATA. (SNACIERR 7)**

CAUSE: The network manager was unable to get the configuration data for the node from the NMCONFIG.PUB.SYS configuration file.

ACTION: Use NMMGR to verify that the configuration file is valid. If it is, write down the circumstances and call your Hewlett-Packard support contact.

SNACIERR 8 **MESSAGE: COULDN'T OPEN CONFIGURATION FILE. (SNACIERR 8)**

CAUSE: The NMCONFIG.PUB.SYS configuration file does not exist.

ACTION: Use NMMGR to verify that the configuration file exists. If it does, write down the circumstances and call your Hewlett-Packard support contact.

CAUSE: The NMCONFIG.PUB.SYS configuration file has been corrupted, and the file system cannot open it.

ACTION: Write down the circumstances and call your Hewlett-Packard support contact.

SNACIERR 9 **MESSAGE: NODE SPECIFIED NOT ACTIVE. (SNACIERR 9)**

CAUSE: An SNACONTROL command was issued for an SNA node that is not active. The node either was never started or has been stopped.

ACTION: Issue the SNACONTROL STATUS command to see whether the node is active. If the node is not active, issue the SNACONTROL START command for the node. Once the node is active, reissue the first SNACONTROL command. If the error still occurs, write down the circumstances and call your Hewlett-Packard support contact.

SNACIERR 10 **MESSAGE: NODE SPECIFIED IS ALREADY ACTIVE. (SNACIERR 10)**

CAUSE: The SNACONTROL START command was issued for a node that is already active.

ACTION: Ensure that you are specifying the correct *NodeName* in the SNACONTROL START command.

SNACIERR 11 **MESSAGE: NODE SPECIFIED NOT CONFIGURED. (SNACIERR 11)**

CAUSE: No configuration data was found for the SNA node specified in the command.

ACTION: Use NMMGR or the configuration file critical summary to verify that the configuration file NMCONFIG.PUB.SYS contains data for the specified node. If it does, ensure that the SNACONTROL command was issued correctly.

SNACIERR 12 **MESSAGE: MORE THAN ONE NODE IN CONFIGURATION. PLEASE SPECIFY. (SNACIERR 12)**

CAUSE: An SNACONTROL command was issued without a *NodeName* parameter. Since more than one node is configured, the *NodeName* must be specified.

ACTION: Reissue the command with the correct *NodeName* specified.

SNACIERR 13 **MESSAGE: NO SNA NODE IS CONFIGURED IN NMCONFIG.PUB.SYS. (SNACIERR 13)**

CAUSE: An SNACONTROL START command was issued without a *NodeName* parameter. If this is done when the configuration file (NMCONFIG.PUB.SYS) contains data for only one node, that node is started, by default. However, no node data was found in the configuration file when the command was issued. So, the default could not be used.

ACTION: Use NMMGR or the configuration file critical summary to verify that the configuration file contains data for at least one SNA node. If it does, ensure that the SNACONTROL START command was issued correctly. If the configuration file does not contain data for at least one node, configure the appropriate node and then reissue the SNACONTROL START command.

SNACIERR 14 **MESSAGE: UNABLE TO OPEN BUFFER POOL. (SNACIERR 14)**

CAUSE: An internal system error has occurred.

ACTION: Write down the circumstances and call your Hewlett-Packard support contact.

SNACIERR 16 **MESSAGE: UNABLE TO CREATE PORTS FOR SNA SERVERS. (SNACIERR 16)**

CAUSE: An internal error has occurred.

ACTION: Write down the circumstances and call your Hewlett-Packard support contact.

SNACIERR 17 **MESSAGE: COULDN'T START SNASSV PROCESS. (SNACIERR 17)**

CAUSE: Either the SNASSV program module does not exist or an internal error has occurred.

ACTION: Check the installation of SNA Transport. Use NMMAINT or the SNACONTROL VERSION command to verify that SNASSV.PUB.SYS is present and that the version is correct. If it is and the error still occurs, write down the circumstances and call your Hewlett-Packard support contact.

SNACIERR 18 **MESSAGE: COULDN'T ADD SNACSC'S PORT TO NMMON DICT. (SNACIERR 18)**

CAUSE: An internal error has occurred.

ACTION: Write down the circumstances and call your Hewlett-Packard support contact.

SNACIERR 19 **MESSAGE: UNABLE TO OBTAIN STARTUP INFO FROM SDLC. (SNACIERR 19)**

CAUSE: An internal error has occurred.

ACTION: Write down the circumstances and call your Hewlett-Packard support contact.

SNACIERR 20 **MESSAGE: UNABLE TO OPEN LINK. (SNACIERR 20)**

CAUSE: For an SDLC link, (1) the PSI card is not installed, (2) the PSI card is installed incorrectly, or (3) the physical path is not configured.

ACTION: Ensure that the PSI card is installed correctly, and use NMMGR or the configuration file critical summary to verify that the Physical Path field contains the correct information. If the error still occurs, write down the circumstances and call your Hewlett-Packard support contact.

CAUSE: For an X.25 link, (1) X.25/XL System Access is not active, (2) the necessary hardware is not installed correctly, (3) the SNA/X.25 Link configuration and the X.25/XL System Access configuration are not compatible with each other, (4) no SVCs are available, or (5) the PVC

number is not in the configured PVC range in the DTC X.25 configuration.

ACTION: Issue the NETCONTROL command to verify the X.25 link status and start the link if necessary. When you check the link's status, verify that the X.25 Level 1 status is "connected," Level 2 is "on," and Level 3 is "ready." If the link status is correct, ensure that the SNA/X.25 Link configuration and the X.25/XL System Access configuration are compatible with each other and with the X.25 configuration on the DTC (see Chapter 2 , "SNA Node and Link Configuration," of this manual). If the error still occurs, write down the circumstances and call your Hewlett-Packard support contact.

SNACIERR 21 **MESSAGE: COULDN'T OPEN LOG FILE. (SNACIERR 21)**

CAUSE: An internal error has occurred.

ACTION: Write down the circumstances and call your Hewlett-Packard support contact.

SNACIERR 22 **MESSAGE: COULDN'T START SNACSC PROCESS. (SNACIERR 22)**

CAUSE: Either the SNACSC program module does not exist or an internal error has occurred.

ACTION: Check the installation of SNA Transport. Use NMMAINT or the SNACONTROL VERSION command to verify that SNACSC.PUB.SYS is present and that the version is correct. If the error still occurs, write down the circumstances and call your Hewlett-Packard support contact.

SNACIERR 23 **MESSAGE: BAD START REPLY FROM SNACSC. (SNACIERR 23)**

CAUSE: An internal error has occurred.

ACTION: Write down the circumstances and call your Hewlett-Packard support contact.

SNACIERR 24 **MESSAGE: COULDN'T SEND STOP REQUEST TO SNACSC. (SNACIERR 24)**

CAUSE: An internal error has occurred.

ACTION: Write down the circumstances and call your Hewlett-Packard support contact.

SNACIERR 25 **MESSAGE: UNABLE TO ADD NODENAME TO NODE DIRECTORY. (SNACIERR 25)**

CAUSE: An internal error has occurred.

ACTION: Write down the circumstances and call your Hewlett-Packard support contact.

SNACIERR 26 **MESSAGE: COULDN'T RELEASE NODE DIRECTORY. (SNACIERR 26)**

CAUSE: An internal error has occurred.

ACTION: Write down the circumstances and call your Hewlett-Packard support contact.

SNACIERR 27 **MESSAGE: COULDN'T GET DIRECTORY INFO. (SNACIERR 27)**

CAUSE: An internal error has occurred.

ACTION: Write down the circumstances and call your Hewlett-Packard support contact.

SNACIERR 28 **MESSAGE: THE LUNAME MUST BE SPECIFIED. (SNACIERR 28)**

CAUSE: The *ROUTE*, *HSCB*, or *LURECORD* parameter was specified in the SNACONTROL STATUS command, but no *LUName* parameter was specified.

ACTION: Reissue the SNACONTROL STATUS command with the appropriate *LUName* parameter specified.

SNACIERR 29 **MESSAGE: COULDN'T FIND LUNAME SPECIFIED. (SNACIERR 29)**

CAUSE: The *LUName* parameter specified in an SNACONTROL STATUS, SNACONTROL STOPSESS, SNACONTROL TRACEOFF, or SNACONTROL TRACEON command could not be found in the NMCONFIG.PUB.SYS configuration file.

ACTION: Ensure that the *LUName* is spelled correctly, and use NMMGR or the configuration file critical summary to ensure that the LU is actually configured.

SNACIERR 32 **MESSAGE: COULDN'T GET AN NCB FOR THIS SNA NODE. (SNACIERR 32)**

CAUSE: An internal error has occurred.

ACTION: Write down the circumstances and call your Hewlett-Packard support contact.

SNACIERR 33 **MESSAGE: NO SUCH ACTIVE SESSION. (SNACIERR 33)**

CAUSE: An *LUName* for which no active session exists was specified in an SNACONTROL STOPSESS or SNACONTROL TRACEOFF command.

ACTION: Issue the SNACONTROL STATUS command to see whether the session for the specified *LUName* exists. If it does, reissue the first command. If the error still occurs, write down the circumstances and call your Hewlett-Packard support contact.

SNACIERR 34 **MESSAGE: CAN'T SPECIFY NODENAME HERE. (SNACIERR 34)**

CAUSE: The *NodeName* parameter was specified in an SNACONTROL VERSION command. *NodeName* is not a valid parameter for that command.

ACTION: Reissue the SNACONTROL VERSION command without a *NodeName* parameter.

SNACIERR 36 **MESSAGE: CAN'T SPECIFY STYPE HERE. (SNACIERR 36)**

CAUSE: The *STYPE* parameter was specified in an SNACONTROL command; none of the commands uses STYPE.

ACTION: Reissue the command without an *STYPE* parameter.

SNACIERR 37 **MESSAGE: CAN'T SPECIFY STOP TYPE HERE. (SNACIERR 37)**

CAUSE: The *StopType* parameter was specified in an SNACONTROL AUTODIAL, SNACONTROL START, SNACONTROL STATUS, SNACONTROL TRACEOFF, SNACONTROL TRACEON, or SNACONTROL VERSION command. None of these commands uses *StopType*.

ACTION: Reissue the command without a *StopType* parameter.

SNACIERR 39 **MESSAGE: CAN'T SPECIFY TRACE HERE. (SNACIERR 39)**

CAUSE: The *TRACE* parameter was specified in an SNACONTROL command; none of the commands uses *TRACE*.

ACTION: Reissue the command without a *TRACE* parameter.

SNACIERR 41 **MESSAGE: CAN'T SPECIFY ERROPT HERE. (SNACIERR 41)**

CAUSE: The *ERROPT* parameter was specified in an SNACONTROL AUTODIAL, SNACONTROL STATUS, SNACONTROL STOP, SNACONTROL STOPSESS, SNACONTROL TRACEOFF, SNACONTROL TRACEON, or SNACONTROL VERSION command. None of these commands uses *ERROPT*.

ACTION: Reissue the command without an *ERROPT* parameter.

SNACIERR 42 **MESSAGE: CAN'T SPECIFY NCB HERE. (SNACIERR 42)**

CAUSE: The *NCB* parameter was specified in an SNACONTROL AUTODIAL, SNACONTROL START, SNACONTROL STOP, SNACONTROL STOPSESS, SNACONTROL TRACEOFF, SNACONTROL TRACEON, or SNACONTROL VERSION command. None of these commands uses *NCB*.

ACTION: Reissue the command without an *NCB* parameter.

SNACIERR 43 **MESSAGE: CAN'T SPECIFY HSCB HERE. (SNACIERR 43)**

CAUSE: The *HSCB* parameter was specified in an SNACONTROL AUTODIAL, SNACONTROL START, SNACONTROL STOP, SNACONTROL STOPSESS, SNACONTROL TRACEOFF, SNACONTROL TRACEON, or SNACONTROL VERSION command. None of these commands uses *HSCB*.

ACTION: Reissue the command without an *HSCB* parameter.

SNACIERR 44 **MESSAGE: CAN'T SPECIFY ROUTE HERE. (SNACIERR 44)**

CAUSE: The *ROUTE* parameter was specified in an SNACONTROL AUTODIAL, SNACONTROL START, SNACONTROL STOP, SNACONTROL STOPSESS, SNACONTROL TRACEOFF, SNACONTROL TRACEON, or SNACONTROL VERSION command. None of these commands uses *ROUTE*.

ACTION: Reissue the command without a *ROUTE* parameter.

SNACIERR 45 **MESSAGE: CAN'T SPECIFY DEBUG HERE. (SNACIERR 45)**

CAUSE: The *DEBUG* parameter was specified in an SNACONTROL command; none of the commands uses *DEBUG*.

ACTION: Reissue the command without a *DEBUG* parameter.

SNACIERR 46 **MESSAGE: SNA SWITCH FROM COMPAT. MODE TO NATIVE MODE ERROR. (SNACIERR 46)**

CAUSE: An internal error has occurred.

ACTION: Write down the circumstances and call your Hewlett-Packard support contact.

SNACIERR 47 **MESSAGE: LINK TRACE SIO REQUEST FAILURE. (SNACIERR 47)**

CAUSE: Link-level tracing is already on for the node.

ACTION: None.

CAUSE: An internal error has occurred.

ACTION: Write down the circumstances and call your Hewlett-Packard support contact.

SNACIERR 48 **MESSAGE: LINK TRACE DISABLE REQUEST FAILURE. (SNACIERR 48)**

CAUSE: An internal error has occurred.

ACTION: Write down the circumstances and call your Hewlett-Packard support contact.

SNACIERR 49 **MESSAGE: LINK TRACE FILE OPEN FAILURE. (SNACIERR 49)**

CAUSE: An illegal *TraceFile* parameter was specified in an SNACONTROL START or SNACONTROL TRACEON command.

ACTION: Ensure that the specified *TraceFile* is a valid file name (see the description of the command you issued).

CAUSE: The user who issued the command might not have the proper system capabilities.

ACTION: Verify that the user has node manager (NM) capabilities.

CAUSE: A trace manager problem might exist.

ACTION: Write down the circumstances and call your Hewlett-Packard support contact.

SNACIERR 50 **MESSAGE: MAX DATA (PIU) TOO LARGE. (SNACIERR 50)**

CAUSE: The value specified in the MAX DATA field of the "SNA Node Configuration: PU Data" screen is too large.

ACTION: Enter a valid value in the MAX DATA field.

CAUSE: An internal error has occurred.

ACTION: Write down the circumstances and call your Hewlett-Packard support contact.

SNACIERR 51 **MESSAGE: CAN'T SPECIFY LUNAME HERE. (SNACIERR 51)**

CAUSE: The *LUName* parameter was specified in an SNACONTROL AUTODIAL, SNACONTROL START, SNACONTROL STOP, or SNACONTROL VERSION command. None of these commands uses *LUName*.

ACTION: Reissue the command without an *LUName* parameter.

SNACIERR 52 **MESSAGE: CAN'T SPECIFY LINKTRACE HERE. (SNACIERR 52)**

CAUSE: The *LINKTRACE* parameter was specified in an SNACONTROL AUTODIAL, SNACONTROL STATUS, SNACONTROL STOP, SNACONTROL STOPSESS, or SNACONTROL VERSION command. None of these commands uses *LINKTRACE*.

ACTION: Reissue the command without a *LINKTRACE* parameter.

SNACIERR 53 **MESSAGE: CAN'T SPECIFY NODETRACE HERE. (SNACIERR 53)**

CAUSE: The *NODETRACE* parameter was specified in an SNACONTROL AUTODIAL, SNACONTROL STATUS, SNACONTROL STOP, SNACONTROL STOPSESS, SNACONTROL TRACEOFF, SNACONTROL TRACEON, or SNACONTROL VERSION command. None of these commands uses *NODETRACE*.

ACTION: Reissue the command without a *NODETRACE* parameter.

SNACIERR 54 **MESSAGE: CAN'T SPECIFY INTRINSIC HERE. (SNACIERR 54)**

CAUSE: The *INTRINSIC* parameter was specified in an SNACONTROL AUTODIAL, SNACONTROL START, SNACONTROL STATUS, SNACONTROL STOP, SNACONTROL STOPSESS, or SNACONTROL VERSION command. None of these commands uses *INTRINSIC*.

ACTION: Reissue the command without an *INTRINSIC* parameter.

SNACIERR 55 **MESSAGE: TRACE COMMAND IGNORED. PLEASE SPECIFY TRACE TYPE. (SNACIERR 55)**

CAUSE: The SNACONTROL TRACEOFF or SNACONTROL TRACEON command was issued, but a valid trace type was not specified.

ACTION: Reissue the command with the *LINKTRACE* or *INTRINSIC* parameters.

SNACIERR 59 **MESSAGE: CAN'T SPECIFY "LINK" HERE. (SNACIERR 59)**

CAUSE: The *LINK* parameter was specified in an SNACONTROL AUTODIAL, SNACONTROL START, SNACONTROL STOP, SNACONTROL STOPSESS, SNACONTROL TRACEOFF, SNACONTROL TRACEON, or SNACONTROL VERSION command. None of these commands uses *LINK*.

ACTION: Reissue the command without a *LINK* parameter.

SNACIERR 60 **MESSAGE: CAN'T SPECIFY "LINK=A" HERE. (SNACIERR 60)**

CAUSE: The *LINK=A* parameter was specified in an SNACONTROL AUTODIAL, SNACONTROL START, SNACONTROL STOP, SNACONTROL STOPSESS, SNACONTROL TRACEOFF, SNACONTROL TRACEON, or SNACONTROL VERSION command. None of these commands uses *LINK=A*.

ACTION: Reissue the command without a *LINK=A* parameter.

SNACIERR 61 **MESSAGE: CAN'T SPECIFY "LINK=C" HERE. (SNACIERR 61)**

CAUSE: The *LINK=C* parameter was specified in an SNACONTROL AUTODIAL, SNACONTROL START, SNACONTROL STOP, SNACONTROL STOPSESS, SNACONTROL TRACEOFF, SNACONTROL TRACEON, or SNACONTROL VERSION command. None of these commands uses *LINK=C*.

ACTION: Reissue the command without a *LINK=C* parameter.

SNACIERR 62 **MESSAGE: CAN'T SPECIFY "LINK=L" HERE. (SNACIERR 62)**

CAUSE: The *LINK=L* parameter was specified in an SNACONTROL AUTODIAL, SNACONTROL START, SNACONTROL STOP, SNACONTROL STOPSESS, SNACONTROL TRACEOFF, SNACONTROL TRACEON, or SNACONTROL VERSION command. None of these commands uses *LINK=L*.

ACTION: Reissue the command without a *LINK=L* parameter.

SNACIERR 63 **MESSAGE: CAN'T SPECIFY "LINK=S" HERE. (SNACIERR 63)**

CAUSE: The *LINK=S* parameter was specified in an SNACONTROL AUTODIAL, SNACONTROL START, SNACONTROL STOP, SNACONTROL STOPSESS, SNACONTROL TRACEOFF, SNACONTROL TRACEON, or SNACONTROL VERSION command. None of these commands uses *LINK=S*.

ACTION: Reissue the command without a *LINK=S* parameter.

SNACIERR 64 **MESSAGE: CAN'T SPECIFY "LINK=D" HERE. (SNACIERR 64)**

CAUSE: The *LINK=D* parameter was specified in an SNACONTROL AUTODIAL, SNACONTROL START, SNACONTROL STOP, SNACONTROL STOPSESS, SNACONTROL TRACEOFF, SNACONTROL TRACEON, or SNACONTROL VERSION command. None of these commands uses *LINK=D*.

ACTION: Reissue the command without a *LINK=D* parameter.

SNACIERR 65 **MESSAGE: CAN'T SPECIFY "LINK=R" HERE. (SNACIERR 65)**

CAUSE: The *LINK=R* parameter was specified in an SNACONTROL AUTODIAL, SNACONTROL START, SNACONTROL STOP, SNACONTROL STOPSESS, SNACONTROL TRACEOFF, SNACONTROL TRACEON, or SNACONTROL VERSION command. None of these commands uses *LINK=R*.

ACTION: Reissue the command without a *LINK=R* parameter.

SNACIERR 66 **MESSAGE: CAN'T SPECIFY "LINK=ALL" HERE. (SNACIERR 66)**

CAUSE: The *LINK=ALL* parameter was specified in an SNACONTROL AUTODIAL, SNACONTROL START, SNACONTROL STOP, SNACONTROL

STOPSESS, SNACONTROL TRACEOFF, SNACONTROL TRACEON, or SNACONTROL VERSION command. None of these commands uses *LINK=ALL*.

ACTION: Reissue the command without a *LINK=ALL* parameter.

SNACIERR 67 **MESSAGE: CAN'T SPECIFY "LINK=CONF" HERE. (SNACIERR 67)**

CAUSE: The *LINK=CONF* parameter was specified in an SNACONTROL AUTODIAL, SNACONTROL START, SNACONTROL STOP, SNACONTROL STOPSESS, SNACONTROL TRACEOFF, SNACONTROL TRACEON, or SNACONTROL VERSION command. None of these commands uses *LINK=CONF*.

ACTION: Reissue the command without a *LINK=CONF* parameter.

SNACIERR 68 **MESSAGE: CAN'T SPECIFY "LINK=LINK" HERE. (SNACIERR 68)**

CAUSE: The *LINK=LINK* parameter was specified in an SNACONTROL AUTODIAL, SNACONTROL START, SNACONTROL STOP, SNACONTROL STOPSESS, SNACONTROL TRACEOFF, SNACONTROL TRACEON, or SNACONTROL VERSION command. None of these commands uses *LINK=LINK*.

ACTION: Reissue the command without a *LINK=LINK* parameter.

SNACIERR 69 **MESSAGE: CAN'T SPECIFY "LINK=STAT" HERE. (SNACIERR 69)**

CAUSE: The *LINK=STAT* parameter was specified in an SNACONTROL AUTODIAL, SNACONTROL START, SNACONTROL STOP, SNACONTROL STOPSESS, SNACONTROL TRACEOFF, SNACONTROL TRACEON, or SNACONTROL VERSION command. None of these commands uses *LINK=STAT*.

ACTION: Reissue the command without a *LINK=STAT* parameter.

SNACIERR 70 **MESSAGE: CAN'T SPECIFY "LINK=DIAG" HERE. (SNACIERR 70)**

CAUSE: The *LINK=DIAG* parameter was specified in an SNACONTROL AUTODIAL, SNACONTROL START, SNACONTROL STOP, SNACONTROL STOPSESS, SNACONTROL TRACEOFF, SNACONTROL TRACEON, or SNACONTROL VERSION command. None of these commands uses *LINK=DIAG*.

ACTION: Reissue the command without a *LINK=DIAG* parameter.

SNACIERR 71 **MESSAGE: CAN'T SPECIFY "LINK=RESET" HERE. (SNACIERR 71)**

CAUSE: The *LINK=RESET* parameter was specified in an SNACONTROL AUTODIAL, SNACONTROL START, SNACONTROL STOP, SNACONTROL STOPSESS, SNACONTROL TRACEOFF, SNACONTROL TRACEON, or SNACONTROL VERSION command. None of these commands uses *LINK=RESET*.

ACTION: Reissue the command without a *LINK=RESET* parameter.

SNACIERR 72 **MESSAGE: CAN'T SPECIFY "LINK=CONFIGURATION" HERE. (SNACIERR 72)**

CAUSE: The *LINK=CONFIGURATION* parameter was specified in an SNACONTROL AUTODIAL, SNACONTROL START, SNACONTROL STOP, SNACONTROL STOPSESS, SNACONTROL TRACEOFF, SNACONTROL TRACEON, or SNACONTROL VERSION command. None of these commands uses *LINK=CONFIGURATION*.

ACTION: Reissue the command without a *LINK=CONFIGURATION* parameter.

SNACIERR 73 **MESSAGE: CAN'T SPECIFY "LINK=LINKSTATE" HERE. (SNACIERR 73)**

CAUSE: The *LINK=LINKSTATE* parameter was specified in an SNACONTROL AUTODIAL, SNACONTROL START, SNACONTROL STOP, SNACONTROL STOPSESS, SNACONTROL TRACEOFF, SNACONTROL TRACEON, or SNACONTROL VERSION command. None of these commands uses *LINK=LINKSTATE*.

ACTION: Reissue the command without a *LINK=LINKSTATE* parameter.

SNACIERR 74 **MESSAGE: CAN'T SPECIFY "LINK=STATISTICS" HERE. (SNACIERR 74)**

CAUSE: The *LINK=STATISTICS* parameter was specified in an SNACONTROL AUTODIAL, SNACONTROL START, SNACONTROL STOP, SNACONTROL STOPSESS, SNACONTROL TRACEOFF, SNACONTROL TRACEON, or SNACONTROL VERSION command. None of these commands uses *LINK=STATISTICS*.

ACTION: Reissue the command without a *LINK=STATISTICS* parameter.

SNACIERR 75 **MESSAGE: CAN'T SPECIFY "LINK=DIAGSTATS" HERE. (SNACIERR 75)**

CAUSE: The *LINK=DIAGSTATS* parameter was specified in an SNACONTROL AUTODIAL, SNACONTROL START, SNACONTROL STOP, SNACONTROL STOPSESS, SNACONTROL TRACEOFF, SNACONTROL TRACEON, or SNACONTROL VERSION command. None of these commands uses *LINK=DIAGSTATS*.

ACTION: Reissue the command without a *LINK=DIAGSTATS* parameter.

SNACIERR 76 **MESSAGE: MESSAGE CATALOG FILE (CATSNA.PUB.SYS) OPEN ERROR. (SNACIERR 76)**

CAUSE: The SNA message catalog CATSNA.PUB.SYS is missing, or is not in the correct format.

ACTION: Write down the circumstances and call your Hewlett-Packard support contact.

SNACIERR 77 **MESSAGE: COULDN'T CREATE SNA'S PORT FACILITY PROCESS. (SNACIERR 77)**

CAUSE: A call to Create_pfp to create SNA's port facility process during SNACSC's initialization failed. This is an internal error.

ACTION: Write down the circumstances and call your Hewlett-Packard support contact.

SNACIERR 78 **MESSAGE: COULDN'T GET THE PIN OF SNA'S PORT FACILITY PROCESS. (SNACIERR 78)**

CAUSE: A call to Port_info to obtain the Process Identification Number (PIN) of SNA's port facility process failed. This is an internal error.

ACTION: Write down the circumstances and call your Hewlett-Packard support contact.

SNACIERR 79 **MESSAGE: BAD TRACE FILE SIZE SPECIFIED. (SNACIERR 79)**

CAUSE: An illegal *NumRecords* value was specified for the *TFILESIZE* parameter in an SNACONTROL START or SNACONTROL TRACEON command.

ACTION: Ensure that the specified *NumRecords* value is within the acceptable range (see the description of the command you issued).

SNACIERR 80 **MESSAGE: SNA/X.25 NOT PROPERLY INSTALLED. CHECK VERSIONS. (SNACIERR 80)**

CAUSE: A version check of SNA/X.25 Link failed because of differences in module versions or because of missing modules.

ACTION: Write down the circumstances and call your Hewlett-Packard support contact.

SNACIERR 81 **MESSAGE: AN ATTEMPT TO SEE IF SNA/X.25 IS INSTALLED FAILED. (SNACIERR 81)**

CAUSE: A call to FLabelInfo for the file SNAX25.PUB.SYS failed with a file system error.

ACTION: Write down the circumstances and call your Hewlett-Packard support contact.

SNACIERR 82 **MESSAGE: NMCAT.PUB.SYS OPEN FAILURE. (SNACIERR 82)**

CAUSE: SNA Transport cannot open the message catalog NMCAT.PUB.SYS to enable the SDLC link to display link status information.

ACTION: Use the MPE FLIST command to ensure that NMCAT.PUB.SYS is installed on your system. If it is, write down the circumstances and call your Hewlett-Packard support contact.

SNACIERR 83 **MESSAGE: LINK STATUS DISPLAY ERROR. (SNACIERR 83)**

CAUSE: An attempt to display the X.25 link status information failed.

ACTION: Write down the circumstances and call your Hewlett-Packard support contact.

SNACIERR 84 **MESSAGE: CAN'T SPECIFY LURECORD HERE. (SNACIERR 84)**

CAUSE: The *LURECORD* parameter was specified in an SNACONTROL AUTODIAL, SNACONTROL START, SNACONTROL STOP, SNACONTROL STOPSESS, SNACONTROL TRACEOFF, SNACONTROL TRACEON, or SNACONTROL VERSION command. None of these commands uses *LURECORD*.

ACTION: Reissue the command without an *LURECORD* parameter.

SNACIERR 85 **MESSAGE: CAN'T SPECIFY FILESIZE HERE. (SNACIERR 85)**

CAUSE: A file size was specified as a parameter to an SNACONTROL command.

ACTION: Do not specify a file size as a parameter to a command.

SNACIERR 86 **MESSAGE: AN SNA LINK INTERNAL ERROR HAS OCCURRED. STATUS COMMAND NOT AVAILABLE. (SNACIERR 86)**

CAUSE: An internal error has occurred. The SNACONTROL STATUS command cannot be executed at this time.

ACTION: A memory dump will probably be required. Call your Hewlett-Packard support contact.

SNACIERR 87 **MESSAGE: ATTEMPT TO DISPLAY LINK STATUS FAILED. (SNACIERR 87)**

CAUSE: An attempt to call the link status display procedure failed.

ACTION: Use the MPE FLIST command to ensure that the file XL.PUB.SYS exists. Write down the circumstances and call your Hewlett-Packard support contact.

SNACIERR 88 **MESSAGE: CANNOT AUTODIAL BECAUSE OF CABLING PROBLEMS. (SNACIERR 88)**

CAUSE: No cable is attached, a non-automatic-dial cable is attached, or a bad automatic-dial cable is attached.

ACTION: Ensure that the cable is properly attached. If it is, try attaching a different cable. If the error still occurs, write down the circumstances and call your Hewlett-Packard support contact.

SNACIERR 89 **MESSAGE: LOCAL AUTODIAL MODEM IS BUSY. (SNACIERR 89)**

CAUSE: Someone else is using the local automatic-dial modem.

ACTION: Check with other users on the system to ensure that no one else is using the modem. If no one is using the modem, powercycle the modem and try again. If someone is using the modem, wait until they are not using it and then try again.

SNACIERR 90 **MESSAGE: LOCAL AUTODIAL MODEM IS NOT POWERED ON. (SNACIERR 90)**

CAUSE: The local automatic-dial modem is not turned on.

ACTION: Turn the modem on.

SNACIERR 91 **MESSAGE: AUTODIAL NOT COMPLETED. (SNACIERR 91)**

CAUSE: The automatic dial was not completed, possibly because the remote system's modem is not turned on or is not functional.

ACTION: Ensure that the remote system's modems are turned on and functional.

SNACIERR 92 **MESSAGE: AUTODIAL PHONE NUMBER CONFIGURED INCORRECTLY. (SNACIERR 92)**

CAUSE: The configured automatic-dial phone number is not correct.

ACTION: Use NMMGR or the configuration file critical summary to ensure that the Phone Number field contains the correct number.

SNACIERR 93 **MESSAGE: AUTODIAL NOT ATTEMPTED BECAUSE NODE IS SHUTTING DOWN. (SNACIERR 93)**

CAUSE: The automatic dial was not attempted because the node is in the process of shutting down.

ACTION: Issue the SNACONTROL START command to restart the node, and then try the automatic dial again.

SNACIERR 94 **MESSAGE: BAD AUTODIAL REPLY. (SNACIERR 94)**

CAUSE: An internal error has occurred.

ACTION: Write down the circumstances and call your Hewlett-Packard support contact.

SNACIERR 95 **MESSAGE: AUTODIAL REQUEST IS ALREADY PENDING. (SNACIERR 95)**

CAUSE: Another process has already issued an automatic dial request.

ACTION: The node will become active after the other automatic dial request is successful; no action is needed.

SNACIERR 104 **MESSAGE: NMCONFIG.PUB.SYS LUDATA CONFIGURATION ERROR. RUN NMMGR CONDENSE AND VALIDATION ROUTINE. (SNACIERR 104)**

CAUSE: SNANODE data configuration error. Mostly due to LU configuration (duplicate NAU, duplicate LUNAME, PU type not matching LU configuration).

ACTION: Check NMCONFIG.PUB.SYS and run validate routine.

SNACIERR 105 **MESSAGE: CAN'T SPECIFY LFSID HERE. (SNACIERR 105)**

CAUSE: *LFSID* was specified as a parameter to an SNACONTROL command other than SNACONTROL STATUS. Only SNACONTROL STATUS permits this parameter.

ACTION: Don't specify *LFSID* as a parameter to any SNACONTROL command except SNACONTROL STATUS.

SNACIERR 106 **MESSAGE: CAN'T SPECIFY NAU HERE. (SNACIERR 106)**

CAUSE: *NAU* was specified as a parameter to an SNACONTROL command other than SNACONTROL STATUS. Only SNACONTROL STATUS permits this parameter.

ACTION: Don't specify *NAU* as a parameter to any SNACONTROL command except SNACONTROL STATUS.

SNACIERR 107 **MESSAGE: CAN'T SPECIFY STATE HERE. (SNACIERR 107)**

CAUSE: *STATE* was specified as a parameter to an SNACONTROL command other SNACONTROL STATUS. Only SNACONTROL STATUS permits this parameter.

ACTION: Don't specify *STATE* as a parameter to any SNACONTROL command except SNACONTROL STATUS.

SNACIERR 108 **MESSAGE: CAN'T SPECIFY SESSTYPE HERE. (SNACIERR 108)**

CAUSE: *SESSTYPE* was specified as a parameter to an SNACONTROL command other than SNACONTROL STATUS. Only SNACONTROL STATUS permits this parameter.

ACTION: Don't specify *SESSTYPE* as a parameter to any SNACONTROL command except SNACONTROL STATUS.

SNACIERR 109 **MESSAGE: BAD NAU SPECIFICATION. (SNACIERR 109)**

CAUSE: A non-integer value was specified in the *NAU=* parameter.

ACTION: The *NAU=* parameter must be an integer.

SNACIERR 110 **MESSAGE: BAD LFSID SPECIFICATION. (SNACIERR 110)**

CAUSE: A non-hex value was specified in the *LFSID=* parameter.

ACTION: The *LFSID=* parameter must be a hex value.

SNACIERR 111 **MESSAGE: NAU NOT FOUND. (SNACIERR 111)**

CAUSE: The *NAU* specified in the SNACONTROL STATUS command does not exist.

ACTION: The *NAU=* parameter must specify an existing NAU.

SNACIERR 112 **MESSAGE: LFSID NOT FOUND. (SNACIERR 112)**

CAUSE: The *LFSID* specified in the SNACONTROL STATUS command does not exist.

ACTION: The *LFSID=* parameter must specify an existing LFSID.

SNACIERR 113 **MESSAGE: BAD LUNAME SPECIFICATION. (SNACIERR 113)**

CAUSE: A bad *LUNAME* was specified in the *LUNAME=* parameter.

ACTION: Verify that the *LUNAME=* parameter was valid.

SNACIERR 114 **MESSAGE: NO SUCH SESSIONS FOUND. (SNACIERR 114)**

CAUSE: No sessions were found that match the given *STATE=* and *SESSTYPE=* parameters.

ACTION: None. This is a normal event.

SNACIERR 115 **MESSAGE: BAD TOKEN RING LINK NAME. (SNACIERR 115)**

CAUSE: Link name specified in the SNA NODE configuration is not valid.

ACTION: Change LINKNAME to a valid link name.

SNACIERR 116 **MESSAGE: SNA TOKEN RING NOT INSTALLED PROPERLY. (SNACIERR 116)**

CAUSE: SNA TOKEN RING not installed.

ACTION: Call your Hewlett-Packard contact.

SNACIERR 117 **MESSAGE: SNA SDLC NOT INSTALLED PROPERLY. (SNACIERR 117)**

CAUSE: SNA SDLC LINK not installed.

ACTION: Call your Hewlett-Packard contact.

SNA Transport Error Messages

Listed below are the error messages that can occur when SNA Transport intrinsics are being used. They are listed in numerical order according to message number. SNA Transport, itself, does not display these messages: It returns the error number to the SNA service using the intrinsics, and the service can optionally display the message. These messages are not logged; they are written to $STDLIST by the SNA service only.

SNAERR 2 **MESSAGE: Invalid session. (SNAERR 2) A call was made to an SNA Transport intrinsic with a bad session number.**

CAUSE: An invalid session number was specified in a call to an SNA Transport intrinsic.

ACTION: Write down the circumstances and call your Hewlett-Packard support contact.

SNAERR 3 **MESSAGE: Missing Completer Parameter. (SNAERR 3) An SNA Transport completion occurred with a missing parameter.**

CAUSE: The SNA completer was activated with an invalid *Cstation*, *Xfercount*, or *TargetFlag* parameter.

ACTION: Write down the circumstances and call your Hewlett-Packard support contact.

SNAERR 5 **MESSAGE: Parameter bounds violation. (SNAERR 5) An out-of-bounds parameter was passed to an SNA Transport intrinsic.**

CAUSE: An SNA service passed an out-of-bounds parameter to an SNA Transport intrinsic.

ACTION: Write down the circumstances and call your Hewlett-Packard support contact.

SNAERR 6 **MESSAGE: Invalid flag parameter. (SNAERR 6) An invalid flag parameter was passed to an SNA Transport intrinsic.**

CAUSE: The *Flag* parameter passed to the SNARcv or SNAPreview intrinsic was invalid.

ACTION: Write down the circumstances and call your Hewlett-Packard support contact.

SNAERR 7 **MESSAGE: Session is active. (SNAERR 7) The LU-SSCP session for this NAU is active.**

CAUSE: The NAU's LU-SSCP session is active.

ACTION: None.

SNAERR 9 **MESSAGE: No available AFT entry. (SNAERR 9) No room left in current stack segment for another AFT.**

CAUSE: An SNAOpenUser was attempted, but no room for another Available File Table (AFT) entry is available in the current stack segment.

ACTION: Write down the circumstances and call your Hewlett-Packard support contact.

SNAERR 10 **MESSAGE: Bad PI in RH. (SNAERR 10) The Pacing indicator was set in the RH sent to SNA Transport.**

CAUSE: The pacing indicator (PI) was set in the Request/Response Header (RH) passed to one of the SNA Send intrinsics.

ACTION: Write down the circumstances and call your Hewlett-Packard support contact.

SNAERR 11 **MESSAGE: Bad BCI in RH. (SNAERR 11) An improper chaining sequence occurred.**

CAUSE: The Begin Chain Indicator (BCI) was not set in the Response Header (RH) passed to one of the SNA Send intrinsics when sending a response.

ACTION: Write down the circumstances and call your Hewlett-Packard support contact.

SNAERR 12 **MESSAGE: Bad ECI in RH. (SNAERR 12) An improper chaining sequence occurred.**

CAUSE: The End Chain Indicator (ECI) was not set in the Response Header (RH) passed to one of the SNA Send intrinsics when sending a response.

ACTION: Write down the circumstances and call your Hewlett-Packard support contact.

SNAERR 13 **MESSAGE: Bad EDI in RH. (SNAERR 13) Attempt was made to send enciphered data.**

CAUSE: The Enciphered Data Indicator (EDI) was set in the Request Header (RH) passed to one of the SNA Send intrinsics when sending a request.

ACTION: Write down the circumstances and call your Hewlett-Packard support contact.

SNAERR 14 **MESSAGE: Reserved bits in RH must be set to zero. (SNAERR 14**

CAUSE: Various reserved bits in the Request/Response Header (RH) were incorrectly set by the calling SNA service when making a call to the SNA Send intrinsics.

ACTION: Write down the circumstances and call your Hewlett-Packard support contact.

SNAERR 15 **MESSAGE: Internal Error. (SNAERR 15) An SNA Transport Internal Error occurred.**

CAUSE: A serious error occurred in SNA Transport.

ACTION: Write down the circumstances and call your Hewlett-Packard support contact.

SNAERR 16 **MESSAGE: Invalid RU size. (SNAERR 16) An attempt was made to send an RU longer than the Max RU size.**

CAUSE: A call to the SNA Send intrinsics, specifying a buffer length larger than the one specified in the Half Session Control Block (HSCB) for that session, was made.

ACTION: Write down the circumstances and call your Hewlett-Packard support contact.

SNAERR 17 **MESSAGE: NAU is inactive. (SNAERR 17) The LU-SSCP session for this NAU is inactive.**

CAUSE: A call to the SNAOpenUser intrinsic to open an LU-LU session was made, and the corresponding LU-SSCP session is not yet active.

ACTION: Ensure that the LU-SSCP session has been activated on the remote system. If it has not been activated, activate it and try again.

SNAERR 18 **MESSAGE: Invalid Plabel. (SNAERR 18) An Invalid plabel was passed to the SNAControl intrinsic.**

CAUSE: A call to the SNAControl intrinsic (with *FunctionCode* = 1) passed a bad Plabel for the software interrupt procedure.

ACTION: Write down the circumstances and call your Hewlett-Packard support contact.

SNAERR 19 **MESSAGE: LU-SSCP message pending. (SNAERR 19)**

CAUSE: A message on the LU-SSCP session is pending and must be completed before a Send can be issued.

ACTION: A call to the SNARcv or SNARcvfromSSCP intrinsic must be made before any calls to the SNA Send intrinsics are made.

SNAERR 20 **MESSAGE: RU buffer too small. (SNAERR 20) An RU received was larger than the buffer provided.**

CAUSE: An SNA Receive completed, but the Request/Response Unit (RU) received was larger than the buffer provided in the call to the SNARcv, SNAPreview, or SNARcvfromSSCP intrinsic.

ACTION: Write down the circumstances and call your Hewlett-Packard support contact.

SNAERR 21 **MESSAGE: Invalid LU name. (SNAERR 21) The LU name specified does not exist.**

CAUSE: A call to the SNAOpenUser intrinsic to open an LU-LU session was made, but the LU name specified in the call is not configured for this node.

ACTION: Use NMMGR or the configuration file critical summary to check for the valid LUs configured for the requested node.

SNAERR 22 **MESSAGE: Invalid session type. (SNAERR 22) An attempt was made to open a non LU-LU session.**

CAUSE: An invalid session type parameter was specified in a call to the SNAOpenUser intrinsic to open a session.

ACTION: Write down the circumstances and call your Hewlett-Packard support contact.

SNAERR 23 **MESSAGE: Negative LU-SSCP response. (SNAERR 23) A negative response was sent by the host in response to a request.**

CAUSE: An SNA service received a negative response as a result of a call to the SNASendtoSSCP intrinsic.

ACTION: Write down the circumstances and call your Hewlett-Packard support contact.

SNAERR 24 **MESSAGE: Invalid configuration access. (SNAERR 24) SNA Transport was unable to access the required configuration data.**

CAUSE: A call to the NMConfgetdata intrinsic failed for some reason.

ACTION: Write down the circumstances and call your Hewlett-Packard support contact.

SNAERR 25 **MESSAGE: Request pending. (SNAERR 25) An SNA Transport Receive request is already pending.**

CAUSE: A call to an SNARcv intrinsic was made while a current request is outstanding.

ACTION: Write down the circumstances and call your Hewlett-Packard support contact.

SNAERR 26 **MESSAGE: No available NAU. (SNAERR 26) All LUs specified in the SNAOPENUSER are currently in use.**

CAUSE: The specified LUs are all in use.

ACTION: Try again later when the system is less busy, or try using another group of LUs.

SNAERR 27 **MESSAGE: IO pending. (SNAERR 27)**

CAUSE: A call to the SNAClose or SNAControl intrinsic was made while a send or receive is pending.

ACTION: Write down the circumstances and call your Hewlett-Packard support contact.

SNAERR 28 **MESSAGE: Invalid function code. (SNAERR 28)**

CAUSE: An SNA service passed a bad function code to the SNAControl or SNASessinfo intrinsic.

ACTION: Write down the circumstances and call your Hewlett-Packard support contact.

SNAERR 29 **MESSAGE: Inactive node or invalid node name. (SNAERR 29)**

CAUSE: An invalid node name was specified in a call to the SNAOpenUser intrinsic.

ACTION: Ensure that the specified node is a valid SNA node that is currently active.

SNAERR 30 **MESSAGE: Illegal call. (SNAERR 30) An attempt was made to access an LU-SSCP session in an LU-LU session.**

CAUSE: A call to the SNASendtoSSCP or SNARcvfromSSCP intrinsic was made on an LU-LU session.

ACTION: Write down the circumstances and call your Hewlett-Packard support contact.

SNAERR 31 **MESSAGE: Invalid error code. (SNAERR 31)**

CAUSE: An invalid error code was passed to the SNAErrmsg intrinsic.

ACTION: Write down the circumstances and call your Hewlett-Packard support contact.

SNAERR 32 **MESSAGE: Privilege mode required. (SNAERR 32)**

CAUSE: An attempt to call an SNA Transport intrinsic was made while in user mode.

ACTION: Write down the circumstances and call your Hewlett-Packard support contact.

SNAERR 33 **MESSAGE: Invalid InfoWanted parameter. (SNAERR 33)**

CAUSE: An invalid *InfoWanted* parameter was specified in a call to the SNASessinfo intrinsic.

ACTION: Write down the circumstances and call your Hewlett-Packard support contact.

SNAERR 35 **MESSAGE: No request pending. (SNAERR 35)**

CAUSE: An attempt to abort an SNARcv, SNARcvFromSSCP, or SNASendtoSSCP intrinsic was made when no such request was outstanding.

ACTION: Write down the circumstances and call your Hewlett-Packard support contact.

SNAERR 36 **MESSAGE: Link shutdown occurred. (SNAERR 36)**

CAUSE: A link shutdown has been requested with the SNACONTROL STOP command, and all sessions are being notified.

ACTION: Wait until the link has been restarted and then continue.

SNAERR 37 **MESSAGE: Protocol shutdown requested. (SNAERR 37)**

CAUSE: A protocol shutdown has been requested with the SNACONTROL STOP command, and all sessions are being notified.

ACTION: Wait until the link has been restarted and then continue.

CAUSE: A protocol shutdown has been requested with the SNACONTROL STOPSESS command, and the session it was requested for is being notified.

ACTION: None.

SNAERR 38 **MESSAGE: Quiesce shutdown requested. (SNAERR 38)**

CAUSE: A quiesce shutdown has been requested with the SNACONTROL STOP command. New sessions will not be started, and all current active sessions are to complete their current activities and close in an orderly fashion.

ACTION: Wait until the link has been restarted and then continue.

CAUSE: A quiesce shutdown has been requested with the SNACONTROL STOPSESS command, and the session it was requested for is being closed in an orderly fashion.

ACTION: None.

SNAERR 39 **MESSAGE: CATSNA.PUB.SYS access error. (SNAERR 39) SNA Transport was unable to access its catalog file.**

CAUSE: The SNA Transport message catalog file (CATSNA.PUB.SYS) is missing, invalid, or locked by another process.

ACTION: Replace the catalog file with a valid SNA catalog file.

SNAERR 40 **MESSAGE: Out of Stack Space. (SNAERR 40)**

CAUSE: A call was made to an SNA Transport intrinsic without enough stack space available or with the data segment frozen in memory.

ACTION: Write down the circumstances and call your Hewlett-Packard support contact.

SNAERR 48 **MESSAGE: Invalid data offset. (SNAERR 48)**

CAUSE: An invalid offset into the given data segment was specified in a call to an SNA Transport intrinsic.

ACTION: Write down the circumstances and call your Hewlett-Packard support contact.

SNAERR 51 **MESSAGE: Link Failure occurred. (SNAERR 51)**

CAUSE: A link failure has occurred, and all sessions are being notified.

ACTION: Wait until the node has been reactivated and then try again.

SNAERR 52 **MESSAGE: SNA Transport Internal Error Shutdown. (SNAERR 52)**

CAUSE: An SNA Transport internal error has occurred, and all sessions are being notified.

ACTION: Write down the circumstances and call your Hewlett-Packard support contact.

SNAERR 55 **MESSAGE: Bad Maxinfo length parameter. (SNAERR 55)**

CAUSE: An invalid *MaxInfolgth* parameter was specified in a call to the SNASessinfo intrinsic.

ACTION: Write down the circumstances and call your Hewlett-Packard support contact.

SNAERR 58 **MESSAGE: Error msg truncated because buffer was too small. (SNAERR 58)**

CAUSE: A buffer too small to hold the error message from the SNA Transport message catalog file (CATSNA.PUB.SYS) was passed in a call to the HPSNAErrmsg or SNAErrmsg intrinsic. The message was truncated to fit into the buffer that was passed.

ACTION: Write down the circumstances and call your Hewlett-Packard support contact.

SNAERR 100 **MESSAGE: Expedited response pending. (SNAERR 100)**

CAUSE: An attempt to send an expedited request was made while in a state that does not allow it.

ACTION: Write down the circumstances and call your Hewlett-Packard support contact.

SNAERR 101 **MESSAGE: Data traffic inactive. (SNAERR 101)**

CAUSE: An attempt to send a request was made before a Start Data Traffic (SDT) has been received or the positive response has been sent.

ACTION: Write down the circumstances and call your Hewlett-Packard support contact.

SNAERR 102 **MESSAGE: SDT request not received. (SNAERR 102)**

CAUSE: A response to a Start Data Traffic (SDT) is being sent, but no SDT was received from the remote system.

ACTION: Write down the circumstances and call your Hewlett-Packard support contact.

SNAERR 103 **MESSAGE: Invalid session control protocol. (SNAERR 103)**

CAUSE: An invalid sequence of session control events has occurred.

ACTION: Write down the circumstances and call your Hewlett-Packard support contact.

SNAERR 104 **MESSAGE: RQR request pending. (SNAERR 104)**

CAUSE: An attempt to send a ReQuest Recovery (RQR) request was made while in a state other than reset.

ACTION: Write down the circumstances and call your Hewlett-Packard support contact.

SNAERR 105 **MESSAGE: STSN request not pending. (SNAERR 105)**

CAUSE: A response to a Set and Test Sequence Numbers (STSN) request is being sent, but no corresponding STSN request has been received.

ACTION: Write down the circumstances and call your Hewlett-Packard support contact.

SNAERR 107 **MESSAGE: Unsupported CRV request/response. (SNAERR 107)**

CAUSE: An attempt to send a CRyptography Verification (CRV) request or response was made.

ACTION: Write down the circumstances and call your Hewlett-Packard support contact.

SNAERR 108 **MESSAGE: Unsupported session control request. (SNAERR 108)**

CAUSE: An attempt to send an unsupported Session Control (SC) request was made.

ACTION: Write down the circumstances and call your Hewlett-Packard support contact.

SNAERR 109 **MESSAGE: Unsupported session control response. (SNAERR 109)**

CAUSE: An attempt to send an unsupported Session Control (SC) response was made.

ACTION: Write down the circumstances and call your Hewlett-Packard support contact.

SNAERR 110 **MESSAGE: No such deactivation request (UNBIND,DACTLU,DACTPU) received. (SNAERR 110)**

CAUSE: An SNA service is trying to send a response to a deactivation request (UNBIND, DACTLU, or DACTPU), but no such deactivation request has been received.

ACTION: The SNA service should examine the situations in which a deactivation response is sent, and verify that a response is sent only after a deactivation request has been received.

SNAERR 111 **MESSAGE: No such activation request (BIND,ACTLU,ACTPU) received. (SNAERR 111)**

CAUSE: An SNA service is trying to send a response to an activation request (BIND, ACTLU, or ACTPU), but no such activation request has been received.

ACTION: The SNA service should examine the situations in which an activation response is sent, and verify that a response is sent only after an activation request has been received.

SNAERR 112 **MESSAGE: The target parameter passed to iowait is too small. (SNAERR 112)**

CAUSE: A target parameter passed in a call to the IOWait intrinsic is too small to receive sense data. The size of the target parameter is checked only when a non-waited call to the SNASendToSSCP intrinsic completes.

ACTION: Ensure that the size of the target parameter (the second parameter) that was passed to the IOWait intrinsic is at least 4 bytes.

SNAERR 113 **MESSAGE: An error occurred during a switch from CM to NM. (SNAERR 113)**

CAUSE: When changing from compatibility mode (CM) to native mode (NM), an error occurred when an SNA compatibility mode intrinsic was called.

ACTION: Write down the circumstances and call your Hewlett-Packard support contact.

SNAERR 115 **MESSAGE: Couldn't send BIND on a Secondary LU. (SNAERR 115)**

CAUSE: When SNAOpenUser was called to open an LU, the LU was opened as a secondary LU. A secondary LU is not capable of issuing a BIND. However, a call was made to SNASendExpedited, to send a BIND. So, an error occurred.

ACTION: Modify the user program that is calling SNASendExpedited.

SNAERR 116 **MESSAGE: A waited send intrinsic call was aborted by SNA Transport to avoid a deadlock. (SNAERR 116)**

CAUSE: When user data is sent to the remote system, if the pacing window is not open SNA Transport must place the request in its queue. If, at the same time, the remote system sends an expedited request (which is not affected by the pacing window), SNA Transport could hang. To avoid being hung, SNA Transport aborts the previous waited send call and generates this message to warn the user.

ACTION: The user program should handle this situation.

SNA Transport Logging Messages

Listed below are the messages that are logged for SNA Transport. Note that these messages can be logged singly or in groups. They are listed here singly, in alphabetical order according to the first word of the message.

MESSAGE: PathInfoUnit

CAUSE: This message is used to print a Path Information Unit (PIU) as part of a logging message.

ACTION: None.

MESSAGE: Activation/Deactivation protocol violation

CAUSE: The remote system has violated protocol in the activation/deactivation of a session. The erroneous Path Information Unit (PIU) is discarded.

ACTION: Call your Hewlett-Packard support contact.

MESSAGE: Attempt to close link failed on node *NodeName*

CAUSE: SNA Transport received an error result code when trying to close the link.

ACTION: Call your Hewlett-Packard support contact.

MESSAGE: Attempt to establish PU type 2.1 connection failed on node *NodeName*

CAUSE: The remote node did not respond to the XID poll.

ACTION: Ensure that the remote node is active (VARIED ON). Also, make sure the remote MAC address, LSAP, and DSAP configured on the local MPE/iX system matches the remote system configuration.

MESSAGE: Attempt to open link failed on node *NodeName*

CAUSE: SNA Transport received an error result code when trying to open the link.

ACTION: Call your Hewlett-Packard support contact.

MESSAGE: Close user granted on node *NodeName*

CAUSE: A request to close an LU user has been granted.

ACTION: None; this is a normal event.

MESSAGE: Error code = *ErrorNum*

CAUSE: This accompanies the packet discard logging messages, indicating the reason for the discard.

ACTION: None.

MESSAGE: Host beginning activation of node *NodeName*

CAUSE: SNA Transport received the ACTivate Physical Unit (ACTPU) request for the indicated node.

ACTION: None; this is a normal event.

MESSAGE: HP IS PRIMARY LU *LUName*

CAUSE: This is part of the OpenUser/CloseUser logging messages. It indicates that the user is a primary LU, capable of issuing a BIND request.

ACTION: None; this is a normal event.

MESSAGE: HP IS SECONDARY LU *LUName*

CAUSE: This is part of the OpenUser/CloseUser logging messages. It indicates that the user is a secondary LU, capable of only receiving a BIND request.

ACTION: None; this is a normal event.

MESSAGE: INTERNAL ERROR *ErrorNum* IN NODE *NodeName*

CAUSE: The indicated SNA node has recognized a critical error. This event is serious and causes the node to shut down.

ACTION: Call your Hewlett-Packard support contact, and please report the *ErrorNum*.

MESSAGE: IPR received correctly

CAUSE: SNA Transport received and processed the Isolated Pacing Response (IPR) and is discarding it when finished.

ACTION: None; this is a normal event.

MESSAGE: Link activated for node *NodeName*

CAUSE: Link activation has completed successfully.

ACTION: None; this is a normal event.

MESSAGE: Link connect failure on node *NodeName*

CAUSE: SNA Transport was unable to connect with the WAN module configurator.

ACTION: Call your Hewlett-Packard support contact.

MESSAGE: Link disconnect failure on node *NodeName*

CAUSE: SNA Transport received a bad response to a link disconnect request.

ACTION: Call your Hewlett-Packard support contact.

MESSAGE: Link failure, recovery in progress on node *NodeName*

CAUSE: A recoverable link failure has occurred on the indicated node.

ACTION: Call your Hewlett-Packard support contact.

MESSAGE: Link failure, shutting down the node *NodeName*

CAUSE: An irrecoverable link error has occurred on the indicated node.

ACTION: Call your Hewlett-Packard support contact.

MESSAGE: LUNAME IS *LUName*

CAUSE: This message is printed for error codes that do not yet have accompanying diagnostic messages.

ACTION: None; this is a normal event.

MESSAGE: Max Data size greater than LLC frame size on node *NodeName*

CAUSE: The value specified in the MAX DATA field of the SNA Node PU Data screen is too big. This value must be at least 36 less than the BUFFER SIZE specified in the NS Link Token Ring Data screen.

ACTION: Use NMMGR to change the value of the MAX DATA filed in the SNA Node PU Data screen or the value of the BUFFER SIZE in the NS Link Token Ring Data screen.

MESSAGE: Module *ModuleNum* rcvd unrecognized msg on node *NodeName*

CAUSE: The indicated SNA Transport module has received a port message it does not recognize.

ACTION: Call your Hewlett-Packard support contact.

MESSAGE: NETVIEW — Sending an alert on node *NodeName*

CAUSE: SNA Transport sent an alert to NetView

ACTION: Write down the circumstances and report them to your HP 3000 system operator.

MESSAGE: NETVIEW ALERT — Dial a bad phone number on node *NodeName*

CAUSE: SNA Transport received an error from the SDLC link driver because it tried to dial with an invalid phone number.

ACTION: Use NMMGR or the configuration file critical summary to verify that the configured Phone Number is correct.

MESSAGE: NETVIEW ALERT — Dial not completed on node *NodeName*

CAUSE: The automatic calling unit (ACU) is not turned on.

ACTION: Ensure that the ACU is turned on.

CAUSE: SNA Transport received an error from the SDLC link driver because it received a busy signal or no answer at all from the remote system.

ACTION: This should be a temporary problem. Wait a few minutes and then try re-dialing.

MESSAGE: NETVIEW ALERT — Inoperative dialing device on node *NodeName*

CAUSE: SNA Transport received an error from the SDLC link driver because it detected that the automatic calling unit (ACU) is not on or that the cable is missing.

ACTION: Ensure that the ACU is on and functional, and that the cable is connected correctly.

MESSAGE: NETVIEW ALERT — Link Failure on node *NodeName*

CAUSE: SNA Transport received an error from the SDLC link driver because it detected a link failure.

ACTION: Call your Hewlett-Packard support contact.

MESSAGE: NETVIEW ALERT — WAN driver detected an error on node *NodeName*

CAUSE: SNA Transport received an error from the SDLC link driver because it detected an internal error.

ACTION: Call your Hewlett-Packard support contact.

MESSAGE: (NO DIAGNOSTIC MESSAGE IN CATALOG)

CAUSE: This message is printed for error codes that do not yet have accompanying diagnostic messages.

ACTION: None; this is a normal event.

MESSAGE: Node *NodeName* all sessions closed — beginning shutdown

CAUSE: SNA Transport has finished shutting down all sessions on the indicated node and is about to begin node clean up and link shutdown.

ACTION: None; this is a normal event.

MESSAGE: Node *NodeName* ready for activation by host

CAUSE: SNA Transport has completed initialization and link activation, and is now awaiting activation of the PU by the remote system.

ACTION: None; this is a normal event. Note that if you are using a manual-dial modem, you can begin to dial after this message is displayed.

MESSAGE: Node *NodeName* shut down completed

CAUSE: Node shutdown has completed successfully. The indicated node is no longer active.

ACTION: None; this is a normal event.

MESSAGE: Node shutdown in progress

CAUSE: SNA Transport is discarding a Path Information Unit (PIU) received during the node shutdown.

ACTION: None; this is a normal event.

MESSAGE: Open user granted on node *NodeName*

CAUSE: A request to open an LU user has been granted.

ACTION: None; this is a normal event.

MESSAGE: Pacing req not allowed in current state

CAUSE: The remote system has sent consecutive pacing requests, with no response to the initial request.

ACTION: Call your Hewlett-Packard support contact.

MESSAGE: PACKET DISCARDED ON NODE *NodeName* BY MODULE *ModuleNum*

CAUSE: A shutdown is occurring, and the module is cleaning up before termination.

ACTION: None; this is a normal event.

CAUSE: An error has been detected by SNA Transport and the erroneous packet has been discarded. The error code and diagnostic message indicate the reason for the discard.

ACTION: Call your Hewlett-Packard support contact.

MESSAGE: PACKET REJECTED ON NODE *NodeName* BY MODULE *ModuleNum*

CAUSE: An error was detected in the received request. So, a negative response (a packet reject) is sent by SNA Transport.

ACTION: Call your Hewlett-Packard support contact.

CAUSE: The node is shutting down.

ACTION: None; this is a normal event.

CAUSE: The remote system is configured to send a welcome screen immediately after receiving the ACTivate Logical Unit (ACTLU) response. When this is the case, the welcome screen is rejected with sense 1003.

ACTION: None; this is a normal event. The welcome screen is retransmitted by the remote system when the LU-LU session is established.

MESSAGE: PU type 2.1 XID3 (negotiable) exchange protocol error on node *NodeName*

CAUSE: SNA Transport detected an XID3 protocol violation. This may cause the MPE/iX SNA node to shut down.

ACTION: Submit node trace, SNA/Transport version, NMCONFIG.PUB.SYS, and a console logging list to the Hewlett-Packard support contact.

MESSAGE: PU type 2.1 XID3 (T2P1) exchange protocol error on node *NodeName*

CAUSE: SNA Transport detected an XID3 protocol violation. This may cause the MPE/iX SNA node to shut down.

ACTION: Submit node trace, SNA/Transport version, NMCONFIG.PUB.SYS, and a console logging list to the Hewlett-Packard support contact.

MESSAGE: Received invalid negative response

CAUSE: SNA Transport received an erroneous negative response.

ACTION: Call your Hewlett-Packard support contact.

MESSAGE: Received Non-Activation XID3 on node *NodeName*

CAUSE: SNA Transport received an unsupported non-activation XID3.

ACTION: None. SNA Transport will ignore the non-activation XID3 and continue to process as normal.

MESSAGE: Received PIU with invalid FID type

CAUSE: SNA Transport received a Path Information Unit (PIU) with a Format IDentifier (FID) other than 2.

ACTION: Call your Hewlett-Packard support contact.

MESSAGE: Received PIU with invalid LFSID

CAUSE: SNA Transport has received a Path Information Unit (PIU) with an invalid session ID.

ACTION: Call your Hewlett-Packard support contact.

MESSAGE: Received PIU with invalid RH

CAUSE: SNA Transport received a Path Information Unit (PIU) whose Request/Response Header (RH) is not of the supported format.

ACTION: Call your Hewlett-Packard support contact.

MESSAGE: Received PIU with invalid TH

CAUSE: SNA Transport received a Path Information Unit (PIU) whose Transmission Header (TH) is not of the supported format.

ACTION: Call your Hewlett-Packard support contact.

MESSAGE: Received too long RU

CAUSE: SNA Transport received a Path Information Unit (PIU) whose Request/Response Unit (RU) is longer than the maximum RU size specified in the BIND.

ACTION: Call your Hewlett-Packard support contact.

MESSAGE: Received too short RU

CAUSE: SNA Transport received a Path Information Unit (PIU) shorter than the sum of the length of the Request/Response Header (RH) plus Transmission Header (TH); that is, no Request/Response Unit (RU) exists.

ACTION: Call your Hewlett-Packard support contact.

MESSAGE: Received unexpected expedited response

CAUSE: SNA Transport received an expedited response when no expedited request has been sent.

ACTION: Call your Hewlett-Packard support contact.

MESSAGE: Received unexpected IPR

CAUSE: SNA Transport received an Isolated Pacing Response (IPR) when “send pacing” was not specified in the BIND.

ACTION: Call your Hewlett-Packard support contact.

MESSAGE: Received unexpected pacing response

CAUSE: SNA Transport received a pacing response when no request was sent.

ACTION: Call your Hewlett-Packard support contact.

MESSAGE: Received unexpected response

CAUSE: SNA Transport received a response for which no corresponding request exists.

ACTION: Call your Hewlett-Packard support contact.

MESSAGE: Received unexpected RQR response

CAUSE: SNA Transport received a ReQuest Recovery (RQR) response when no expedited request has been sent.

ACTION: Call your Hewlett-Packard support contact.

MESSAGE: Received XID3 with format error on node *NodeName*

CAUSE: SNA Transport received an XID3 with illegal format.

ACTION: The remote host does not conform to the XID3 exchange protocol. Submit an SR along with an SNA node trace, SNA/Transport version, NMCONFIG.PUB.SYS, a console logging list, and time and date of error to the Hewlett-Packard support contact.

MESSAGE: Remote node did not support PU type 2.1 on node *NodeName*

CAUSE: The remote node is not a PU type 2.1 node.

ACTION: Ask the remote system administrator to reconfigure the system to support PU type 2.1.

MESSAGE: Request not allowed in current state

CAUSE: SNA Transport has received an unexpected request.

ACTION: Call your Hewlett-Packard support contact.

MESSAGE: SDI connect reply failure on node *NodeName*

CAUSE: SNA Transport cannot establish the LLC link connection.

ACTION: Software internal error. Submit node trace, SNA/Transport version, NMCONFIG.PUB.SYS, and console logging list to the Hewlett-Packard support contact.

MESSAGE: SDI connect request failure on node *NodeName*

CAUSE: SNA Transport cannot establish the LLC link connection.

ACTION: Software internal error. Submit node trace, SNA/Transport version, NMCONFIG.PUB.SYS, and console logging list to the Hewlett-Packard support contact.

MESSAGE: SDI disconnect reply failure on node *NodeName*

CAUSE: SNA Transport cannot disconnect the LLC link connection.

ACTION: Software internal error. Submit node trace, SNA/Transport version, NMCONFIG.PUB.SYS, and console logging list to the Hewlett-Packard support contact.

MESSAGE: SDI disconnect request failure on node *NodeName*

CAUSE: SNA Transport cannot disconnect the LLC link connection.

ACTION: Software internal error. Submit node trace, SNA/Transport version, NMCONFIG.PUB.SYS, and console logging list to the Hewlett-Packard support contact.

MESSAGE: SDI rendezvous reply failure on node *NodeName*

CAUSE: SNA Transport cannot establish the LLC link connection

ACTION: Software internal error. Submit node trace, SNA/Transport version, NMCONFIG.PUB.SYS, and console logging list to the Hewlett-Packard support contact.

MESSAGE: SDI rendezvous request failure on node *NodeName*

CAUSE: The value specified in Local SSAP field in the SNA Node Token Ring Link screen is being used by another node.

ACTION: Use NMMGR or the configuration file critical summary to check that the Local SSAP value of the node is not the same as any currently *active* SNA node. Otherwise, submit a node trace, SNA/Transport version, NMCONFIG.PUB.SYS, and a list of console logging to the Hewlett-Packard support contact.

MESSAGE: SDI separate reply failure on node *NodeName*

CAUSE: SNA Transport cannot disconnect the LLC link connection.

ACTION: Software internal error. Submit node trace, SNA/Transport version, NMCONFIG.PUB.SYS, and console logging list to the Hewlett-Packard support contact.

MESSAGE: SDI separate request failure on node *NodeName*

CAUSE: SNA Transport cannot disconnect the LLC link connection.

ACTION: Software internal error. Submit node trace, SNA/Transport version, NMCONFIG.PUB.SYS, and console logging list to the Hewlett-Packard support contact.

MESSAGE: Segmentation error

CAUSE: SNA Transport detected a missing segment or received segments out of order.

ACTION: Call your Hewlett-Packard support contact.

MESSAGE: Sense code = *SenseCode*

CAUSE: This accompanies the packet reject logging messages, indicating the reason for the reject.

ACTION: None.

MESSAGE: Session not open

CAUSE: SNA Transport received a deactivation response on a session that is no longer open.

ACTION: Call your Hewlett-Packard support contact.

MESSAGE: Session started on node *NodeName*

CAUSE: The indicated session received and processed an ACTivate Physical Unit (ACTPU), ACTivate Logical Unit (ACTLU), or BIND, as applicable.

ACTION: None; this is a normal event.

MESSAGE: Session terminated on node *NodeName*

CAUSE: The indicated session received and processed a DeACTivate Physical Unit (DACTPU), DeACTivate Logical Unit (DACTLU), or UNBIND, as applicable.

ACTION: None; this is a normal event.

MESSAGE: Shutdown type = Internal error

CAUSE: This is part of the logging messages "Node *NodeName* all sessions closed — beginning shutdown" and "Node *NodeName* shut down completed" (each message is described earlier in this listing). This message indicates the type of shutdown (caused by an internal error) that is in progress.

ACTION: None.

MESSAGE: Shutdown type = Kill

CAUSE: This is part of the logging messages "Node *NodeName* all sessions closed — beginning shutdown" and "Node *NodeName* shut down completed" (each message is described earlier in this listing). This message indicates the type of shutdown (kill) that is in progress.

ACTION: None.

MESSAGE: Shutdown type = Link failure norecovery

CAUSE: This is part of the logging messages "Node *NodeName* all sessions closed — beginning shutdown" and "Node *NodeName* shut down completed" (each message is described earlier in this listing). This message indicates the type of shutdown (caused by a nonrecoverable link failure) that is in progress.

ACTION: None.

MESSAGE: Shutdown type = Link failure recovery

CAUSE: This is part of the logging messages "Node *NodeName* all sessions closed — beginning shutdown" and "Node *NodeName* shut down completed" (each message is described earlier in this listing). This message indicates the type of shutdown (caused by a recoverable link failure) that is in progress.

ACTION: None.

MESSAGE: Shutdown type = Protocol

CAUSE: This is part of the logging messages "Node *NodeName* all sessions closed — beginning shutdown" and "Node *NodeName* shut down completed" (each message is described earlier in this listing). This message indicates the type of shutdown (protocol) that is in progress.

ACTION: None.

MESSAGE: Shutdown type = Quiesce

CAUSE: This is part of the logging messages "Node *NodeName* all sessions closed — beginning shutdown" and "Node *NodeName* shut down completed" (each message is described earlier in this listing). This message indicates the type of shutdown (quiesce) that is in progress.

ACTION: None.

MESSAGE: SIDH = *SessIDHi*, SIDL = *SessIDLo*, ODAI *OAFDAFAssgnInd*

CAUSE: This is part of the OpenUser/CloseUser logging messages. It uniquely identifies the session.

ACTION: None; this is a normal event.

MESSAGE: SNA PACKET REJECTED ON NODE *NodeName* BY MODULE *ModuleNum*

CAUSE: A packet intended for the LU-LU session was sent on the LU-SSCP session. The LU-LU session is not available, since no SNA service has opened the session yet. So, the packet was rejected.

ACTION: Call your Hewlett-Packard support contact.

CAUSE: The remote system is configured to send a welcome screen immediately after receiving the ACTivate Logical Unit (ACTLU) response. When this is the case, the welcome screen is rejected with sense 1003.

ACTION: None; this is a normal event. The welcome screen is retransmitted by the remote system when the LU-LU session is established.

MESSAGE: SNA Transport received exception event from LLC on node *NodeName*

CAUSE: An exception event caused the token ring LLC level to shut down.

ACTION: Software internal error. Submit node trace, SNA/Transport version, NMCONFIG.PUB.SYS, and console logging list to the Hewlett-Packard support contact.

MESSAGE: SOCKERR *nnn*

CAUSE: This is part of the logging message "subsystem = *SubsysID*, procedure = *ProcNum*, error num = *ErrorNum*" when the *ProcNum* is -1 (the message is described later in this listing).

ACTION: Look in the *NS 3000/XL Error Messages Reference Manual* for the message with the number corresponding to *nnn*.

MESSAGE: Subsystem = *SubsysID*, Error Code = *ErrorCode*

CAUSE: This is associated with the "INTERNAL ERROR *ErrorNum* IN NODE *NodeName*" logging message (the message is described earlier in this listing).

ACTION: Write down the *SubsysID* and *ErrorCode*, and call your Hewlett-Packard support contact.

MESSAGE: Subsystem = *SubsysID*, procedure = *ProcNum*, error num = *ErrorNum*

CAUSE: This is part of the logging message for link errors (including errors that occur when trying to open or close the link).

ACTION: Write down the indicated values and call your Hewlett-Packard support contact. Note that, (1) depending on the *ErrorNum*, you might have to look at a message with the corresponding number in "X.25 Link Failure Error Codes" later in this appendix; and (2) depending on the *ProcNum*, you might have to look at a message with the corresponding number in "X.25 Link QLLC Internal Error Codes" later in this appendix.

SDLC Link Shutdown Error Messages

Listed below are the messages that might occur when you are stopping the SDLC link. These messages occur when the SNACONTROL STOP command calls the WAN_Kill_Module procedure and encounters an error. Depending on the logging configuration for the SDLC Link subsystem, these messages are logged to the console, to disk, or both. The messages are logged in this format:

```
Linkname      = LinkName        Event Type     = EventType
Log Class     = LogClass          Path           = Path
Error Num     = ErrorNumber      Status         = Status
```

(Note that *LinkName* is the same as the name of the node.) The messages are listed below in numerical order according to *ErrorNumber*.

51 **MESSAGE: Could not stop trace.**

CAUSE: Tracing might have been turned off with the SNACONTROL TRACEOFF command, but the link software status indicates that it is on.

ACTION: Ignore this problem unless you are experiencing other problems. If you are, write down the error information displayed on the console and call your Hewlett-Packard support contact.

52 **MESSAGE: The link is not in the link table.**

CAUSE: The node specified in the SNACONTROL STOP command is not active.

ACTION: Unless the specified *NodeName* parameter is not correct, no action is required: The link has already been shut down.

53 **MESSAGE: The link type is not SDLC, LAP-B or RJE.**

CAUSE: The caller of this module did not set the link type to SDLC, LAP-B, or RJE BSC. Since you are using an SDLC link, the link type must be set to SDLC.

ACTION: Write down the error information displayed on the console and call your Hewlett-Packard support contact.

54 **MESSAGE: Could not delete the link from the link table.**

CAUSE: The *NodeName* specified in the SNACONTROL STOP command is not in the link table.

ACTION: Ensure that the *NodeName* is correct and try again. The link might have already been shut down.

55 **MESSAGE: Could not unconfigure the link from the system.**

CAUSE: The I/O subsystem does not have any record of this link being active.

ACTION: Ensure that the *NodeName* specified in the SNACONTROL STOP command is correct and try again. The link might have already been shut down.

56 **MESSAGE: Could not delete the auxiliary buffer pool.**

CAUSE: Many causes exist; the *Status* field of the message provides more-detailed information about the specific cause of the problem.

ACTION: Write down the error information displayed on the console and call your Hewlett-Packard support contact.

57 **MESSAGE: Could not determine the PSI path number IO Serv.**

CAUSE: The I/O subsystem does not have a physical path for the specified link, and therefore cannot unconfigure it from the system.

ACTION: Ensure that the *NodeName* specified in the SNACONTROL STOP command is correct and try again.

X.25 Link Failure Error Codes

Listed below are the codes that are generated for X.25 link failures by the Qualified Logical Link Control (QLLC) module. They are listed in numerical order according to the *ErrorNum* displayed as part of these SNA Transport logging messages:

```
Link connect failure on node NodeName
subsystem = SubsysID, procedure = ProcNum, error num = ErrorNum

Link failure, recovery in progress on node NodeName
subsystem = SubsysID, procedure = ProcNum, error num = ErrorNum

Link failure, shutting down the node NodeName
subsystem = SubsysID, procedure = ProcNum, error num = ErrorNum
```

The logging messages are described in "SNA Transport Logging Messages" earlier in this appendix. The X.25 link-related *ProcNum* values are described in "X.25 Link QLLC Internal Error Codes" later in this appendix.

-14 **MESSAGE: BAD FRAME RECEIVED**

CAUSE: SNA/X.25 received an invalid QLLC control frame (QLLU) from the remote system.

ACTION: Try to reproduce the problem with link-level tracing turned on. Also, call your Hewlett-Packard support contact.

-15 **MESSAGE: REMOTE PROTOCOL ERROR**

CAUSE: The remote system sent a QLLC control frame (QLLU) that violated the QLLC protocol. This can be caused by software errors on the IBM system or the HP 3000 system, or by the two end nodes being out of sync.

ACTION: Try to restart the SNA node. If the problem continues, reproduce it with link-level tracing turned on and call your Hewlett-Packard support contact.

-38 **MESSAGE: QLLC INTERNAL ERROR**

CAUSE: The Qualified Logical Link Control (QLLC) module has either encountered an internal error or received an error notification from NETIPC.

ACTION: Note the *ProcNum* displayed in the accompanying logging message. Then, look at the message with the corresponding number in "X.25 Link QLLC Internal Error Codes" later in this appendix. Also, call your Hewlett-Packard support contact.

-74 **MESSAGE: DATACOM LINE LOST**

CAUSE: The virtual circuit has terminated. That is, it has been cleared, reset, or restarted.

ACTION: Since this is a recoverable link error, restart the SNA node. If the error still occurs, call your Hewlett-Packard support contact.

-76 **MESSAGE: DISCONNECT TIMER POPPED**

CAUSE: The X.25 link has timed out while waiting for a solicited Q disconnect (QDC) from the remote system. The disconnect timer normally is running when the link is in the process of shutting down. Since the link is terminated when the timer pops, the desired result (shutting down the link) is achieved.

ACTION: Note that the solicited QDC was never received. No other action is necessary.

-77 **MESSAGE: INACTIVITY TIMER POPPED**

CAUSE: The time interval specified for `Inactivity Timeout` has elapsed since any packets were sent or received.

ACTION: Use NMMGR or the configuration file critical summary to ensure that the interval specified for `Inactivity Timeout` is correct. If the timeout occurs before a transaction is completed, try increasing the value of `Inactivity Timeout`. If the error still occurs, call your Hewlett-Packard support contact.

-78 **MESSAGE: CONNECT TIMER POPPED**

CAUSE: The X.25 link has timed out waiting for a QSM from the remote system.

ACTION: Restart the SNA node. If the problem still occurs, call your Hewlett-Packard support contact.

-79 **MESSAGE: ALREADY CONNECTED**

CAUSE: SNA Transport has requested an SNA connection for an X.25 link that is already connected.

ACTION: Call your Hewlett-Packard support contact.

-80 **MESSAGE: DISCONNECT IN PROGRESS**

CAUSE: SNA Transport has requested an SNA connection or disconnection while a QDC is pending from the remote system.

ACTION: Call your Hewlett-Packard support contact.

-81 **MESSAGE: CONNECT IN PROGRESS**

CAUSE: SNA Transport has requested an SNA connection or disconnection while the QSM from the remote system is pending.

ACTION: Call your Hewlett-Packard support contact.

-83 **MESSAGE: UNEXPECTED QDC**

CAUSE: The remote system has sent an unsolicited Q disconnect (QDC).

ACTION: Restart the SNA node. If the problem still occurs, call your Hewlett-Packard support contact.

-84 **MESSAGE: UNEXPECTED QSM**

CAUSE: The remote system has sent a QSM after the SNA connection has already been established.

ACTION: Since this is a recoverable link error, the SNA node will be revived. So, no action is necessary.

X.25 Link Module Configurator Error Codes

Listed below are the error codes that are generated by the X.25 link module configurator. These messages are displayed on the HP 3000 operator's console. They are listed here in numerical order according to the *ErrorCode* displayed as part of these SNA Transport logging messages:

```
Attempt to close link failed on node NodeName
Subsystem = 734, Error Code = ErrorCode

Attempt to open link failed on node NodeName
Subsystem = 734, Error Code = ErrorCode
```

The logging messages are described in "SNA Transport Logging Messages" earlier in this appendix.

-200 **MESSAGE: CONFIG OPEN ERROR**

CAUSE: The module configurator encountered an error while trying to open the configuration file.

ACTION: Verify that the NMCONFIG.PUB.SYS configuration file exists.

-201 **MESSAGE: CONFIG RETRIEVAL ERROR**

CAUSE: The module configurator encountered an error while retrieving the SNA/X.25 link configuration information for the current SNA node.

ACTION: Verify that the correct version of NMMGR is installed on the system, and that an X.25 link is configured for the SNA node being started.

-202 **MESSAGE: PROCESS CREATION ERROR**

CAUSE: The module configurator was unable to launch the Qualified Logical Link Control (QLLC) module.

ACTION: Verify that the file containing the QLLC module (SNAX25.PUB.SYS) exists.

-203 **MESSAGE: TRACE OPEN ERROR**

CAUSE: The module configurator was unable to open the trace file.

ACTION: Issue the SNACONTROL START command with the trace file name specified for the *LINKTRACE* parameter. If the error still occurs, issue the SNACONTROL START command *without* specifying a trace file name (that is, let the default file name be used). If the error still occurs, call your Hewlett-Packard support contact.

-204 **MESSAGE: STATUS BUFFER INVALID**

CAUSE: The Qualified Logical Link Control (QLLC) module returned an invalid buffer containing the link status information. Note that the node can still function, but link status information cannot be retrieved.

ACTION: Call your Hewlett-Packard support contact.

-205 **MESSAGE: STATUS REPLY INVALID**

CAUSE: The module configurator status routine received an invalid status reply. Note that the node can still function, but link status information cannot be retrieved.

ACTION: Call your Hewlett-Packard support contact.

-500 **MESSAGE: UNABLE TO RECEIVE OPENLINK COMPLETION MESSAGE**

CAUSE: The module configurator encountered an error while trying to receive the OpenLink completion message.

ACTION: Call your Hewlett-Packard support contact.

-501 **MESSAGE: UNABLE TO GET MSG FRAME FOR CLOSELINK REQUEST**

CAUSE: The module configurator encountered an error while trying to allocate the CloseLink request message.

ACTION: Call your Hewlett-Packard support contact.

-502 **MESSAGE: UNABLE TO SEND CLOSELINK REQUEST**

CAUSE: The module configurator encountered an error while trying to send the CloseLink request message.

ACTION: Call your Hewlett-Packard support contact.

-503 **MESSAGE: UNABLE TO RECEIVE CLOSELINK COMPLETION MESSAGE**

CAUSE: The module configurator encountered an error while trying to receive the CloseLink completion message.

ACTION: Call your Hewlett-Packard support contact.

-504 **MESSAGE: UNABLE TO GET MSG FRAME FOR TRACE ENABLE REQUEST**

CAUSE: The module configurator encountered an error while trying to allocate the trace enable request message.

ACTION: Call your Hewlett-Packard support contact.

-505 **MESSAGE: UNABLE TO SEND TRACE ENABLE REQUEST**

CAUSE: The module configurator encountered an error while trying to send the trace enable request message.

ACTION: Call your Hewlett-Packard support contact.

-506 **MESSAGE: UNABLE TO SEND TRACE DISABLE REQUEST**

CAUSE: The module configurator encountered an error while trying to send the trace disable request message.

ACTION: Call your Hewlett-Packard support contact.

-507 **MESSAGE: UNABLE TO GET MESSAGE FRAME FOR TRACE DISABLE REQUEST**

CAUSE: The module configurator encountered an error while trying to allocate the trace disable request message.

ACTION: Call your Hewlett-Packard support contact.

-508 **MESSAGE: UNABLE TO GET MESSAGE FRAME FOR STATUS REQUEST**

CAUSE: The module configurator encountered an error while trying to allocate the status request message.

ACTION: Call your Hewlett-Packard support contact.

-509 **MESSAGE: UNABLE TO SEND STATUS REQUEST**

CAUSE: The module configurator encountered an error while trying to send the status request message.

ACTION: Call your Hewlett-Packard support contact.

-510 **MESSAGE: UNABLE TO RECEIVE STATUS COMPLETION MESSAGE**

CAUSE: The module configurator encountered an error while trying to receive the status completion message.

ACTION: Call your Hewlett-Packard support contact.

X.25 Link QLLC Internal Error Codes

Listed below are the codes that are generated by the X.25 link Qualified Logical Link Control (QLLC) module when a QLLC internal error occurs. They are listed in numerical order according to the *ProcNum* displayed as part of these SNA Transport logging messages:

```
Link connect failure on node NodeName
subsystem = SubsysID, procedure = ProcNum, error num = ErrorNum

Link failure, recovery in progress on node NodeName
subsystem = SubsysID, procedure = ProcNum, error num = ErrorNum

Link failure, shutting down the node NodeName
subsystem = SubsysID, procedure = ProcNum, error num = ErrorNum
```

The logging messages are described in "SNA Transport Logging Messages" earlier in this appendix. The X.25 link-related *ErrorNum* values are described in "X.25 Link Failure Error Codes" earlier in this appendix.

-1 **MESSAGE: NETIPC ERROR DETECTED**

CAUSE: The QLLC module was informed of a socket error (SOCKERR) by NETIPC.

ACTION: Note the socket error number and see the *NS 3000/XL Error Messages Reference Manual* for socket error information.

-2 **MESSAGE: AFT ERROR**

CAUSE: The QLLC module encountered an error while trying to obtain the available file table (AFT).

ACTION: Call your Hewlett-Packard support contact.

-3 **MESSAGE: INSTALLATION ERROR**

CAUSE: The SNA/X.25 Link IOWAIT completor is not installed on the system.

ACTION: Call your Hewlett-Packard support contact.

-4 **MESSAGE: QLLC PORT CREATION ERROR**

CAUSE: The QLLC module encountered an error while trying to create its IOWAIT port.

ACTION: Call your Hewlett-Packard support contact.

-5 **MESSAGE: PORT SUBQUEUE ERROR**

CAUSE: The QLLC module encountered an error while trying to enable its IOWAIT port subqueues.

ACTION: Call your Hewlett-Packard support contact.

-6 through -16 **MESSAGE: (reserved for internal use only)**

CAUSE: An internal error has occurred.

ACTION: Call your Hewlett-Packard support contact.

-17 **MESSAGE: CALL REJECTED DUE TO SECURITY VIOLATION**

CAUSE: An incoming SVC call was rejected by SNA/X.25 because the caller was unauthorized. That is, the caller's address was not included in the call packet, or it was not the remote address the SNA node is configured for.

ACTION: Verify that the Remote's X.25 Network Address field of the "SNA Node Configuration: X.25 Link Data" screen contains the correct X.25 address for the host node. Also verify that the DIALNO operand of the PATH macro in the host's switched major node definition contains the IBM's X.25 address *and* the HP 3000's X.25 address.

-18 **MESSAGE: (reserved for internal use only)**

CAUSE: An internal error has occurred.

ACTION: Call your Hewlett-Packard support contact.

-19 **MESSAGE: SECURITY VIOLATION**

CAUSE: A non-system process tried to launch the QLLC module.

ACTION: Call your Hewlett-Packard support contact.

-20 **MESSAGE: RECEIVED INVALID QLLU**

CAUSE: An unrecognizable QLLC control frame (QLLU) was received from the remote system.

ACTION: Call your Hewlett-Packard support contact.

-21 **MESSAGE: INFO FIELD NOT ALLOWED**

CAUSE: A QLLU that information fields are not allowed for was received with an information field.

ACTION: Call your Hewlett-Packard support contact.

-22 **MESSAGE: INFO TOO LONG**

CAUSE: A QLLU containing an information field that is too long was received.

ACTION: Call your Hewlett-Packard support contact.

-23 through -26 **MESSAGE: INTERNAL ERROR**

CAUSE: An internal error has occurred.

ACTION: Call your Hewlett-Packard support contact.

-27 through -49 **MESSAGE: (reserved for internal use only)**

CAUSE: An internal error has occurred.

ACTION: Call your Hewlett-Packard support contact.

-50 through -100 **MESSAGE: INTERNAL ERROR**

CAUSE: An internal error has occurred.

ACTION: Call your Hewlett-Packard support contact.

NetView Alerts Error Messages

Listed below are the error messages that can occur when an operator-generated NetView alert is sent. They are listed in alphabetical order according to the first word of the message. These messages are not logged; they are written to $STDLIST.

MESSAGE: Can't open CATSNA.PUB.SYS.

CAUSE: The SNA message catalog (CATSNA.PUB.SYS) is missing, or is not in the correct format.

ACTION: Write down the circumstances and call your Hewlett-Packard support contact.

MESSAGE: Invalid action code: must be from 01–20.

CAUSE: The action code specified in the alert is not within the range of 01 through 20.

ACTION: Reenter an action code that is from 01 through 20.

MESSAGE: Node not configured or message file does not exist.

CAUSE: The node specified in the alert is not configured.

ACTION: Specify a configured node.

CAUSE: The message file (*nodename*.PUB.SYS) does not exist.

ACTION: Create the message file (see Appendix B , "Netview Alerts," for instructions).

CAUSE: The message file (*nodename*.PUB.SYS) is not in message file format.

ACTION: Recreate the message file, being sure to specify the *;MSG* parameter (see Appendix B , "Netview Alerts," for instructions).

Network Dump Manager Error Messages

Listed below are the messages that are generated by the Network Dump Manager when errors occur while the SDLC link is being dumped. If you must submit an SR or call your Hewlett-Packard support contact, please copy the error *exactly as it appears on the operator's console*; it will make determining the cause of the problem easier.

The messages are listed below in numerical order according to message number. These messages are not written to $STDLIST, and they are not logged.

DUMP ERROR 1 **MESSAGE: **** DUMP ERROR 1: PATH ALREADY DELETED FROM SYSTEM**

CAUSE: The Network Dump Manager attempted to look up information about the SDLC link driver being dumped, but was unable to locate all of the information. This is probably because the driver had already been shut down. A heavy system load or a hung system console can delay the Dump Manager long enough to cause it to time out and shut down. Note that no dump file was produced.

ACTION: If the problem continues and you need a good dump file, try reducing the system load.

DUMP ERROR 2 **MESSAGE: **** DUMP ERROR 2: LACK OF MEMORY PREVENTS DUMPS**

CAUSE: This message appears only during system boot. At boot time, the Network Dump Manager could not obtain a block of system memory, which is required to produce SDLC link hardware dumps. If the system comes up, the Network Dump Manager will not work, attempts to produce link dumps will be ignored, and no more Network Dump Manager errors will appear.

ACTION: Take a system memory dump if the system comes up, and then call your Hewlett-Packard support contact. If the system seems to operate normally (except for this condition), continue to use the link until this condition is resolved.

DUMP ERROR 3 **MESSAGE: **** DUMP ERROR 3: CANNOT ACCESS INTERRUPT SYSTEM**

CAUSE: The Network Dump Manager located information about the SDLC link hardware, but received an error when attempting to obtain an interrupt list head from the I/O system. Note that no dump file was produced.

ACTION: Issue the SWITCHNMLOG command (see Chapter 6 , "MPE Commands," of this manual) and note the name of the current NM log file. Save the current file *and* the previous file, to prevent accidental

purging. Then, take a system memory dump and call your Hewlett-Packard support contact, who will need to analyze the “Llio Status” error that was logged.

DUMP ERROR 4 **MESSAGE: **** DUMP ERROR 4: CANNOT CREATE DUMP FILE**

CAUSE: The Network Dump Manager completed all hardware-dump setup, but was not able to open a new disk file to hold the dump. Either 100 dumps are already on the system, or another problem (for example, a last of disk space or directory space) exists. Note that no new dump file was produced.

ACTION: Issue the MPE LISTF command to find all NETDMP*nn*.PUB.SYS files, and then purge any of those files that are unnecessary. Also, check disk space usage. You can try to create a file in PUB.SYS yourself (by issuing the MPE BUILD command) to test for any errors. If the problem continues, issue the SWITCHNMLOG command (see Chapter 6 , “MPE Commands,” of this manual) and note the name of the current NM log file. Save the current file *and* the previous file, to prevent accidental purging. Then, call your Hewlett-Packard support contact, who will need to analyze the “Hpe Status” error that was logged.

DUMP ERROR 5 **MESSAGE: **** DUMP ERROR 5: CANNOT FREEZE MEMORY**

CAUSE: The Network Dump Manager received an error from the system while trying to freeze a part of the dump file into memory. If the system is heavily loaded, too much memory might be in use. Otherwise, a system problem might exist. Note that a partial dump file was produced.

ACTION: If the problem continues, try reducing the system load. If that does not solve the problem, issue the SWITCHNMLOG command (see Chapter 6 , “MPE Commands,” of this manual) and note the name of the current NM log file. Save the current file *and* the previous file, to prevent accidental purging. Then, take a system memory dump and call your Hewlett-Packard support contact, who will need to analyze the “Hpe Status” error that was logged. Also, your Hewlett-Packard support contact might be able to analyze the partial dump file that was created, depending on how much of the file the Network Dump Manager was able to freeze before the error occurred.

DUMP ERROR 6 **MESSAGE: **** DUMP ERROR 6: CANNOT DUMP DRIVER MEMORY**

CAUSE: The Network Dump Manager received an error while trying to send a message through the system by using the SDLC link driver’s port, requesting a driver memory dump. The driver might have already been shut down or an operating system problem might exist. Note that an empty dump file was produced.

ACTION: Purge the empty dump file that was produced. Then, check for other SDLC link driver error messages that were generated (see “SDLC Link Driver Error Messages” earlier in this appendix). You should especially check for link driver error message number 1033. If that

message was generated, it might indicate that the dump took too long to produce. (This caused the driver to be shut down, deleting its memory.) A heavy system load can cause the dump to take too long. If no other messages were generated, issue the SWITCHNMLOG command (see Chapter 6 , "MPE Commands," of this manual) and note the name of the current NM log file. Save the current file *and* the previous file, to prevent accidental purging. Then, call your Hewlett-Packard support contact, who will need to analyze the "Hpe Status" error that was logged.

DUMP ERROR 7 **MESSAGE: **** DUMP ERROR 7: UNEXPECTED INTERRUPT RECEIVED**

CAUSE: The Network Dump Manager received an interrupt message from the I/O system, containing an address that did not point to a valid DMA completion entry in the Dump Manager's memory area. The SDLC link hardware or I/O bus hardware might be too faulty to produce a good dump. Note that a partial dump file was produced.

ACTION: The partial dump file that was produced probably contains good link driver data but corrupt hardware data. So, your Hewlett-Packard support contact might be able to analyze the file. However, your hardware is probably intermittently faulty. If the system crashes, take a system memory dump. Also, because the link hardware might have also corrupted other system memory, you should restart the system. Then, call your Hewlett-Packard support contact, who will need to replace the PSI card in the system.

DUMP ERROR 8 **MESSAGE: **** DUMP ERROR 8: SOFT CARD ERROR DURING DUMP**

CAUSE: Only the soft error "SERR_MORE" was expected, but the SDLC link hardware reported some other soft error. The link hardware or I/O bus hardware might be too faulty to produce a good dump. Note that a partial dump file was produced.

ACTION: The partial dump file that was produced probably contains good link driver data but corrupt hardware data. So, your Hewlett-Packard support contact might be able to analyze the file. However, your hardware is probably faulty. If the system crashes, take a system memory dump. Otherwise, issue the SWITCHNMLOG command (see Chapter 6 , "MPE Commands," of this manual) and note the name of the current NM log file. Save the current file *and* the previous file, to prevent accidental purging. Then, call your Hewlett-Packard support contact, who will need to analyze the "IO Status" error that was logged and replace the PSI card in the system.

DUMP ERROR 9 **MESSAGE: **** DUMP ERROR 9: HARD CARD ERROR DURING DUMP**

CAUSE: No hard errors are expected during a dump, but the SDLC link hardware reported one. The link hardware or I/O bus hardware is too faulty to produce a good dump. Note that a partial dump file was produced.

ACTION: The partial dump file that was produced probably contains good link driver data but incomplete hardware data. So, your Hewlett-Packard support contact might be able to analyze the file. However, your hardware is probably faulty. If the system crashes, take a system memory dump. Otherwise, issue the SWITCHNMLOG command (see Chapter 6 , "MPE Commands," of this manual) and note the name of the current NM log file. Save the current file *and* the previous file, to prevent accidental purging. Then, call your Hewlett-Packard support contact, who will need to analyze the "IO Status" error that was logged and replace the PSI card in the system.

DUMP ERROR 10 **MESSAGE: **** DUMP ERROR 10: INCOMPLETE CARD DMA TRANSFER**

CAUSE: The Network Dump Manager requested an exact read of the SDLC link hardware memory, but the hardware reported a residual count, which indicates that some of the data was not transferred. The link hardware or I/O bus hardware might be too faulty to produce a good dump. Note that a partial dump file was produced.

ACTION: The partial dump file that was produced probably contains good link driver data but incomplete hardware data. So, your Hewlett-Packard support contact might be able to analyze the file. However, your hardware is probably faulty. If the system crashes, take a system memory dump. Then, call your Hewlett-Packard support contact, who will need to replace the PSI card in the system.

DUMP ERROR 11 **MESSAGE: **** DUMP ERROR 11: CARD NOT READY DURING DUMP**

CAUSE: While linking the next memory transfer, the Network Dump Manager discovered that the SDLC link hardware did not set its "ready bit." A soft error or hard error, describing the reason, was probably also set at that time. The link hardware or I/O bus hardware might be too faulty to produce a good dump. Note that a partial dump file was produced.

ACTION: The partial dump file that was produced probably contains good link driver data but incomplete hardware data. So, your Hewlett-Packard support contact might be able to analyze the file. However, your hardware is probably faulty. If the system crashes, take a system memory dump. Otherwise, issue the SWITCHNMLOG command (see chapter 6 of this manual) and note the name of the current NM log file. Save the current file *and* the previous file, to prevent accidental purging. Then, call your Hewlett-Packard support contact, who will need to analyze the "IO Status" error that was logged and replace the PSI card in the system.

DUMP ERROR 12 **MESSAGE: **** DUMP ERROR 12: FATAL CARD ERROR DURING DUMP**

CAUSE: While linking the next memory transfer, the Network Dump Manager discovered that the SDLC link hardware died with a "fatal error" while the dump was in progress. The link hardware or I/O bus

hardware might be too faulty to produce a good dump, or a power failure might have occurred. (A power failure can produce a false fatal error, but it still aborts the dump.) Note that a partial dump file was produced.

ACTION: The partial dump file that was produced probably contains good link driver data but incomplete hardware data. So, your Hewlett-Packard support contact might be able to analyze the file *unless a power failure occurred*. However, your hardware is probably faulty. If the system crashes, take a system memory dump. Otherwise, issue the SWITCHNMLOG command (see Chapter 6 , "MPE Commands," of this manual) and note the name of the current NM log file. Save the current file *and* the previous file, to prevent accidental purging. Then, call your Hewlett-Packard support contact, who will need to analyze the "IO Status" error that was logged and replace the PSI card in the system.

DUMP ERROR 13 **MESSAGE: **** DUMP ERROR 13: CANNOT GET DUMP TIMER**

CAUSE: The Network Dump Manager received an error from the system while attempting to obtain a watchdog timer for its side of the dump operation. The system might be under a heavy load and using all of the timers, or an operating system problem might exist. Note that no dump file was produced.

ACTION: If the system is heavily loaded, try reducing the load by aborting some jobs or sessions. If the problem continues, take a system memory dump. Also, issue the SWITCHNMLOG command (see Chapter 6 , "MPE Commands," of this manual) and note the name of the current NM log file. Save the current file *and* the previous file, to prevent accidental purging. Then, call your Hewlett-Packard support contact, who will need to analyze the "Llio Status" error that was logged.

DUMP ERROR 14 **MESSAGE: **** DUMP ERROR 14: NOT-READY CARD PREVENTS DUMP**

CAUSE: After dumping SDLC link driver data, the Network Dump Manager checked the SDLC link hardware and found it "not ready." A hard error was probably also set. The link hardware cannot be dumped, and it might be faulty. Note that a partial dump file was produced.

ACTION: The partial dump file that was produced contains only link driver data. Your Hewlett-Packard support contact might be able to analyze the file. However, your hardware is probably faulty. If the system crashes, take a system memory dump. Otherwise, issue the SWITCHNMLOG command (see Chapter 6 , "MPE Commands," of this manual) and note the name of the current NM log file. Save the current file *and* the previous file, to prevent accidental purging. Then, call your Hewlett-Packard support contact, who will need to analyze the "IO Status" error that was logged and replace the PSI card in the system.

DUMP ERROR 15 **MESSAGE: **** DUMP ERROR 15: FATAL CARD ERROR PREVENTS DUMP**

CAUSE: After dumping SDLC link driver data, the Network Dump Manager checked the SDLC link hardware and found a "fatal error." The link hardware cannot be dumped and might be faulty, or a power failure might have occurred. (A power failure can produce a false fatal error, but it still aborts the dump.) Note that a partial dump file was produced.

ACTION: The partial dump file that was produced contains only link driver data. So, your Hewlett-Packard support contact might be able to analyze the file *unless a power failure occurred*. However, your hardware is probably faulty. If the system crashes, take a system memory dump. Otherwise, issue the SWITCHNMLOG command (see Chapter 6 , "MPE Commands," of this manual) and note the name of the current NM log file. Save the current file *and* the previous file, to prevent accidental purging. Then, call your Hewlett-Packard support contact, who will need to analyze the "IO Status" error that was logged and replace the PSI card in the system.

DUMP ERROR 18 **MESSAGE: **** DUMP ERROR 18: TIMEOUT CAUSED INCOMPLETE DUMP**

CAUSE: The Network Dump Manager timed out while waiting for the system to dump the SDLC link driver context or while waiting for SDLC link hardware memory DMA. The Dump Manager can be delayed too long by a heavy system load or a hung system console. The SDLC link driver has a similar timer running to delay shutdowns while dumping is in progress. Note that an empty or corrupt dump file might have been produced.

ACTION: If a dump file was created, your Hewlett-Packard support contact might be able to analyze it, depending on how much processing the Network Dump Manager was able to do before the error occurred. If the problem continues and you need a good dump file, try reducing the system load.

DUMP ERROR 19 **MESSAGE: **** DUMP ERROR 19: DRIVER MEMORY DUMP FAILED**

CAUSE: In response to the Network Dump Manager's request to the system to dump the SDLC link driver's context-area memory, the system sent a reply message that contains an error. The driver might have already been shut down or an operating system problem might exist. Note that an empty dump file was produced.

ACTION: Purge the empty dump file that was produced. Then, check for other SDLC link driver error messages that were generated (see "SDLC Link Driver Error Messages" earlier in this appendix). You should especially check for link driver error message number 1033. If that message was generated, it might indicate that the dump took too long to produce. (This caused the driver to be shut down, deleting its memory.) A heavy system load can cause the dump to take too long. If

no other messages were generated, issue the SWITCHNMLOG command (see Chapter 6 , “MPE Commands,” of this manual) and note the name of the current NM log file. Save the current file *and* the previous file, to prevent accidental purging. Then, call your Hewlett-Packard support contact, who will need to analyze the “Llio Status” error that was logged.

DUMP ERROR $*nnnn*

MESSAGE: ** DUMP ERROR $*nnnn***

CAUSE: The Network Dump Manager detected an error, but because of a software bug no message text was supplied or the Dump Manager incorrectly reported an illegal error number. The error number is displayed as a hexadecimal value (*nnnn*). Note that an empty or corrupt dump file might have been produced.

ACTION: If a dump file was created, your Hewlett-Packard support contact might be able to analyze it. Note what you were doing when the error occurred, and write down all console messages that were displayed at the time this message was displayed. Issue the SWITCHNMLOG command (see Chapter 6 , “MPE Commands,” of this manual) and note the name of the current NM log file. Save the current file *and* the previous file, to prevent accidental purging. Then, call your Hewlett-Packard support contact and submit an SR.

LAN Error Messages

Listed below are the messages that are generated by the token ring driver or token ring card. Depending on the logging configuration for the Token Ring Link subsystem, these messages are logged to the console, to disk, or both. These messages have the following format:

`Internal driver error in SYSLINK (LANWARN ####)` or `(LANERR ####)`

where #### is an error number. The messages are listed in numerical order according to the error number.

2 **MESSAGE: Bad LINK ID.**

`CAUSE:` An invalid `LINK ID` was passed to the link driver's write initiator.

`ACTION:` Write down the error information displayed on the console, submit an SR, and call your Hewlett-Packard support contact.

`CAUSE:` An invalid `LINK ID` was specified in the rendezvous request message.

`ACTION:` Write down the error information displayed on the console, submit an SR, and call your Hewlett-Packard support contact.

3 **MESSAGE: Bad OPEN ID.**

`CAUSE:` An invalid `OPEN ID` was specified in the rendezvous request message.

`ACTION:` Write down the error information displayed on the console, submit an SR, and call your Hewlett-Packard support contact

5 **MESSAGE: Unable to obtain a buffer manager buffer.**

`CAUSE:` The buffers are not freed.

`ACTION:` Warmstart the system and correct the user programs.

`CAUSE:` Some other process has obtained buffers reserved for the driver.

`ACTION:` Write down the error information displayed on the console, take a system dump, submit an SR, and call your Hewlett-Packard support contact.

6 **MESSAGE: Unable to obtain an I/O Services message frame.**

`CAUSE:` The driver could not obtain a message frame from a user port for newly arrived LAN packet (or from CAM's port, in the case of a CIO card) for a new DMA request to the card.

`ACTION:` Write down the error information displayed on the console, take a system dump, submit an SR, and call your Hewlett-Packard support contact.

7 **MESSAGE: A call to IO_CONFIG_INT failed during driver initialization.**

CAUSE: Unknown. Need more information.

ACTION: Write down the error information displayed on the console, submit an SR, and call your Hewlett-Packard support contact.

8 **MESSAGE: A call to IO_DECONFIG_INT failed during driver shutdown.**

CAUSE: Unknown. Need more information.

ACTION: Write down the error information displayed on the console, submit an SR, and call your Hewlett-Packard support contact.

9 **MESSAGE: A call to IO_FLUSH_INT failed during power fail recovery.**

CAUSE: Unknown. Need more information.

ACTION: Write down the error information displayed on the console, submit an SR, and call your Hewlett-Packard support contact.

10 **MESSAGE: Unable to obtain an I/O Services timer.**

CAUSE: A call to obtain a timer resource returned an error. Too many timers may be in use.

ACTION: If you suspect your system might be low on timer resources because of heavy loading, try restarting the link later. If repeated attempts fail, try warmstarting your system. If the problem persists, a system dump will be required. Call your Hewlett-Packard support contact.

11 **MESSAGE: Unable to release an I/O Services timer.**

CAUSE: The driver tried to free a timer that was not recognized by the system as valid. Memory data corruption may have occurred.

ACTION: Write down the error information displayed on the console, submit an SR, and call your Hewlett-Packard support contact.

12 **MESSAGE: Unable to release an I/O Services message frame.**

CAUSE: A call to the system message freeing routine returned an error. The port may belong to a process that no longer exists or is not operating with the required capabilities. Also, the message frame may not have been recognized by the system as a valid message frame.

ACTION: Write down the error information displayed on the console, submit an SR, and call your Hewlett-Packard support contact.

13 **MESSAGE: Unable to retrieve an I/O Services message frame.**

CAUSE: A call to the system message retrieve routine returned an error.

ACTION: Write down the error information displayed on the console, submit an SR, and call your Hewlett-Packard support contact.

14 **MESSAGE: Unable to send I/O Services message frame to another process.**

CAUSE: A call to a system message SEND routine returned an error. The destination port may belong to a process that no longer exists or is not operating with required capabilities.

ACTION: Write down the error information displayed on the console, submit an SR, and call your Hewlett-Packard support contact.

16 **MESSAGE: LAN console is not supported.**

CAUSE: The console DM tries to bind with a driver as a LAN Console DM.

ACTION: Write down the error information displayed on the console, submit an SR, and call your Hewlett-Packard support contact.

17 **MESSAGE: Unable to obtain a step data structure from driver internal resources.**

CAUSE: All steps are in use and wait for DMA completion. The driver may be low on steps because of heavy LAN traffic.

ACTION: Ignore this problem unless other problems are occurring. If you are experiencing other problems, write down the error information displayed on the console and call your Hewlett-Packard support contact.

18 **MESSAGE: Unable to send I/O Services message frame to another process.**

CAUSE: A call to a system message send routine returned in error. The destination port may belong to a process that no longer exists or is not operating with required capabilities.

ACTION: Write down the error information displayed on the console, submit an SR, and call your Hewlett-Packard support contact.

19 **MESSAGE: NIO LAN/Console card reports internal fatal hardware error.**

CAUSE: Indicates a problem caused by bad hardware.

ACTION: Your Hewlett-Packard representative must run diagnostics on the LAN/console card.

20 **MESSAGE: Unable to release buffer manager buffer.**

CAUSE: The driver tried to free memory that the buffer manager did not recognize as a valid buffer because of a driver problem or memory data corruption. Also, the driver may have tried to free a buffer that is already freed.

ACTION: System dump required. Call your Hewlett-Packard support contact.

32 **MESSAGE: Attempt to rendezvous with a link driver with SAP or SAP+XSAP or Ethernet Type already being used.**

CAUSE: The user is trying to rendezvous twice with a link driver or two different users are using the same SAP, SAP+XSAP or Ethernet Type.

ACTION: Write down the error information displayed on the console submit an SR and call your Hewlett-Packard support contact.

33 **MESSAGE: Attempt to separate from the driver failed.**

CAUSE: An attempt was made to separate from the driver using console Link ID.

ACTION: Write down the error information displayed on the console and call your Hewlett-Packard support contact.

34 **MESSAGE: Attempt to rendezvous with the driver or separate from the driver when the Middle Plane is in CLOSED state.**

CAUSE: The driver shuts itself down because of a fatal hardware error or driver internal error and the user tries to rendezvous with the driver or separate from it.

ACTION: Write down the error information displayed on the console and call your Hewlett-Packard support contact.

36 **MESSAGE: Bad Rendezvous ID.**

CAUSE: An attempt was made to use a bad rendezvous ID in a process of separating from the driver or changing its inbound buffer pool. This may be caused by data corruption.

ACTION: Write down the error information displayed on the console and call your Hewlett-Packard support contact.

37 **MESSAGE: Unable to rendezvous with the driver; the rendezvous table is full.**

CAUSE: An attempt to rendezvous with the driver failed due to running out of free entries in the rendezvous table.

ACTION: Write down the error information displayed on the console, submit an SR, and call your Hewlett-Packard support contact.

38 **MESSAGE: Attempt to separate from the driver while not having previously rendezvoused with it.**

CAUSE: An attempt is made to separate twice from the link driver.

ACTION: Write down the error information displayed on the console, submit an SR, and call your Hewlett-Packard support contact.

39 **MESSAGE: Bad rendezvous info length.**

CAUSE: A bad length of rendezvous info was specified in the rendezvous request.

ACTION: Write down the error information displayed on the console submit an SR and call your Hewlett-Packard support contact.

40 **MESSAGE: The Middle Plane is in wrong state.**

CAUSE: The Middle Plane state machine table is corrupted.

ACTION: Write down the error information displayed on the console submit an SR, take a dump and call your Hewlett-Packard support contact.

41 **MESSAGE: Missing inbound pool in the rendezvous request message.**

CAUSE: The rendezvous request message does not specify inbound buffer pool.

ACTION: Write down the error information displayed on the console submit an SR, and call your Hewlett-Packard support contact.

42 **MESSAGE: Missing rendezvous info in the rendezvous request message.**

CAUSE: The rendezvous request message does not have a pointer to the rendezvous information buffer.

ACTION: Write down the error information displayed on the console submit an SR and call your Hewlett-Packard support contact.

48 **MESSAGE: Unsupported module type in IODC.**

CAUSE: The problem is caused by bad NIO LAN hardware, the wrong path number, or the wrong type of card.

ACTION: Try these actions in this order:

1. Verify that the configured physical path is correct by using NMMGR.
2. Verify that the card is a NIO LAN/console card.
3. If you have tried both of the actions above and are still experiencing difficulties, your Hewlett-Packard representative must run diagnostics on the LAN/console card.

49 **MESSAGE: Unsupported software model in IODC.**

CAUSE: The problem is caused by bad NIO LAN hardware, the wrong path number, or the wrong type of card.

ACTION: Try these actions in this order:

1. Verify that the configured physical path is correct by using NMMGR.
2. Verify that the card is a NIO/LAN console card.
3. If you have tried both of the actions above and are still experiencing difficulties, your Hewlett-Packard representative must run diagnostics on the LAN/console card.

50 **MESSAGE: The NIO LAN/console card did not return to a ready state after a reset was issued.**

CAUSE: The problem is caused by bad NIO LAN/console hardware.

ACTION: Your Hewlett-Packard representative must run diagnostics on the LAN/console card.

52 **MESSAGE: The NIO LAN/console card register test failed during LAN/console card initialization.**

CAUSE: The problem is caused by bad NIO LAN/console hardware.

ACTION: Your Hewlett-Packard representative must run diagnostics on the LAN/console card.

53 **MESSAGE: Unable to obtain IODC information from IO_GET_MODULE_REC during initialization.**

CAUSE: Unknown. Need more information.

ACTION: Write down the error information displayed on the console, submit an SR, and call your Hewlett-Packard support contact.

55 **MESSAGE: An unknown interrupt type was received from IO_Services.**

CAUSE: Unknown. Need more information.

ACTION: Write down the error information displayed on the console, submit an SR, and call your Hewlett-Packard support contact.

57 **MESSAGE: The NIO LAN/console card detects that bind request for a given 802.2 SAP or 802.2 SAP + XSAP or ETHERNET Type is already bound.**

CAUSE: The problem is caused by a link driver internal problem.

ACTION: Write down the error information displayed on the console, submit an SR, and call your Hewlett-Packard support contact.

CAUSE: The problem is caused by a bad NIO LAN/console backplane.

ACTION: Your Hewlett-Packard representative must run diagnostics on the LAN/console card.

58 **MESSAGE: The NIO LAN/console card detects illegal bind request.**

CAUSE: The problem is caused by a link driver internal problem.

ACTION: Write down the error information displayed on the console, submit an SR, and call your Hewlett-Packard support contact.

CAUSE: The problem is caused by a bad NIO LAN/console backplane.

ACTION: Your Hewlett-Packard representative must run diagnostics on the LAN/console card.

59 **MESSAGE: The NIO LAN/console card detects a bad length of the configuration data buffer.**

CAUSE: The problem is caused by data corruption in the configuration quad.

ACTION: Write down the error information displayed on the console, submit an SR, take a dump and call your Hewlett-Packard support contact.

CAUSE: The problem is caused by a bad NIO LAN/console backplane.

ACTION: Your Hewlett-Packard representative must run diagnostics on the LAN/console card.

60 **MESSAGE: The NIO LAN/console card detects bad multicast address in the configuration data.**

CAUSE: A bad multicast address was entered into the Multicast Address Table.

ACTION: Write down the error information displayed on the console, submit an SR, and call your Hewlett-Packard support contact.

CAUSE: The problem is caused by a bad NIO LAN/console backplane.

ACTION: Your Hewlett-Packard representative must run diagnostics on the LAN/console card.

61 **MESSAGE: The NIO LAN/console card detects a bind request to illegal register.**

CAUSE: The problem is caused by a link driver internal error.

ACTION: Write down the error information displayed on the console, submit an SR, and call your Hewlett-Packard support contact.

CAUSE: The problem is caused by a bad NIO LAN/console backplane.

ACTION: Your Hewlett-Packard representative must run diagnostics on the LAN/console card.

62 **MESSAGE: The NIO LAN/console card detects a bad Station Address in CONFIG_SA.**

CAUSE: The problem is caused by configuring the wrong Station Address in NMMGR.

ACTION: Use NMMGR to verify that the configured Station Address is correct.

CAUSE: The problem is caused by a bad NIO LAN/console backplane.

ACTION: Your Hewlett-Packard representative must run diagnostics on the LAN/console card.

63 **MESSAGE: The NIO LAN/console card detects a bind request to already bound register.**

CAUSE: The problem is caused by a link driver internal error.

ACTION: Write down the error information displayed on the console, submit an SR, and call your Hewlett-Packard support contact.

CAUSE: The problem is caused by a bad NIO LAN/console backplane.

ACTION: Your Hewlett-Packard representative must run diagnostics on the LAN/console card.

64 **MESSAGE: The NIO LAN/console card detects an unbind request to an unbound register.**

CAUSE: The problem is caused by a link driver internal error.

ACTION: Write down the error information displayed on the console, submit an SR, and call your Hewlett-Packard support contact.

CAUSE: The problem is caused by a bad NIO LAN/console backplane.

ACTION: Your Hewlett-Packard representative must run diagnostics on the LAN/console card.

65 **MESSAGE: The NIO LAN/console card detects too many multicast addresses in the configuration buffer.**

CAUSE: The problem is caused by a link driver internal error.

ACTION: Write down the error information displayed on the console, submit an SR, and call your Hewlett-Packard support contact.

CAUSE: The problem is caused by a bad NIO LAN/console backplane.

ACTION: Your Hewlett-Packard representative must run diagnostics on the LAN/console card.

66 **MESSAGE: The NIO LAN/console card reports that expected CCMD_IN or CCMD_OUT was not found.**

CAUSE: Unknown. Need more information.

ACTION: Write down the error information displayed on the console and call your Hewlett-Packard support contact.

67 **MESSAGE: The NIO LAN/console card reports that CCMD_OUT was sent to an inbound only register set.**

CAUSE: Unknown. Need more information.

ACTION: Write down the error information displayed on the console and call your Hewlett-Packard support contact.

68 **MESSAGE: The NIO LAN/console card reports that expected CCMD_LINK was not found.**

CAUSE: Unknown. Need more information.

ACTION: Write down the error information displayed on the console and call your Hewlett-Packard support contact.

69 **MESSAGE: The NIO LAN/console card reports that CCMD_IN was sent to an outbound only register set.**

CAUSE: Unknown. Need more information.

ACTION: Write down the error information displayed on the console and call your Hewlett-Packard support contact.

70 **MESSAGE: The NIO LAN/console card detects unknown CCMD.**

CAUSE: Unknown. Need more information.

ACTION: Write down the error information displayed on the console and call your Hewlett-Packard support contact.

71 **MESSAGE: The NIO LAN/console card detects fatal backplane error.**

CAUSE: Unknown. Need more information.

ACTION: Your Hewlett-Packard representative must run diagnostics on the LAN/console card.

72 **MESSAGE: The NIO LAN/console card detects fatal bus error.**

CAUSE: Unknown. Need more information.

ACTION: Write down the error information displayed on the console and call your Hewlett-Packard support contact.

73 **MESSAGE: The NIO LAN/console card detects fatal error, dinmode.**

CAUSE: The problem is caused by bad NIO LAN/console hardware.

ACTION: Your Hewlett-Packard representative must run diagnostics on the LAN/console card.

74 **MESSAGE: The NIO LAN/console card detects parity error.**

CAUSE: The problem is caused by bad NIO LAN/console hardware.

ACTION: Your Hewlett-Packard representative must run diagnostics on the LAN/console card.

75 **MESSAGE: The NIO LAN/console card detects assertion of the BUS_ERROR signal.**

CAUSE: Unknown. Need more information.

ACTION: Write down the error information displayed on the console and call your Hewlett-Packard support contact.

76 **MESSAGE: The NIO LAN/console card detects a severe hardware error.**

CAUSE: Unknown. Need more information.

ACTION: Your Hewlett-Packard representative must run diagnostics on the LAN/console card.

77 **MESSAGE: The NIO LAN/console card detects a severe internal error.**

CAUSE: Unknown. Need more information.

ACTION: Write down the error information displayed on the console and call your Hewlett-Packard support contact.

78 **MESSAGE: The NIO LAN/console card detects a fatal error in the bus protocol.**

CAUSE: Unknown. Need more information.

ACTION: Write down the error information displayed on the console and call your Hewlett-Packard support contact.

79 **MESSAGE: The NIO LAN/console card reports that the selftest failed.**

CAUSE: Unknown. Need more information.

ACTION: Your Hewlett-Packard representative must run diagnostics on the LAN/console card.

80 **MESSAGE: The NIO/LAN console card detected an internal error.**

CAUSE: Unknown. Need more information.

ACTION: Write down the error information displayed on the console and call your Hewlett-Packard support contact.

81 **MESSAGE: The NIO/LAN console card detected an internal error.**

CAUSE: Unknown. Need more information.

ACTION: Write down the error information displayed on the console and call your Hewlett-Packard support contact.

82 **MESSAGE: The NIO/LAN console card detected an internal error.**

CAUSE: Unknown. Need more information.

ACTION: Write down the error information displayed on the console and call your Hewlett-Packard support contact.

83 **MESSAGE: The BDMARS transferred less DMA data than the host CCMD_IN or CCMD_OUT count requested.**

CAUSE: The NIO LAN/console card did not have enough data bytes to completely fill the inbound buffer. Or the NIO/LAN console card did not accept all the data that the host tried to send; for example, the number of bytes were bigger than maximum LAN packet size.

ACTION: Write down the error information displayed on the console and call your Hewlett-Packard support contact.

84 **MESSAGE: The BDMARS expected more DMA data to be transferred than the host CCMD_IN or CCMD_OUT count requested.**

CAUSE: The NIO LAN/console card was prepared to send more data bytes to the host, but the host did not provide enough buffers. Or the LAN/ console card expected more data than the host provided.

ACTION: Write down the error information displayed on the console and call your Hewlett-Packard support contact.

85 **MESSAGE: The NIO LAN/console card reported unknown advisory error.**

CAUSE: Unknown. Need more information.

ACTION: Write down the error information displayed on the console and call your Hewlett-Packard support contact.

86 **MESSAGE: The NIO LAN/console card reported unknown apstat error.**

CAUSE: Unknown. Need more information.

ACTION: Write down the error information displayed on the console and call your Hewlett-Packard support contact.

87 **MESSAGE: The NIO LAN/console card reported unknown fatal error.**

CAUSE: Unknown. Need more information.

ACTION: Write down the error information displayed on the console and call your Hewlett-Packard support contact.

88 **MESSAGE: The NIO LAN/console card detects unknown CCMD.**

CAUSE: Unknown. Need more information.

ACTION: Write down the error information displayed on the console and call your Hewlett-Packard support contact.

89 **MESSAGE: The NIO LAN/console card reports unknown hard error.**

CAUSE: Unknown. Need more information.

ACTION: Write down the error information displayed on the console and call your Hewlett-Packard support contact.

90 **MESSAGE: The NIO LAN/console card detects unknown I/O command.**

CAUSE: Unknown. Need more information.

ACTION: Write down the error information displayed on the console and call your Hewlett-Packard support contact.

91 **MESSAGE: The NIO LAN/console card reports unknown soft error.**

CAUSE: Unknown. Need more information.

ACTION: Write down the error information displayed on the console and call your Hewlett-Packard support contact.

125 **MESSAGE: The driver detects unknown option in the 802.2 control field of a test or xid packet.**

CAUSE: The problem is caused by a bad packet.

ACTION: If this error appears repeatedly, write down the error information displayed on the console and call your Hewlett-Packard support contact.

144 **MESSAGE: Dump request received when driver is dumping.**

CAUSE: Unknown. Need more information.

ACTION: Write down the error information displayed on the console, submit an SR, and call your Hewlett-Packard support contact.

145 **MESSAGE: Message received in invalid state.**

CAUSE: The link driver received an unexpected message.

ACTION: Write down the error information displayed on the console, submit an SR, and call your Hewlett-Packard support contact.

146 **MESSAGE: Driver detected unsupported command in received SDI or WAN control message.**

CAUSE: Unknown. Need more information.

ACTION: Write down the error information displayed on the console, submit an SR, and call your Hewlett-Packard support contact.

147 **MESSAGE: Unknown driver problem.**

CAUSE: The driver detected an error, but did not say what type of error was found.

ACTION: Write down the error information displayed on the console, submit an SR, and call your Hewlett-Packard support contact.

148 **MESSAGE: Unknown dump manager port number.**

CAUSE: The driver detects unrecoverable error and tries to dump its PDA and the NIO LAN/console card but the dump module is missing.

ACTION: Run NMMAINT to verify that the dump module is present.

149 **MESSAGE: Unable to obtain an I/O Services timer for a dump process.**

CAUSE: A call to obtain a timer resource returned an error. Too many timers may be in use.

ACTION: If you suspect your system might be low on timer resources be cause of heavy loading, try restarting the link later. If repeated attempts fail, try warmstarting your system. If the problem persists, a system dump will be required. Call your Hewlett-Packard support contact.

150 **MESSAGE: Unable to send dump request message to dump manager.**

CAUSE: A call to a system message SEND routine returned in error. The dump manager port is not operating with required capabilities.

ACTION: Write down the error information displayed on the console, submit an SR, and call your Hewlett-Packard support contact.

151 **MESSAGE: Unexpected timer event message.**

CAUSE: Unknown. Need more information.

ACTION: Write down the error information displayed on the console, submit an SR, and call your Hewlett-Packard support contact.

152 **MESSAGE: Unimplemented message received.**

CAUSE: The message descriptor is not known to the driver.

ACTION: Call your Hewlett-Packard representative and explain what you are trying to do.

160 **MESSAGE: Nil configuration pointer.**

CAUSE: A user passed a nil configuration pointer to the driver.

ACTION: Call your Hewlett-Packard representative and explain what you are trying to do.

161 **MESSAGE: Trace manager overrun.**

CAUSE: The driver is generating trace entries faster than the trace manager can process them. This causes some trace entries to be lost.

ACTION: This is only a warning and is indicative of a very busy system. If not debugging a problem, then tracing should be turned off. This will improve system performance in general. If a problem is being looked at, use partial tracing whenever possible (when full data frames are not needed) to ensure that no trace data is lost.

176 **MESSAGE: Type 2 connection attempt failed.**

CAUSE: The remote system did not respond to a SABME with a UA.

ACTION: Check that the remote is activated, and make sure the local and remote MAC addresses, and SAPs are correctly configured.

177 **MESSAGE: Type 2 error during reset or disconnect.**

CAUSE: The remote system did not respond to a SABME or DISC with a UA.

ACTION: Disregard if the connection is working properly, and no other errors occurred. If the connection will not function or other errors have occurred, write down the error information and contact your Hewlett-Packard support contact.

178 **MESSAGE: Type 2 connection disconnected.**

CAUSE: The remote system transmitted a DISC, causing the Type 2 connection to be dropped.

ACTION: Disregard if the connection is working properly, and no other errors occurred. If the connection will not function or other errors have occurred, write down the error information and contact your Hewlett-Packard support contact.

179 **MESSAGE: Type 2 error during reset or disconnect.**

CAUSE: The remote system did not respond to a SABME or DISC with a UA.

ACTION: Disregard if the connection is working properly, and no other errors occurred. If the connection will not function or other errors have occurred, write down the error information and contact your Hewlett-Packard support contact.

180 **MESSAGE: Type 2 connection unexpectedly reset.**

CAUSE: A Type 2 protocol error occurred resulting in an FRMR being transmitted or received.

ACTION: Disregard if the connection is working properly, and no other errors occurred. If the connection will not function or other errors have occurred, write down the error information and contact your Hewlett-Packard support contact.

181 **MESSAGE: Type 2 connection unexpectedly reset.**

CAUSE: A Type 2 protocol error probably occurred, resulting in a SABME being transmitted or received.

ACTION: Disregard if the connection is working properly, and no other errors occurred. If the connection will not function or other errors have occurred, write down the error information and contact your Hewlett-Packard support contact.

182 **MESSAGE: Type 2 connection unexpectedly reset.**

CAUSE: A Type 2 protocol error probably occurred resulting in a SABME being transmitted or received.

ACTION: Disregard if the connection is working properly, and no other errors occurred. If the connection will not function or other errors have occurred, write down the error information and contact your Hewlett-Packard support contact.

183 **MESSAGE: Type 2 Rendezvous ID invalid.**

CAUSE: A transport tried to established a connection on a SAP which had not rendezvoused with the driver.

ACTION: Write down the error information and contact your Hewlett-Packard support contact.

184 **MESSAGE: Type 2 connection already exists.**

CAUSE: Two transports are configured to use the same MAC addresses and SAPs.

ACTION: Correct the NMMGR configurations and restart the driver.

185 **MESSAGE: Type 2 connection not available.**

CAUSE: The driver has reached the maximum number of supported connections.

ACTION: Shut down some connections to free up resources.

186 **MESSAGE: Type 2 Connection ID invalid.**

CAUSE: A transport tried to send a message to the driver with an invalid connection identifier.

ACTION: Write down the error information and contact your Hewlett-Packard support contact.

187 **MESSAGE: Type 2 non-fatal protocol error.**

CAUSE: An unexpected packet format was received.

ACTION: Disregard if the connection is working properly, and no other errors occurred. If the connection will not function or other errors have occurred, write down the error information and contact your Hewlett-Packard support contact.

188 **MESSAGE: Type 2 non-fatal protocol error.**

CAUSE: An unexpected packet format was received.

ACTION: Disregard if the connection is working properly, and no other errors occurred. If the connection will not function or other errors have occurred, write down the error information and contact your Hewlett-Packard support contact.

189–197 **MESSAGE: Type 2 non-fatal software error.**

CAUSE: A non-fatal Type 2 driver software error occurred.

ACTION: Disregard if the connection is working properly, and no other errors occurred. If the connection will not function or other errors have occurred, write down the error information and contact your Hewlett-Packard support contact.

198 **MESSAGE: Type 2 non-fatal protocol error.**

CAUSE: An unexpected packet format was received.

ACTION: Disregard if the connection is working properly, and no other errors occurred. If the connection will not function or other errors have occurred, write down the error information and contact your Hewlett-Packard support contact.

199 **MESSAGE: Type 2 non-fatal software error.**

CAUSE: A non-fatal Type 2 driver software error occurred.

ACTION: Disregard if the connection is working properly, and no other errors occurred. If the connection will not function or other errors have occurred, write down the error information and contact your Hewlett-Packard support contact.

200 **MESSAGE: Unable to send I/O Services message frame LINKNAME**

CAUSE: A call to a system message send routine returned in error.

ACTION: Write down the error information displayed on the console, submit an SR and call your Hewlett-Packard support contact.

201 **MESSAGE: Unable to obtain a buffer manager buffer LINKNAME**

CAUSE: Some other process has obtained buffers reserved for the driver.

ACTION: Write down the error information displayed on the console, take a system dump, submit an SR and call your Hewlett-Packard support contact.

202 **MESSAGE: Unable to obtain a system timer LINKNAME**

CAUSE: A call to obtain a timer resource returned an error.

ACTION: Take a system dump and call your Hewlett-Packard support contact.

203 **MESSAGE: Unable to release a system timer LINKNAME**

CAUSE: The driver tried to free a timer that was not recognized by the system as a valid timer.

ACTION: Take a system dump and call your Hewlett-Packard support contact.

204–206 **MESSAGE: Type 2 non-fatal software error.**

CAUSE: A non-fatal Type 2 driver software error occurred.

ACTION: Disregard if the connection is working properly, and no other errors occurred. If the connection will not function or other errors have occurred, write down the error information and contact your Hewlett-Packard support contact.

207 **MESSAGE: Type 2 non-fatal protocol error.**

CAUSE: An unexpected packet format was received.

ACTION: Disregard if the connection is working properly, and no other errors occurred. If the connection will not function or other errors have occurred, write down the error information and contact your Hewlett-Packard support contact.

208 **MESSAGE: Type 2 non-fatal protocol error.**

CAUSE: An unexpected packet format was received.

ACTION: Disregard if the connection is working properly, and no other errors occurred. If the connection will not function or other errors have occurred, write down the error information and contact your Hewlett-Packard support contact.

209–210 **MESSAGE: Type 2 non-fatal software error.**

CAUSE: A non-fatal Type 2 driver software error occurred.

ACTION: Disregard if the connection is working properly, and no other errors occurred. If the connection will not function or other errors have occurred, write down the error information and contact your Hewlett-Packard support contact.

211 **MESSAGE: Type 2 non-fatal protocol error.**

CAUSE: An unexpected packet format was received.

ACTION: Disregard if the connection is working properly, and no other errors occurred. If the connection will not function or other errors have occurred, write down the error information and contact your Hewlett-Packard support contact.

224 **MESSAGE: Could not read the link name from the LSS link table.**

CAUSE: The link table does not exist.

ACTION: Write down the error information displayed on the console and call your Hewlett-Packard support contact.

225 **MESSAGE: Could not add the link name to the LSS link table.**

CAUSE: The link table does not exist.

ACTION: Write down the error information displayed on the console and call your Hewlett-Packard support contact.

226 **MESSAGE: Could not delete the link name from the LSS link table.**

CAUSE: The link name specified the LAN_KILL_MODULE call is not in the LSS link table.

ACTION: Write down the error information displayed on the console, submit an SR, and call your Hewlett-Packard support contact.

227 **MESSAGE: Could not read multicast addresses table.**

CAUSE: The multicast addresses table does not exist.

ACTION: Write down the error information displayed on the console and call your Hewlett-Packard support contact.

228 **MESSAGE: Could not open NMCONFIG.PUB.SYS file.**

CAUSE: The configuration file NMCONFIG.PUB.SYS was purged or renamed or the NMCONFIG.PUB.SYS configuration file may be opened with exclusive access.

ACTION: Type a LISTF NMCONFIG.PUB.SYS to determine if the file has been opened with exclusive access. If it has, wait for the program or process that has this file opened exclusively to close it.

If the configuration file is missing, restore the file from a backup tape and restart the link again.

CAUSE: The configuration file NMCONFIG.PUB.SYS may be opened with exclusive access.

ACTION: Wait for the program or process that has this file opened exclusively to close it.

229 **MESSAGE: Link data not found in NMCONFIG.PUB.SYS.**

CAUSE: The link data is not found in the configuration file NMCONFIG.PUB.SYS.

ACTION: Use NMMGR to create the link data for the link you are trying to start. Try to start the link again.

230 **MESSAGE: The link data record is incorrect for this driver.**

CAUSE: The link data record is corrupted in the configuration file NMCONFIG.PUB.SYS.

ACTION: Restore the file from a backup tape and restart the link again.

CAUSE: The configuration file NMCONFIG.PUB.SYS was not converted to a version supported by the driver.

ACTION: Run NMMGRVER on the configuration file NMCONFIG.PUB.SYS.

233 **MESSAGE: A call to IO_GET_MGR_ENTRY failed during driver configuration.**

CAUSE: Unknown. Need more information.

ACTION: Write down the error information displayed on the console and call your Hewlett-Packard support contact.

234 **MESSAGE: A call to IO_CONFIG failed during driver configuration.**

CAUSE: Wrong physical path is configured for the installed LAN card.

ACTION: Use NMMGR to correct the Physical Path for the link.

CAUSE: The card for the configured path is bad.

ACTION: To determine whether the LAN card is good your Hewlett-Packard representative must run diagnostics on the LAN card.

235 **MESSAGE: A call to IO_UNCONFIG failed during driver deconfiguration.**

CAUSE: Wrong physical path was specified in IO_UNCONFIG call due to configuration data corruption in the driver PDA.

ACTION: Write down the error information displayed on the console, submit an SR, take a system dump, and call your Hewlett-Packard support contact.

236 **MESSAGE: The LAN card is used by another link.**

CAUSE: The card was configured by another link.

ACTION: Use NMMGR to correct the Physical Path for this link or change the link name to point to a different LAN card.

237 **MESSAGE: Could not create driver buffer pool.**

CAUSE: The buffer manager cannot allocate a new logical buffer pool entry or cannot allocate virtual memory for the buffers.

ACTION: Write down the error information displayed on the console and call your Hewlett-Packard support contact.

238 **MESSAGE: Could not delete the driver buffer pool.**

CAUSE: Wrong pool ID was specified in the call to delete inbound buffer pool due to configuration data corruption in the driver's PDA.

ACTION: Write down the error information displayed on the console submit an SR, take a system dump, and call your Hewlett-Packard support contact.

239 **MESSAGE: Could not open trace file.**

CAUSE: The indicated trace file might be opened with exclusive access.

ACTION: Wait for the program or process that has the trace file opened exclusively to close it.

240 **MESSAGE: Could not stop trace.**

CAUSE: Tracing might have been turned off with LINKCONTROL TRACEOFF command, but the link software information indicates that it was on.

ACTION: Ignore this problem unless you are experiencing other problems. If you are experiencing other problems, write down the error information displayed on the console and call your Hewlett-Packard support contact.

241 **MESSAGE: Could not start trace.**

CAUSE: Unknown. Need more information.

ACTION: Write down the error information displayed on the console and call your Hewlett-Packard support contact.

242 **MESSAGE: Could not get Write Initiator label.**

CAUSE: Unknown. Need more information.

ACTION: Write down the error information displayed on the console and call your Hewlett-Packard support contact.

243 **MESSAGE: Could not release Write Initiator label.**

CAUSE: Unknown. Need more information.

ACTION: Write down the error information displayed on the console and call your Hewlett-Packard support contact.

244 **MESSAGE: Could not open NMLGxxxx.PUB.SYS file.**

CAUSE: The indicated log file may be opened with exclusive access.

ACTION: Wait for the program or process that has the log file opened exclusively to close it.

CAUSE: The driver subsystem is not configured in logging configuration.

ACTION: Use NMMGR to check logging configuration for subsystem 25 or write down the error information displayed on the console and call your Hewlett-Packard support contact.

245 **MESSAGE: Could not close the NMLGxxxx.PUB.SYS file.**

CAUSE: Invalid LOG ID due to configuration data corruption in the driver's PDA.

ACTION: Write down the error information displayed on the console, submit an SR, take a system dump and call your Hewlett-Packard support contact.

246 **MESSAGE: Could not freeze the configuration record in memory.**

CAUSE: Memory shortage problems are occurring.

ACTION: Write down the error information displayed on the console and call your Hewlett-Packard support contact.

247 **MESSAGE: Could not unfreeze the configuration record in memory.**

CAUSE: Memory problems are occurring.

ACTION: Write down the error information displayed on the console and call your Hewlett-Packard support contact.

248 **MESSAGE: Could not send config request message.**

CAUSE: An internal system ports problem has occurred.

ACTION: Write down the error information displayed on the console and call your Hewlett-Packard support contact.

249 **MESSAGE: Could not receive config reply message.**

CAUSE: An internal system ports problem has occurred.

ACTION: Write down the error information displayed on the console and call your Hewlett-Packard support contact.

250 **MESSAGE: Timeout waiting for the config reply message.**

CAUSE: The link software or the card could not be configured.

ACTION: Write down the error information displayed on the console and call your Hewlett-Packard support contact.

251 **MESSAGE: Driver's PDA is corrupted.**

CAUSE: Unknown. Need more information.

ACTION: Write down the error information displayed on the console, submit an SR, take a dump and call your Hewlett-Packard support contact.

252 **MESSAGE: Configuration of the dump manager failed.**

CAUSE: Unknown. Need more information.

ACTION: Write down the error information displayed on the console and call your Hewlett-Packard support contact.

253 **MESSAGE: The link type is not LAN.**

CAUSE: The link name type in NMCONFIG.PUB.SYS is not set to LAN.

ACTION: Use NMMGR to correct the link name type.

254 **MESSAGE: The link driver failed to start.**

CAUSE: Incorrect physical path was specified in the NMCONFIG file.

ACTION: Correct the physical path in the NMCONFIG file using NMMGR.

2100 **MESSAGE: Token Ring adapter detected a network error on LINKNAME**

CAUSE: The Token Ring adapter detected an error.

ACTION: Write down the Cause Status and call your Hewlett-Packard support contact.

2101 **MESSAGE: Token Ring adapter detected signal loss on LINKNAME**

CAUSE: This station has detected a loss of signal on the ring.

ACTION: Verify that this station is properly attached to the network. Check network components (adapters, cables, MSAUs, etc.). Have your network provider examine the network.

2102 **MESSAGE: Token Ring adapter detected a hard error on LINKNAME**

CAUSE: A station has stopped receiving data and is transmitting beacon frames.

ACTION: If this error persists, check network components (adapters, cables, MSAUs, etc.). Have your network provider examine the network.

2103 **MESSAGE: Token Ring adapter detected a soft error on LINKNAME**

CAUSE: This station has detected an error and notified the Ring Error Monitor.

ACTION: If this error persists, query your Ring Error Monitor to determine the type of error. Check network components (adapters, cables, MSAUs, etc.). Have your network provider examine the network.

2104 **MESSAGE: Token Ring adapter beaconing on LINKNAME**

CAUSE: This station has stopped receiving data.

ACTION: If this error persists, then verify that all stations are configured to the proper data rate. Check network components (adapters, cables, MSAUs, etc.). Have your network provider examine the network.

2105 **MESSAGE: Token Ring adapter detected lobe cable fault on LINKNAME**

CAUSE: An open or short circuit was detected in the lobe cable.

ACTION: Verify that this station is properly attached to the network. Check network components (adapters, cables, MSAUs, etc.). Have your network provider examine the network.

2106 **MESSAGE: Token Ring adapter auto-removed from network on LINKNAME**

CAUSE: This station detected an error.

ACTION: Verify that this station is properly attached to the network. Verify that all stations are configured to the proper data rate. Check this station's station address. Check network components (adapters, cables, MSAUs, etc.). Have your network provider examine the network.

2107 **MESSAGE: Token Ring adapter removed from network on LINKNAME**

CAUSE: The Network Manager has requested that this station be removed from the network.

ACTION: Verify that this station is properly configured. Query your Network Manager to determine why this station was removed. Check network components (adapters, cables, MSAUs, etc.). Have your network provider examine the network.

2108 **MESSAGE: Token Ring adapter detected no other stations on LINKNAME**

CAUSE: This is the only station on the network.

ACTION: Verify that any other stations are properly attached to the network. Check network components (adapters, cables, MSAUs, etc.). Have your network provider examine the network.

2109 **MESSAGE: Token Ring adapter detected Claim Token Frame on LINKNAME**

CAUSE: The network is attempting to recover from a failure.

ACTION: If this warning persists, check network components (adapters, cables, MSAUs, etc.). Have your network provider examine the network.

2110 **MESSAGE: Token Ring adapter detected duplicate address on LINKNAME**

CAUSE: Two stations on the network are configured with the same station address.

ACTION: Locate the improperly configured station and configure a unique station address, or use the default address.

2111 **MESSAGE: Token Ring adapter detected beacon on LINKNAME**

CAUSE: A station on the network is not receiving data properly.

ACTION: If this error persists, verify that all stations are properly attached to the network. Verify that all stations are configured to the proper data rate. Check network components (adapters, cables, MSAUs, etc.). Have your network provider examine the network.

2112 **MESSAGE: Token Ring adapter detected network failure on LINKNAME**

CAUSE: More information is needed to isolate this failure.

ACTION: Check network components (adapters, cables, MSAUs, etc.). Have your network provider examine the network.

2113 **MESSAGE: Token Ring adapter jumper set improperly on LINKNAME**

CAUSE: The data rate jumper on the token ring adapter is not set properly.

ACTION: Have your Hewlett-Packard representative set the data rate jumper correctly.

B Netview Alerts

This appendix describes NetView alerts, and how they are sent from your HP 3000 to the IBM remote system.

These topics are covered in this appendix:

- Overview of NetView alerts
- How alerts are sent
- Creating the message file
- SNA Transport-generated alerts
- Operator-generated alerts

Overview

A NetView alert is information that is sent to the IBM remote system to tell the IBM operator that an error or problem has occurred on the HP 3000. (Note that NetView must be running on the IBM remote system.) So, be aware that the IBM operator might contact you to check on the status of the HP 3000 system if an alert is received at the remote system console.

Two kinds of alerts can be sent:

- SNA Transport-generated
- Operator-generated

Since the alert is sent over the PU-SSCP session, SNA Transport does the actual sending (regardless of whether SNA Transport or the operator generated the alert).

How Alerts Are Sent

When an alert is generated (by either SNA Transport or an HP 3000 operator), it is stored in an MPE message file named *nodename*.PUB.SYS (where *nodename* is the name of the configured SNA node the alert is to be sent to).

SNA Transport continually checks the message files for alerts. When it finds an alert in a message file, it sends the alert to the remote system and waits for an acknowledgment that the remote system received it. When it receives the acknowledgment, SNA Transport purges the alert from the message file (but not before then). This method ensures that all alerts are sent to the remote system. Note that this method also might cause an alert to be sent to the remote system twice. That could happen if an alert is sent but a link failure occurs before the acknowledgment is received from the remote system. Since the acknowledgment was not received, the alert was not purged from the message file. So, when SNA Transport comes back up, it will find the alert still in the message file, and send it again.

Creating the Message File

To enable SNA Transport to send alerts (generated by itself or an operator) to NetView, you must create the message file the alerts will be stored in. To create the file, type this command at the MPE system prompt:

```
BUILD NodeName.PUB.SYS;MSG
```

NodeName is the name of the *configured* SNA node the alerts are to be sent to.

You must create a message file for each SNA node you will want alerts to be sent to. Once a message file is created, it is removed only if you delete it specifically.

SNA Transport-Generated Alerts

A set of alerts that SNA Transport generates have been predefined for these conditions:

- Configuration or customization error
  - — Bad phone number
- Link error
  - — Dial not completed, unknown automatic-dial error, or data line busy
  - — No ACU power, or cable is missing
  - — Datacomm line was lost
  - — Internal error occurred

Note that a logging message for each of these conditions is also generated. See Appendix A , “Messages,” for a description of the messages (including corresponding causes and actions).

Operator-Generated Alerts

Anyone can generate an alert to be sent to the IBM remote system operator (no special user capabilities are needed). This function can be used for sending error-related information that might not be automatically reported by error detection programs and utilities.

To be able to generate alerts, ensure that a message file exists for each SNA node you want to send alerts to (see “Creating the Message File” earlier in this appendix). Once the appropriate message file exists, you can send an alert by typing this command at the MPE system prompt:

```
RUN SNAOPALT.PUB.SYS
```

A message noting the operator-generated message program is displayed, and then you are prompted for this information:

- SNA node name

  Required. The name of the SNA node you are sending the alert to. The name can be up to eight alphanumeric characters long; the first character must be alphabetic. Note that the node must have already been configured (but it does not have to be active).

- Action code

  Required. An integer from 1 through 20 which indicates the message panel you want displayed on the remote system. The message panels are defined in the NPDA data base. Check with the remote system operator or system programmer for the applicable action codes and their corresponding screens.

- Text

  The message you want to send to the remote system. The message can be up to 120 alphanumeric characters long.

- Qualifier 1 field

  Additional information that you want to send with the alert (for example, a telephone number or a manual number). The qualifier can be up to eight alphanumeric characters long.

- Qualifier 2 field

  Additional information that you want to send with the alert (for example, a telephone number or a manual number). The qualifier can be up to eight alphanumeric characters long.

- Qualifier 3 field

  Additional information that you want to send with the alert (for example, a telephone number or a manual number). The qualifier can be up to eight alphanumeric characters long.

See Appendix A , “Messages,” for the error messages that can occur when you send an operator-generated NetView alert.

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