

# **Connect:Direct® HP NonStop**

## **Installation Guide**

**Version 3.5**

**Connect:Direct HP NonStop Installation Guide**  
**Version 3.5**  
**First Edition**

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# Contents

## Preface

Chapter Overview .....	9
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## Chapter 1 About Connect:Direct HP NonStop

Connect:Direct HP NonStop Components.....	11
Automated Installation and Management System .....	13
Connect:Direct HP NonStop Concepts .....	14
Processes.....	14
Transmission Control Queue .....	14
Network Map .....	14
Defining Domain Nodes to Manage Inbound TCP/IP Connections.....	15
Using Session Redirection for Outbound TCP/IP Connections .....	15
Connect:Direct Secure+ Option.....	17
Sterling Control Center .....	17
Connect:Direct Browser User Interface.....	19
Interfacing with Sterling Control Center or Browser User Interface.....	20
Commands .....	20
User and Administrator Commands .....	21
Environment Commands .....	22
Message Commands.....	23
Flow of Connect:Direct HP NonStop Operations.....	23

## Chapter 2 Planning the Installation

Before You Begin .....	25
Supported Connectivity.....	26
Configuring Connect:Direct HP NonStop to Use the HP NonStop Parallel TCP Utility.....	26
Distribution Subvolumes and Files .....	28
Defining the Connect:Direct HP NonStop SNA Environment.....	32
SNAX/XF Line Attributes .....	32
SNAX Line Attributes .....	32
Defining Adjacent Node Records for TCP/IP Connections.....	35
Inbound TCP/IP Connection Requests .....	35

Processing Flow for Inbound TCP/IP Connection Requests .....	35
Resolving Host Names in the Netmap .....	37
Defining Domain Node Records in the Network Map .....	38
Sample Scenario: Defining Inbound Connectivity for Nodes in the Same TCP Domain .....	39
Providing Security for Domain Nodes.....	40
Using Session Redirection for Outbound TCP/IP Connection Requests to a Connect:Direct/Plex Node .....	40
Defining Connectivity for a Network Configuration .....	41
Defining an SNA Primary Environment .....	41
Defining an SNA Secondary Environment .....	41
HP NonStop-IBM 370 Connectivity Worksheets .....	41
Preparing to Define the Network Map through AIMS.....	42
Verifying SNAX/XF or ICE Installation .....	46

### **Chapter 3      Installing and Configuring Connect:Direct HP NonStop**

Unpack the Installation Files.....	47
Upload the License Key .....	48
Request a Permanent License Key.....	48
Upload the License Key.....	48
Prepare AIMS for Execution .....	48
Start AIMS .....	49
Navigate AIMS .....	50
Get Help .....	51
Run User-Written or System Programs from AIMS.....	51
Set the AIMS Environment .....	52
Review the License Key.....	53
Install Connect:Direct HP NonStop .....	54
Set Initialization Parameters .....	54
Set Default User Authorization.....	62
Configure the Network Map .....	66
Define Adjacent Node Information.....	68
Enter LU Information .....	71
Enter API Information .....	73
Relate Adjacent Nodes with LUs .....	74
Relate Adjacent Nodes with AMGRs .....	76
Enter LOGMODE Information .....	78
Compute RU Sizing .....	79
Create Data Files .....	80
Modify the Installation for NETEX Users .....	81
Start Connect:Direct HP NonStop.....	82
Load the Network Map.....	88
Load the Default LOGMODE Records .....	89

Verify the Installation .....	90
Update the License Key .....	91
<b>Chapter 4 Starting and Stopping Connect:Direct HP NonStop</b>	
Starting Connect:Direct HP NonStop .....	95
Starting Connect:Direct HP NonStop Manually.....	95
Starting Connect:Direct HP NonStop Automatically .....	96
Modifying Initialization Parameters with the UPDATE PARM Command.....	97
Format.....	97
Required Parameters.....	97
Optional Parameters.....	97
Examples.....	99
Editing the Initialization Parameters file .....	99
Overriding Initialization Parameters with TACL PARAM Commands.....	105
Exceptions to TACL PARAM Commands.....	105
Stopping Connect:Direct HP NonStop .....	105
Required Parameters .....	106
Optional Parameters.....	106
Samples.....	106
<b>Appendix A Defining HP NonStop as the SNA Primary Environment</b>	
Receiving Connectivity for Leased Lines.....	107
Define HP NonStop Line Attributes.....	108
Define HP NonStop PUs and LUs.....	109
Description of Line Attribute .....	110
Description of PU Attributes .....	110
Description of LU Attributes.....	110
Receiving Connectivity for Switched Lines (SDLC) .....	111
Define HP NonStop Line Attributes.....	111
Define HP NonStop PUs and LUs.....	113
Description of the Line Attribute.....	113
Description of PU Attributes .....	114
Description of LU Attributes.....	114
HP NonStop to i5/OS Connectivity Considerations .....	115
HP NonStop Environment Definitions Worksheets.....	115
<b>Appendix B Defining HP NonStop as the SNA Secondary Environment</b>	
Summary of Required Definitions for Sending Connections .....	119
Define the IBM 370 Environment .....	120
NCP Definitions.....	120

NCP Line Definitions .....	120
NCP PU Definition .....	121
NCP LU Definition .....	121
VTAM Channel-Attached Major Node Definition for SNAXLINK .....	121
VTAM LOGMODE Table Entries .....	121
VTAM USS Table Entry .....	122
VTAM COS Table Entry .....	122
Define the HP NonStop Environment .....	122
Configure HP NonStop SNA Communication Lines .....	122
Define HP NonStop Line .....	124
Define HP NonStop PUs .....	125
Define HP NonStop LUs .....	125
Starting a SNAX/VTAM Link .....	126
HP NonStop Environment Definitions Worksheets .....	126

## Appendix C Defining TCP/IP Connectivity

Requirements for TCP/IP Connectivity .....	133
TCP/IP for Connect:Direct HP NonStop .....	133
LUs in the Connect:Direct HP NonStop TCP/IP Environment .....	134
Flow of Operation .....	134
Support for Multiple HP NonStop TCP Stacks .....	135
NDMINIT Initialization Parameters for Multiple HP NonStop TCP Stacks .....	135
TCPNAME Network Map Parameters .....	135
Sample Network Definitions .....	136
SCF Startup File for a Standard TCP/IP Connection .....	136
Sample Network Map Definitions .....	138

## Appendix D Defining ICE Connectivity

HP NonStop Definitions .....	139
Using Intersystem Logon Propagation .....	140
Using Connection Manager .....	141
Sample Line Definition .....	142
Sample Startup File for ICE .....	143
Connect:Direct HP NonStop Network Map Definitions .....	144
z/OS Definitions .....	145
Sample VTAM NCP Definition for an ICE Connection .....	145
VTAM LOGMODE Table Entries .....	146
Connection Manager Definition .....	146
Sample VTAM Definition for a Connection Manager .....	146
Connect:Direct for z/OS Network Map Definitions .....	147
Sample HP NonStop Network Map Entry .....	147
Sample z/OS Network Map Entry .....	147
Sample z/OS Resource Definitions .....	148
Sample ICE Configurations .....	149
Sample STARTICE File .....	149
Sample GOGEN File .....	149

Sample GOICE File .....	150
Sample ADDICE File .....	151

**Glossary**

**Index**





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# Preface

The *Connect:Direct HP NonStop Installation Guide* is for network operations staff who install Connect:Direct HP NonStop. This manual describes installation prerequisites, planning considerations, and procedures for installing, verifying, upgrading, starting and stopping Connect:Direct HP NonStop.

This guide assumes knowledge of the HP NonStop operating system, its applications, network, and environment. If you are not familiar with the HP NonStop operating system, refer to the HP NonStop library of manuals.

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## Chapter Overview

The organization of the *Connect:Direct HP NonStop Installation Guide* follows:

- ❖ Chapter 1, *About Connect:Direct HP NonStop*, briefly describes Connect:Direct HP NonStop.
- ❖ Chapter 2, *Planning the Installation*, provides the installation prerequisites and planning tasks you must complete to help you organize and prepare for the installation.
- ❖ Chapter 3, *Installing and Configuring Connect:Direct HP NonStop*, provides instructions for installing Connect:Direct HP NonStop.
- ❖ Chapter 4, *Starting and Stopping Connect:Direct HP NonStop*, provides instructions for starting Connect:Direct HP NonStop, changing initialization parameters, and stopping Connect:Direct HP NonStop.
- ❖ Appendix A, *Defining HP NonStop as the SNA Primary Environment*, contains sample definitions for receiving connections for leased and switched lines and HP NonStop Environment Definitions worksheets. Additional connectivity considerations are also addressed.
- ❖ Appendix B, *Defining HP NonStop as the SNA Secondary Environment*, contains worksheets and sample definitions for sending connections between HP NonStop and IBM 370 nodes.
- ❖ Appendix C, *Defining TCP/IP Connectivity*, describes requirements for TCP/IP connectivity, support for multiple HP NonStop TCP stacks, and sample network definitions.
- ❖ Appendix D, *Defining ICE Connectivity*, describes the ICE software connectivity option.
- ❖ *Glossary*, defines Connect:Direct terms used in this manual.



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# About Connect:Direct HP NonStop

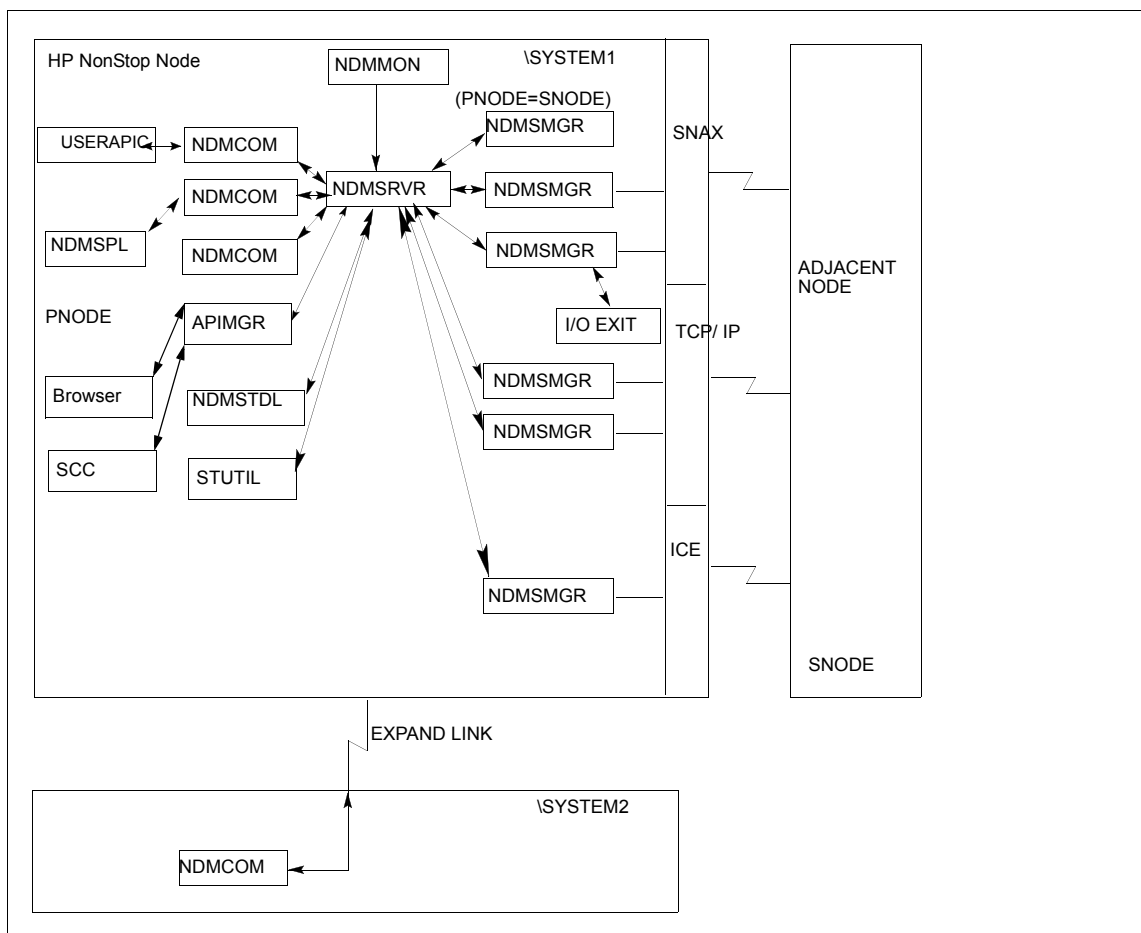
Connect:Direct HP NonStop links technologies and moves all types of information between networked systems and computers. It manages high-performance transfers by providing features such as automation, reliability, efficient use of resources, application integration, and ease of use. Connect:Direct HP NonStop software offers choices in communications protocols, hardware platforms, and operating systems. It provides the flexibility to move information among mainframes, midrange systems, desktop systems, and LAN-based workstations.

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## Connect:Direct HP NonStop Components

Connect:Direct HP NonStop runs as an application on the Guardian operating system. The product components interact to execute the Process statements and commands submitted through the user interface.

The following figure illustrates the basic components of Connect:Direct HP NonStop: Monitor (NDMMON), Server (NDMSRVR), User Interface (NDMCOM), Session Manager (NDMSMGR), API Manager (APIMGR), I/O Exits (I/O EXIT), Statistics Deletion Program (NDMSTD), Statistics Utility Program (STUTIL), Application Programming Interface (USERAPIC), and Connect:Direct HP NonStop Spooler Option (NDMSPL). Brief descriptions of each component follow the sample network configuration.



Component	Description
Monitor	The monitor (NDMMON) is a nonstop process that creates and monitors the Connect:Direct HP NonStop server (NDMSRVR) process. For NDMMON startup instructions, refer to the <i>Connect:Direct HP NonStop Installation Guide</i> .
Server	The Connect:Direct HP NonStop server (NDMSRVR) process manages: <ul style="list-style-type: none"> <li>- Command requests</li> <li>- Communication with the session manager</li> <li>- Session establishment requests for TCP/IP</li> </ul> <b>Note:</b> If the NDMSRVR process ends abnormally or the CPU executing the NDMSRVR process fails, NDMMON creates a new NDMSRVR process with the original NDMSRVR process name and parameters.
User Interface	NDMCOM is the user interface with NDMSRVR. Use NDMCOM, the command-line interface, to issue Connect:Direct HP NonStop commands and to change, configure, and display the Connect:Direct HP NonStop environment.

Component	Description
Session Manager	<p>The Connect:Direct HP NonStop session manager (NDMSMGR) module establishes sessions and transfers data between the local and adjacent nodes. The application can be configured to start session managers at initialization, or you can start them manually using the MODIFY command. If you define dynamic LUs for TCP/IP connectivity, NDMSRVR starts session managers as needed. You cannot issue the MODIFY command to start dynamic session managers.</p> <p>The figure on the previous page shows six session managers, two of which are communicating across SNAX sessions, two across TCP/IP, and one across ICE. One session manager is using the PNODE=SNODE facility.</p>
API Manager	<p>The Connect:Direct HP NonStop API Manager (APIMGR) module provides an interface for browser(s) and Sterling Control Center. To define an API Manager, see the instructions on the INSERT NETMAP AMGR command in the <i>Connect:Direct HP NonStop Administration Guide</i>.</p>
I/O Exits	<p>I/O exit support enables the user-written programs to serve as application interfaces for Connect:Direct HP NonStop data transfers. I/O exits permit manipulation of data formats and database architectures not currently supported by Connect:Direct HP NonStop. For transfers (COPY), Connect:Direct HP NonStop supports direct access only to Enscribe and Spool files. I/O exit support enables user-written programs to access non-supported databases, such as SQL, and manipulate data during a COPY step.</p>
Statistics Deletion Program	<p>The statistics deletion program (NDMSTDL) ensures that sufficient space is available to write statistics records in the statistics files. NDMSTDL deletes records from the Connect:Direct HP NonStop statistics file based on user-specified deletion criteria and maximum percentage of file capacity. For instructions on using NDMSTDL, refer to <i>Optimizing Performance</i> in the <i>Connect:Direct HP NonStop Administration Guide</i>.</p>
Statistics Utility Program	<p>The statistics utility program (STUTIL) analyzes the statistics files to determine how much space is available. Connect:Direct HP NonStop returns this information to the server for determination on when to run NDMSTDL.</p>
Application Program Interface	<p>An Application Program Interface (API) is a user-written application that communicates with NDMCOM. Refer to the <i>Connect:Direct HP NonStop Management Programming Guide</i> for details on creating and using an API. <b>NOTE:</b> The sample program, USERAPIC, is provided as a template for writing a customized programmatic application.</p>
Connect:Direct HP NonStop Spooler Option	<p>The Connect:Direct HP NonStop Spooler option permits an installation to transfer spooler jobs automatically from an HP NonStop node to a file on an adjacent node.</p> <p>For the information you need to install, configure, and run the Connect:Direct HP NonStop Spooler option, refer to <i>Connect:Direct HP NonStop Spooler Option</i> in the <i>Connect:Direct HP NonStop Administration Guide</i>.</p>

## Automated Installation and Management System

The Automated Installation and Management System (AIMS) is a full-screen, block-mode interface for installing, configuring, and starting Connect:Direct HP NonStop.

**Note:** You must have a 6530 terminal or a 6530 emulation program to run AIMS.

AIMS is a menu-driven system that collects information about your node and the nodes you are communicating with and guides you through the installation. Performing the menu options in the displayed numerical order expedites installation. Each user-input screen has a Help feature, which describes the entry fields for the screen. Throughout the AIMS procedure, messages displayed on the bottom line of the screen inform you of the status of the procedure and indicate errors. For more information on AIMS, refer to *Connect:Direct HP NonStop Installation Guide*.

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## Connect:Direct HP NonStop Concepts

This section introduces certain concepts and definitions important to understanding user operations.

### Processes

The Process language provides instructions for transferring files, running programs, submitting jobs on the adjacent node, and altering the sequence of Process step execution. You can include one or more steps in a Process.

A Process consists of a Process definition statement (PROCESS statement) and one or more additional statements. Parameters further qualify Process instructions. For more information, including sample Processes, see the Processes web site at <http://www.sterlingcommerce.com/documentation/processes/processhome.html>.

### Transmission Control Queue

The Transmission Control Queue (TCQ) controls Process execution as Connect:Direct HP NonStop operates. Connect:Direct HP NonStop stores submitted Processes in the TCQ which is divided into logical queues.

Connect:Direct HP NonStop places the Process in the appropriate queue based on Process statement parameters that affect scheduling. Examples of such parameters are the HOLD, RETAIN, and STARTT parameters.

Connect:Direct HP NonStop selects Processes in a first-in first-out manner for execution in Process class and priority as sessions are available. You can access the queues and manipulate the Processes through Connect:Direct HP NonStop commands.

Refer to *Queuing Processes* in the *Connect:Direct HP NonStop User Guide and Reference* for a discussion of the following topics:

- ❖ Understanding the Transmission Control Queue
- ❖ Managing Processes in the TCQ
- ❖ Scheduling Connect:Direct HP NonStop Activity

### Network Map

The network map file defines the nodes with which Connect:Direct HP NonStop can communicate. The network map includes a local node record and one or more adjacent nodes, logical units (LUs), API managers (AMGRs), and logmode records.

The local node is the logical name for the node on which you installed Connect:Direct HP NonStop. An adjacent node is the node definition for a remote site. LUs provide communication between the HP NonStop

system (local node) and adjacent nodes. Logmode records define the session protocol for an SNA HP NonStop LU, and are only used when the local LU is configured as the primary LU (PLU).

In addition to creating explicit adjacent node records for the individual nodes with which you communicate, you can also define domain node adjacent node records for communications with large networks of Connect:Direct nodes, including Connect:Direct/Plex systems, in a TCP domain. These special-purpose adjacent node records simplify your network map and increase efficiency.

## Defining Domain Nodes to Manage Inbound TCP/IP Connections

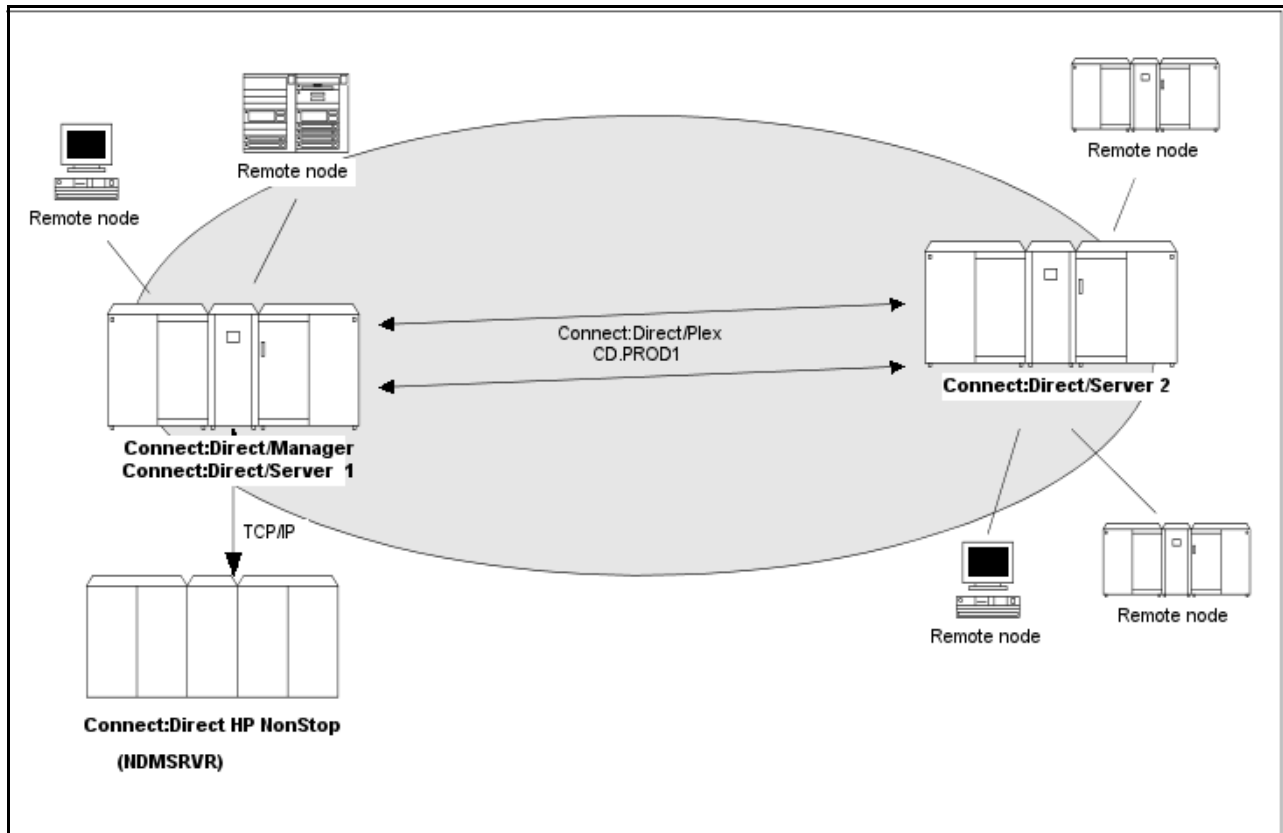
The domain node feature enables you to manage inbound connection requests to the Connect:Direct HP NonStop node from IP addresses that are not explicitly configured in the network map, for example from multiple Connect:Direct/Server processes under the direction of the Connect:Direct/Plex Manager. Using the domain node feature, you can create an adjacent node entry of the type NDM.DOMAIN for any TCP/IP domain containing one or more Connect:Direct nodes and define a range of IP addresses instead of defining an adjacent node record for each remote connection. When the Connect:Direct HP NonStop server receives a connection request, it first attempts to match the originating IP address with a specific adjacent node entry in the network map. If this search fails, the server searches for adjacent nodes of the type NDM.DOMAIN and then uses the IPMASK parameter as a template to identify a node that best fits the mask's pattern. Without a domain node record, each Connect:Direct/Plex Server or remote node must have an adjacent node record in the Connect:Direct HP NonStop network map to initiate connections to the local Connect:Direct HP NonStop node.

The DOMAINSERVER and the NETMAPCHECK initialization parameters are associated with this feature. You must set the DOMAINSERVER global initialization parameter to Yes before you can define a domain node.

You can use the NETMAPCHECK initialization parameter and Connect:Direct Secure+ Option to secure the TCP/IP sessions. See *Connect:Direct Secure+ Option* in this chapter for more information about Connect:Direct Secure+ Option and *Planning the Installation* in the *Connect:Direct HP NonStop Installation Guide* for a discussion about how the security options function in your environment.

## Using Session Redirection for Outbound TCP/IP Connections

Connect:Direct HP NonStop supports session redirection for outbound connections to a Connect:Direct/Plex system. As illustrated in the following figure, a Connect:Direct/Plex system is a Connect:Direct for OS/390 (zOS) system consisting of a Connect:Direct/Plex Manager and one or more Connect:Direct/Servers in a TCP/IP environment. Connection requests from the Connect:Direct HP NonStop node to the Connect:Direct/Plex system are routed to the Connect:Direct/Plex Manager, which redirects the connection request to the appropriate, available Connect:Direct/Plex Server process. Redirecting communications sessions across multiple Connect:Direct Server processes simplifies the network map, facilitates load-balancing, and ensures continuous, efficient use of resources.



You can create adjacent node records either through AIMS or with individual network map commands. Use the following table as a guide to the tools and the parameters used to create adjacent node records:

Task	Reference
Planning your network map to use domain nodes and session redirection	<i>Defining Adjacent Node Records for TCP/IP Connections in Planning the Installation in the Connect:Direct HP NonStop Installation Guide</i>
Setting the DOMAINSERVER and NETMAPCHECK initialization parameters	<i>Setting Initialization Parameters in Installing and Configuring Connect:Direct HP NonStop in the Connect:Direct HP NonStop Installation Guide</i>
Assessing your security options	<i>Defining Adjacent Node Records for TCP/IP Connections in Planning the Installation in the Connect:Direct HP NonStop Installation Guide</i>
Creating the worksheets for your adjacent node records in the network map	<i>Preparing to Define the Network Map through AIMS in Planning the Installation in the Connect:Direct HP NonStop Installation Guide</i>
Defining the network map through AIMS	<i>Configuring the Network Map in Installing and Configuring Connect:Direct HP NonStop in the Connect:Direct HP NonStop Installation Guide</i>
Using individual commands, syntax, and parameters to define and maintain the network map	<i>Defining and Maintaining the Network Map in the Connect:Direct HP NonStop Administration Guide</i>



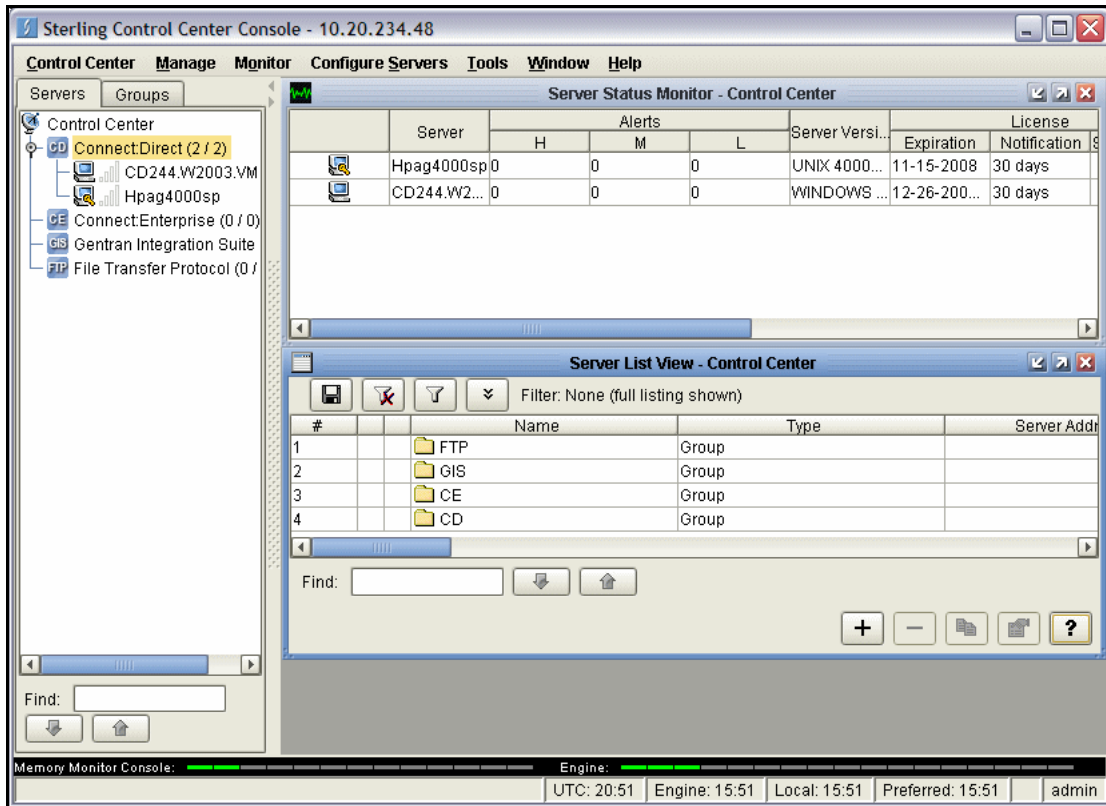
## Connect:Direct Secure+ Option

The certificate authentication and multiple cipher suites offered by Connect:Direct Secure+ Option provide the confidence that your organization can use public networks knowing that data is being reliably transferred from a known source and can only be read by the intended recipient. To use Connect:Direct Secure+ Option for communications with remote nodes, you must have node records in the Connect:Direct Secure+ Option parameters file (SPNODES) that duplicate the adjacent node records in the Connect:Direct HP NonStop network map. You can populate the Connect:Direct Secure+ Option parameters file from entries defined in an existing network map using the Sync with NetMap function. For more information about populating the Connect:Direct Secure+ Option parameters file (SPNODES) and configuring nodes for Connect:Direct Secure+ Option, refer to the *Connect:Direct Secure+ Option HP NonStop Implementation Guide*. For information about using Connect:Direct Secure+ Option with domain nodes, see *Planning the Installation* in the *Connect:Direct HP NonStop Installation Guide*.

## Sterling Control Center

Sterling Control Center is a centralized management system that provides operations personnel with continuous enterprise-wide business activity monitoring. Control Center lets you monitor these types of servers:

- ❖ Connect:Direct for z/OS
- ❖ Connect:Direct for UNIX
- ❖ Connect:Direct for Windows
- ❖ Connect:Direct HP NonStop
- ❖ Connect:Direct Select
- ❖ Connect:Direct for OS/400 (iSeries)
- ❖ Connect:Enterprise for z/OS
- ❖ Connect:Enterprise for UNIX
- ❖ Gentran Integration Suite (GIS) servers (including GIS clusters)
- ❖ FTP servers that use xferlog format



Sterling Control Center enables you to:

- ❖ Manage Connect:Direct for UNIX, Windows, or z/OS servers. You can manage these types of configuration objects:
  - ◆ Functional authorities
  - ◆ Initialization parameters
  - ◆ Netmap nodes
  - ◆ Netmap modes
  - ◆ Netmap communication paths
  - ◆ Secure+ nodes
  - ◆ Secure+ key certificates
  - ◆ Secure+ trusted certificates
  - ◆ Secure+ cipher suites
  - ◆ User proxies

You can also compare versions of the above configuration objects for a given server, do searches on configuration objects, make templates to simplify the creation of new configuration objects, and do audits of changes to configuration objects. (For more on using Control Center to configure servers, see the *Sterling Control Center Configuration Management Guide*.)

- ❖ Monitor multiple servers
  - ◆ Group individual servers into server groups for a single view of system-wide activity. Group server groups into larger groups, and display a list view of servers and server groups.
  - ◆ View status and statistics on active or completed processing

- ♦ Suspend, release, and handle Connect:Direct Processes on z/OS, Windows, HP NonStop, and UNIX platforms
- ♦ Stop Connect:Direct servers on z/OS, Windows, HP NonStop, OS/400 (iSeries), and UNIX platforms
- ♦ Pause and resume monitoring for a Connect:Direct server
- ❖ Monitor service levels
  - ♦ View information about active and completed Processes across servers within your network
  - ♦ Receive notification of data delivery events that occur or do not occur as scheduled
  - ♦ Define rules based on processing criteria that can generate an alert, send an e-mail notification, generate a Simple Network Management Protocol (SNMP) trap to an Enterprise Systems Manager (ESM), run a system command, or issue a Connect:Direct server command
  - ♦ Monitor for alerts about conditions such as a server failure or a Process that starts late
  - ♦ Create service level criteria (SLCs) that define processing schedules, monitor Processes and file transfers for compliance with the processing schedules, and generate alerts when schedules are not met
- ❖ Analyze key operational metrics through reports to document and analyze processing activity
- ❖ Create customized reports based on criteria you define, and schedule the reports to run and be delivered automatically by e-mail
- ❖ Validate user authenticity for console to engine connections using one or more of four authentication methods, including password validation, host name identification, Windows domain, and TCP/IP address (or three methods in the case of the Web console, which does not support domain authentication)
- ❖ Identify additional Connect:Direct servers (through Node Discovery) that may need to be monitored based on communications with a currently monitored server

Sterling Control Center enhances operational productivity and improves quality of service by:

- ❖ Monitoring and configuring and managing licenses for Connect:Direct servers (for Windows, UNIX, and z/OS) from a central point
- ❖ Ensuring that critical processing windows are met
- ❖ Reducing impact on downstream processing by verifying that expected processing occurs
- ❖ Providing proactive notification for at-risk business processes
- ❖ Consolidating information for throughput analysis, capacity planning, post-processing operational or security audits, and workload analysis
- ❖ Reducing the risk of errors associated with manual system administration, including eliminating individual server logon to view activity and the need to separately configure each server for error and exception notifications

Sterling Control Center is available for purchase as a separate product. Contact your Sterling Commerce representative to learn more about Sterling Control Center.

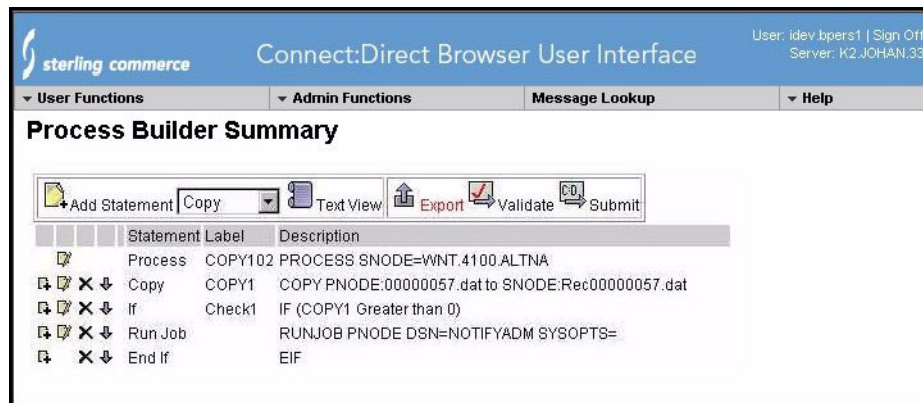
## Connect:Direct Browser User Interface

Connect:Direct Browser User Interface allows you to build, submit, and monitor Connect:Direct Processes from an Internet browser, such as Microsoft Internet Explorer.

You can also perform Connect:Direct system administration tasks, such as viewing and changing the network map or initialization parameters, from Connect:Direct Browser. The specific administration tasks that you can perform depend on the Connect:Direct platform that your browser is signed on to and your security level.

Connect:Direct Browser is distributed on CD-ROM with Connect:Direct for z/OS, Connect:Direct for Windows, Connect:Direct for UNIX, and Connect:Direct HP NonStop. It can also be downloaded from the Sterling Commerce Web site. Connect:Direct Browser is installed on a Web server and can be accessed by

administrators and users through a URL. The following example shows the page used to graphically build a Process:



To learn more about Connect:Direct Browser, see the documentation on the Connect:Direct Browser CD-ROM or available online from the Sterling Commerce Documentation Library.

## Interfacing with Sterling Control Center or Browser User Interface

Connect:Direct HP NonStop can interface with Sterling Control Center and Connect:Direct Browser User Interface. The TCP/IP API enables users of these other Sterling Commerce applications to configure, control, and operate Connect:Direct HP NonStop from any host on a TCP/IP network. To set up a connection between Connect:Direct HP NonStop and Sterling Control Center or Browser User Interface, you need to define two entities in the network map:

- ❖ An adjacent node with the TYPE parameter defined as NDM.API and the IPADDR parameter defined as the address of the external application client from which connection requests may be received.
- ❖ An API manager (AMGR) to handle communications sessions with the external application. The AMGR record is used to define the local TCP process and port number on which a LISTEN is to be posted to accept incoming connection requests.

After you have defined these components, you must identify the AMGRs you want to use to communicate with an adjacent node by using the RELATE NETMAP command. For more information on both the INSERT and RELATE NETMAP commands, refer to *Defining and Maintaining the Network Map* in the *Connect:Direct HP NonStop Administration Guide*. You can also perform these functions using the Automated Installation & Management System (AIMS) to set up the network map. For more information, refer to *Installing and Configuring Connect:Direct HP NonStop* in the *Connect:Direct HP NonStop Installation Guide*.

## Commands

You use commands to submit Connect:Direct HP NonStop Processes to the TCQ and to manipulate Processes in the queue by flushing, deleting, or suspending them.

The following command submits the Process called ONESTEP to the TCQ with a HOLD status of Yes:

```
SUBMIT FILE ONESTEP HOLD=YES
```

Other commands allow you to select and display statistics or perform administrative functions, such as maintain network maps, user authorities, and default types.

The command language consists of the following types of commands:

- ❖ User
- ❖ Administrator

- ❖ Environment
- ❖ Message

## User and Administrator Commands

Issue user and administrator commands to perform the following tasks:

- ❖ Submit Connect:Direct HP NonStop Processes
- ❖ Monitor and control Process execution
- ❖ Perform administrative functions
- ❖ Examine Connect:Direct HP NonStop node definitions
- ❖ Display and update initialization parameters
- ❖ Stop Connect:Direct HP NonStop

Refer to the *Connect:Direct HP NonStop User Guide and Reference* for command syntax and parameter descriptions for user commands. Command syntax and parameter descriptions for administrator commands are in the *Connect:Direct HP NonStop Administration Guide*.

The following table lists the user and administrator commands and their functions:

Command	Function
CHANGE PROCESS	Modifies a Process in the TCQ.
DELETE PROCESS	Removes a nonexecuting Process from the TCQ.
DELETE NETMAP	Removes a node, LOGMODE, LU, AMGR, or relation entry from the network map.
DELETE SECURITY†	Removes a user record from the security file.
DELETE TYPE†	Removes a type record from the type file.
DELETE USER†	Removes a user record from the authorization file.
DISPLAY LICENSE	Displays current license key.
DISPLAY LOGGING	Displays or prints the settings for EMS and STATS, and the name of the collector process.
DISPLAY PARMS	Displays or prints current settings of the initialization parameters (from the NDMINIT file).
DISPLAY SESSIONS	Displays active and licensed session counts.
FLUSH PROCESS	Removes an executing Process from the TCQ.
INSERT NETMAP†	Adds a local node, an adjacent node, an LU, a LOGMODE, or an AMGR record to the network map.
INSERT NETMAP AMGR†	Adds an API manager, AMGR, to the network map, which enables connections to Sterling Control Center and the Browser User Interface.
INSERT SECURITY†	Adds a security record to the security file for Secure Point of Entry.
INSERT TYPE†	Adds a type record to the type file.
INSERT USER†	Adds a user record to the authorization file.
LASTPNUMBER	Determines the number of the last Process submitted in the current NDMCOM session.
MODIFY†	Starts the trace facility and/or modifies other operational functions.

† Administrative commands

Command	Function
RELATE NETMAP <sup>†</sup>	Assigns specific LUs or AMGRs to an adjacent node record.
SELECT NETMAP	Displays or prints definitions of API Manager, node, LOGMODE, and LU entries in the network map file.
SELECT PROCESS	Displays or prints information about a Process in the TCQ.
SELECT SECURITY	Displays or prints records in the security file.
SELECT STATISTICS	Displays or prints statistics, messages, license information, and /or commands in the statistics log.
SELECT TYPE	Displays or prints type records.
SELECT USER	Displays or prints user records in the authorization file.
STATUS	Displays the status of nodes and LUs, Processes in queues, and TCP listen ports.
STOP ALL <sup>†</sup>	Stops Connect:Direct HP NonStop operation.
SUBMIT	Submits a Process for execution.
SUSPEND PROCESS	Suspends an executing Process.
UPDATE LICENSE	Validates the license key in the LICENSE file and updates the active license.
UPDATE LOGGING <sup>†</sup>	Modifies settings for EMS, STATS, and COLLECTOR.
UPDATE NETMAP <sup>†</sup>	Modifies settings for an API manager, node, LOGMODE, or LU record in the network map.
UPDATE PARM <sup>†</sup>	Alters operating parameters from the NDMINIT file. For more information on this command, see <i>Connect:Direct HP NonStop Installation Guide</i> .
UPDATE SECURITY <sup>†</sup>	Changes a security record in the security file.
UPDATE STATISTICS <sup>†</sup>	Dynamically changes the percentage setting, deletion criteria, and midnight housekeeping flag in the statistics facility (NDMSTDL).
UPDATE TYPE <sup>†</sup>	Changes a type record in the type file.
UPDATE USER <sup>†</sup>	Changes a user record in the authorization file.

<sup>†</sup> Administrative commands

## Environment Commands

Use environment commands to change and define the Connect:Direct HP NonStop environment or to facilitate the use of NDMCOM. The following table lists the environment commands and their functions:

Command <sup>†</sup>	Function
!	Reexecutes a previous command line, without modifications.
DISPLAY STATINFO	Displays percentage setting, deletion criteria, midnight flag setting, last execution of NDMSTDL, and file information for the statistics files (STATFILE, STATSRCH, STATSRC0).
EDIT	Invokes the HP NonStop TEDIT editor.
ENVIRONMENT	Displays the current Connect:Direct HP NonStop environment, including defaults.

<sup>†</sup> Refer to the *Controlling the Environment* chapter in the *Connect:Direct HP NonStop User Guide and Reference* for command syntax and parameter descriptions for environment commands.

Command†	Function
EXIT	Exits NDMCOM.
FC	Changes and/or reissues previously typed commands.
HELP	Accesses the interactive Connect:Direct HP NonStop Help facility.
HISTORY	Displays up to the last 100 commands issued.
LIST	Displays the contents of an edit file.
LOGON	Logs on to NDMCOM.
OBEY	Executes a series of HP NonStop and Connect:Direct HP NonStop commands, except FC, contained in an edit file.
OBEYVOLUME	Defines the default volume used for expansion of the obey file name.
OPEN	Opens the NDMSRVR process.
OUT	Changes the default output file.
PRINTER	Defines the print file name.
PROCVOLUME	Defines the default volume used for expansion of the Process file name.
RUN	Executes any user-written or system programs without exiting NDMCOM.
SYMBOL	Builds, deletes, and displays symbolic substitution values for use in Connect:Direct HP NonStop.
TIME	Retrieves the current day, date, and time.
VERSION	Displays or prints the version, release, and maintenance level for the NDMCOM currently running.
VOLUME	Defines the current default volume.

† Refer to the *Controlling the Environment* chapter in the *Connect:Direct HP NonStop User Guide and Reference* for command syntax and parameter descriptions for environment commands.

## Message Commands

Use Connect:Direct HP NonStop message commands to insert, delete, display, modify, and print messages. Refer to *Using Connect:Direct HP NonStop* in the *Connect:Direct HP NonStop User Guide and Reference* for syntax and parameter descriptions for displaying and printing messages. Refer to *Modifying the Message File* in the *Connect:Direct HP NonStop Administration Guide* for syntax and parameter descriptions for modifying messages.

## Flow of Connect:Direct HP NonStop Operations

The following shows the processing flow for a SUBMIT command.

**Note:** In this discussion, the Browser User Interface can be substituted wherever you see the command line interface, NDMCOM.

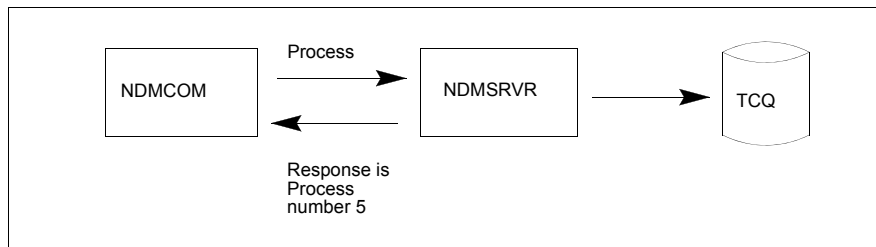
- ❖ The SUBMIT command is issued through NDMCOM.

```
CD.49.>SUBMIT FILE $VOL.SEND.FILE
```

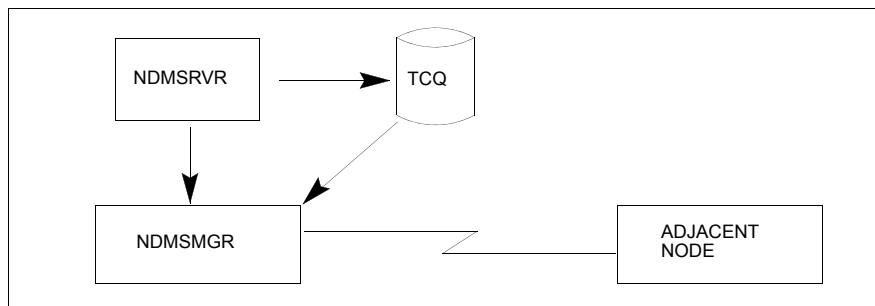
- ❖ The command submits the file, \$VOL.SEND.FILE. The file contains Process statements.

```
SEND    PROCESS  SNODE=MVS.NODE
STEP01  COPY     FROM (DSN=$SYS.TAN.TXT) -
        TO      (DSN=MVS.FILE SNODE)
```

- ❖ The Process is sent to the server. The server then places the Process on the TCQ, responds to NDMCOM with the Process number (PNUMBER), and routes the Process to an available session manager. In the following figure, the server returns a PNUMBER of 5 to NDMCOM.



- ❖ The session manager reads the Process from the TCQ and executes it.



- ❖ While the Process is queued, or during execution, you can display Process status by issuing the SELECT PROCESS command.

```
CD.50.>SELECT PROCESS PNUMBER=5
```

Refer to *Managing Processes* in the *Connect:Direct HP NonStop User Guide and Reference* for sample output from the SELECT PROCESS command.

- ❖ After Process execution, you can display the results of the operation by issuing the SELECT STATISTICS command. Refer to *Viewing System Files* in the *Connect:Direct HP NonStop User Guide and Reference* for sample output from the SELECT STATISTICS command.

```
CD.51.>SELECT STATISTICS PNUMBER=5
```



---

# Planning the Installation

Installing Connect:Direct HP NonStop is a two-part procedure that consists of defining the network connections and installing the product. This chapter describes the installation prerequisites and planning tasks you must complete to help you organize and prepare for the installation, which is described in Chapter 3, *Installing and Configuring Connect:Direct HP NonStop*.

Installation worksheets to assist your planning efforts are provided in this chapter and in the appendixes.

---

## Before You Begin

Before you complete the installation worksheets, perform the following tasks:

- ❖ Read the *Connect:Direct HP NonStop Release Notes* document for the latest product information, including additional installation requirements, updates to the installation procedure, product enhancements, maintenance updates, documentation changes, and hardware and software requirements. The information in this document can affect your installation procedures and definitions.
- ❖ Verify your hardware and software requirements.
- ❖ Verify that you have downloaded the current maintenance for Connect:Direct from the Customer Support Web site at [www.sterlingcommerce.com](http://www.sterlingcommerce.com).
- ❖ Review your security configuration to ensure compatibility with Connect:Direct before proceeding with the installation procedure. Refer to the *Connect:Direct HP NonStop Administration Guide* for a description of the security options.
- ❖ Review network definitions and network map requirements before installing Connect:Direct HP NonStop. The worksheets in this chapter and those in specific appendixes assist you in gathering the required values and communicating them to administrators at other nodes.

---

**Note:** If you are defining a TCP/IP connection between Connect:Direct HP NonStop and a remote node, refer to Appendix C, *Defining TCP/IP Connectivity*, but you do not need to complete a worksheet to define a TCP/IP connection.

---

---

## Supported Connectivity

Connect:Direct HP NonStop supports connectivity between HP NonStop systems and the following systems:

- ❖ Between HP NonStop and receiving i5/OS, and HP NonStop nodes using SNAX/XF leased or switched line configurations.
- ❖ Between HP NonStop and sending IBM nodes (z/OS, VM, and VSE) and nodes using SNAX/XF leased or switched line configurations. In this mode, the HP NonStop system is viewed by the IBM system as a receiving PU type 2.
- ❖ Between files on HP NonStop nodes using the Connect:Direct HP NonStop PNODE=SNODE facility. Data is transferred to another file on your node or in an EXPAND network.
- ❖ Between HP NonStop and an z/OS node using ICE (LU0) software.
- ❖ Between HP NonStop and z/OS, Windows, UNIX, i5/OS, OpenVMS, VSE, and other HP NonStop nodes using TCP/IP.
- ❖ Between HP NonStop and z/OS through Connect:Direct/Plex.
- ❖ Between two HP NonStop nodes or a HP NonStop and an z/OS node with NETEX.

In addition, other Connect:Direct HP NonStop systems must show at the maintenance levels defined in the *Connect:Direct Compatibility and Connectivity* document.

Consult HP NonStop documentation appropriate for your operating environment for hardware and software requirements.

---

## Configuring Connect:Direct HP NonStop to Use the HP NonStop Parallel TCP Utility

Connect:Direct HP NonStop is compatible with the HP NonStop Parallel TCP utility (PTCPIP), using the Standard Listening Model, while retaining compatibility with the conventional TCP/IP facility. PTCPIP offers the load-balancing capability available when running multiple conventional TCP stacks, while eliminating the need to work with multiple IP addresses. Refer to Chapter 3 of the *HP NonStop TCP/IP (Parallel Library) Configuration and Management Manual* for a description of all available listening models.

Using PTCPIP simplifies connectivity configuration. An HP NonStop node is presented to the network as a single TCP address, simplifying the configuration of connectivity with adjacent Connect:Direct nodes. It increases the efficiency of data transfers. During a COPY function, each session manager communicates with the network through the TCPMON process that is running in its local CPU. This eliminates the need to read and write from different CPUs encountered with conventional TCP, when the TCP stack is running in a different CPU. Load balancing is simplified when using the parallel TCP utility. Data traffic may be distributed across CPUs and across TCPMON processes by distributing your TCP LUs across the CPUs in your HP NonStop node.

If you want to use the HP NonStop Parallel TCP utility, you must configure the following items:

1. A TCPSAM process pair must be configured in the parallel TCP environment. To verify that at least one TCPSAM process is configured and running in the PTCPIP environment, type the following TACL command to obtain a list of all TCPSAM processes, where *SYSnn* is the subvolume of the current operating system image:

```
>STATUS *,PROC $SYSTEM.SYSnn.TCPSAM
```

---

**Note:** For IPv6 stacks, type **TCP6SAM** instead of TCPSAM.

---

2. A TCPMON process must be configured on every CPU for which a TCP LU (session manager) is defined in the Connect:Direct HP NonStop network map. To verify that a TCPMON process is running on a CPU, type the following SCF command. This command displays a list of the TCPMAN (manager) process \$ZZTCP and all TCPMON (monitor) processes \$ZPTM $n$ , where  $n$  is a CPU number:

```
1->LISTDEV PTCPIP
```

3. Round-robin filtering should not be enabled for the NDMSRVR server Process. Round-robin filtering is intended for applications with multiple listeners. Connect:Direct only uses one listener—the server process.
4. The PTCPIP stack must reside on the same HP NonStop node as Connect:Direct. Unlike conventional TCP stacks, it cannot be accessed remotely by Connect:Direct.
5. Modify the following initialization parameters in the NDMINIT file:
  - a. Identify the TCPSAM process in the TCPNAME parameter.
  - b. Identify the desired listening port in the PORTNUM parameter.  
For example, set the parameters to:  
TCPNAME \$ZSAM1  
PORTNUM 1364
  - c. Remove all TCPLISTEN $nn$  parameters.
6. After you have completed the installation, start Connect:Direct HP NonStop.
7. Type the following command to remove the TCPNAME parameters from all adjacent node and LU definitions.  
CD.n.>UPD NET ADJ nodename TCPNAME DELETE  
CD.n.>UPD NET LU luname TCPNAME DELETE
8. If the local IP address has changed, update the network maps of your business partners to reference your HP NonStop Connect node using the IP address of the PTCPIP stack and the port number specified in the NDMINIT file.

Under the PTCPIP configuration, the NDMSRVR server process will issue a LISTEN on the specified port in the TCPSAM process. Inbound connection requests are directed to the server process, which then routes them to an available LU (session manager). The session manager establishes a TCP session through the local TCPMON process in the CPU in which the session manager is running. Outbound connection requests are initiated by each session manager through the TCPMON process running in its CPU.

---

## Distribution Subvolumes and Files

Connect:Direct HP NonStop includes the following subvolumes and files:

---

**Note:** File names will differ if you rename any of the default values in Option E of AIMS.

---

Subvolume	File Name	Description
NDMNETEX		For NETEX users only; subvolume containing link scripts and relinkable object code for NDMSMGR, NDMNTXK, and NDMNTXO; required for linking the local NETEX API libraries into the application on a customer's machine.
	NDMNTXKL	Link script for the NDMNTXK module
	NDMNTXKR	Relinkable object code for NDMNTXK
	NDMNTXOL	Link script for the NDMNTXO module
	NDMNTXOR	Relinkable object code for NDMNTXO
	NDMSMGR	Link script for the NDMSMGR session manager module
	NDMSMGRR	Relinkable object code for NDMSMGR
NDMOBJ		Contains the object code that runs on D series releases of the NonStop Kernel operating system.
	CDLIB	Contains the Connect:Direct object library.
	NDMCOM	User interface.
	NDMMON	Creates and monitors the NDMSRVR and restarts it if it fails, ensuring NonStop operation.
	NDMMSG	The message display utility that displays message text when supplied with a message ID.
	NDMNTXK	Program file that handles NETEX error recovery.
	NDMNTXO	Program file that handles NETEX communications.
	NDMSMGR	Establishes sessions and transfers data between the local and adjacent nodes.
	NDMSRVR	Interacts between NDMCOM and the NDMSMGR to monitor the node, manage all user commands, the TCQ, and assign work to session managers.
	NDMSTDL	Program file that clears space from the statistics file when required.
	APIMGR	Communications manager executable for the TCP API interface
	NDMTRACE	The trace collector process to which session manager trace output can be directed (instead of a spool location, terminal, or disk file).
	SETPNUM	The batch utility which resets the last Process number value.
	NDMXLATE	Utility that permits you to define character translation tables and place them in the translate table library for use during file transfer operations.
	STUTIL	Determines the utilization of the statistics file.

---

Subvolume	File Name	Description
NDMFILES		Contains Connect:Direct HP NonStop nonexecutable data files.
	NDMCDL	Contains the object code for the Connect:Direct HP NonStop command definition language. Connect:Direct HP NonStop commands and statements are verified against this file.
	MSGFILE	KSDS file that contains Connect:Direct HP NonStop messages.
NDMINSTL		Contains files used during installation.
	CDLIBRES	OBEY file with RUN commands to resolve the CDLIB user library references on the local system
	CNVCKPT	Connect:Direct HP NonStop Process that is only used when you are upgrading from a previous version of Connect:Direct HP NonStop and need to retain data in your original checkpoint file.
	NDMFUPIN	Contains the following file definitions created during the initial installation: <ul style="list-style-type: none"> <li>• AUTHFILE contains authorization information.</li> <li>• CKPTFILE contains checkpoint information used for restarting failed checkpointed transfers.</li> <li>• INFOFILE stores information recorded during the interface between NDM-SRVR and NDMSMGR.</li> <li>• NETFILE stores the network map information.</li> <li>• NETFILE0 specifies the alternate key file to NETFILE.</li> <li>• SECFILE contains Connect:Direct HP NonStop security records for Process security resolution.</li> <li>• SECFILE0 specifies the alternate key file for SECFILE.</li> <li>• STATFILE contains statistics information.</li> <li>• STATSrch contains the keys for searching and displaying statistics information from the STATFILE.</li> <li>• STATSRC0 contains the alternate key file for STATSrch.</li> <li>• TCQFILE contains the Transmission Control Queue (TCQ) file.</li> <li>• TCQXFILE stores header information for TCQFILE.</li> <li>• TCQXFIL0 contains the alternate key file for TCQXFILE.</li> <li>• TYPEFILE contains Connect:Direct HP NonStop type record definitions.</li> <li>• XLFILE contains translation tables.</li> </ul>
	NDMXLIN	The text file for the NDMXLATE utility.
Obey Files		Supplementary files that you can edit and run as an alternative to installing Connect:Direct HP NonStop using AIMS.
	OBEYNET	Serves as the network map template.
	OBEYUSER	Serves as a template for the INSERT USER command. Use this file to add users to the authorization facility.
	OBEYXLAT	Enables you to load translation tables.
	ONDMLOG	Contains the default LOGMODE entries for the network map file. LOGMODE records are only used when operating in SNA primary mode (SNA.P) in a receiving connection between HP NonStop and other nodes or in a peer-to-peer connection.
	TACLNDM	Contains the following two sets of TACL macros that provide greater functionality and flexibility in NDMCOM: NDMRUN, NDMS, and NDMA NDMSTART, CD, and NDMSTOP Each set of macros is executed from TACL either by issuing NDMRUN or NDMSTART. Both macros start NDMCOM; however, each offers different features. Macros are described in <i>Using Connect:Direct HP NonStop</i> chapter in the <i>Connect:Direct HP NonStop User Guide and Reference</i> .

Subvolume	File Name	Description
NDMAPI		Contains a header file, source code, and objects required for the Application Program Interface (API) feature of Connect:Direct HP NonStop. Header files contain the function and literal definitions for use with a user-written application.
	NDMAPI	Object file containing all C control block functions. You must build the API written in C with this file.
	NDMAPIC	Source code that contains all the CB functions written in C. Compile this module to produce NDMAPI in order to change or add CB functions.
	NDMAPICH	Contains the #define statements for all control block keywords and the function declarations for C.
	NDMAPIH	Header file for use with NDMAPIC, USERAPIC, or other user-written programs.
	NDMAPITH	Contains the DEFINE statements for all control block keywords and the function declarations for TAL.
	USERAPIC	Contains the source code for the sample C API.
	USERAPIN	Sample link script for the USERAPI module.
NDMAIMS		Contains the executable version of the AIMS feature.
	NDMAIMS	AIMS executable module invoked during the installation.
NDMSAMP		Contains sample programs for various Connect:Direct HP NonStop applications.
	EXITCDDL	DDL source enables you to define the EXIT control block and the INFO control block. Both control blocks are used by the I/O Exit program to receive commands and send file information to Connect:Direct HP NonStop.
	EXITCBH	C header file of the EXIT control block sourced in by IOEXITC.
	EXITCBT	TAL STRUCT template file of the EXIT control block sourced in by IOEXITT.
	IOEXITC	Source file for a sample I/O Exit written in C that reads or adds data for specified data files depending on the type of request (GET or ADD).
	MESSAGE	Contains a sample message that you can insert in the message file using the NDMMMSG program.
	RECEIVE	Sample Process that receives a file from another node.
	SEND	Sample Process that sends a file to another node.
NDMDSM		Contains files pertinent to Event Management Services (EMS).
	FLTSRC1	Sample filter source that passes all Connect:Direct HP NonStop events.
	FLTSRC2	Sample filter source that passes Connect:Direct HP NonStop events that are step starts and step ends.
	FLTSRC3	Sample filter source that passes Connect:Direct HP NonStop events with a return code greater than zero.
	FLTSRC4	Sample filter source that passes all events for the Connect:Direct HP NonStop spooler option.
	NDMC	DDL output of NDMDL for C.
	NDMDL	Source file for token definitions for Connect:Direct HP NonStop. Field type definitions for all EMS tokens are in this file. Use this file to produce a data dictionary. <i>Do not modify NDMDL.</i>

<b>Subvolume</b>	<b>File Name</b>	<b>Description</b>
	NDMFLT1	Filter object file created from sample EMS filter FLT SRC1.
	NDMFLT2	Filter object file created from sample EMS filter FLT SRC2.
	NDMFLT3	Filter object file created from sample EMS filter FLT SRC3.
	NDMFLT4	Filter object file created from sample EMS filter FLT SRC4.
	NDMTACL	DDL output of NDMDDL for TACL.
	NDMTAL	DDL output of NDMDDL for TAL.
	RUNDIST	Sample obey file for starting a printing distributor.
	STALTCOL	Sample obey file for starting an alternate collector.
	TEMPOBJ	TEMP SRC object file produced by the template compiler.
	TEMP SRC	Sample template source file.
	TEMPVIEW	Sample template for use with Viewpoint. TEMPVIEW packs pertinent information on a single line.
	TEMPVOBJ	TEMPVIEW object file produced by the template compiler. Add this file to the CONFTEXT to install templates during SYSGEN. Use this template with Viewpoint.
NDMSPL		Contains files used with the Connect:Direct HP NonStop spooler option.
	NDMSPL	Contains the object code for the Connect:Direct HP NonStop spooler option.
	ONDMSPL	Sample startup obey file.
	SPLPARAM	Sample obey file for setting parameters required by the NDMSPL.
	SPL2MVS	Template Connect:Direct HP NonStop Process file that enables you to transmit spooler jobs to a z/OS node. SPL2MVS is the default template Connect:Direct HP NonStop Process file for the Connect:Direct HP NonStop spooler option.
	SPL2NT	Template Connect:Direct HP NonStop Process file that enables you to transmit spooler jobs to a Windows node.
	SPL2TAN	Process template for transmitting spool files to another HP NonStop node (or the local node if it's used for PNODE-SNODE COPYs).
	SPL2VMS	Template Connect:Direct HP NonStop Process file that enables you to transmit spooler jobs to an OpenVMS node.
	SPL2VSE	Template Connect:Direct HP NonStop Process file that enables you to transmit spooler jobs to a VSE node.
	SPL2400	Template Connect:Direct HP NonStop Process file that enables you to transmit spooler jobs to an i5/OS node.
	SPL2UNIX	Template Connect:Direct HP NonStop Process file that enables you to transmit spooler jobs to a UNIX node.
	SPLDEFPP	Sample SPOOLCOM input command file for defining the Connect:Direct HP NonStop spooler option and its associated print locations to the spooler supervisor.
	SPLSUPUP	SPOOLCOM input command file for starting print processes and devices or restarting them when a print error occurs.

## Defining the Connect:Direct HP NonStop SNA Environment

This section assists you in determining the required SYSGEN and SCF definitions for connectivity.

If you are defining SNA communications lines, various definitions at the HP NonStop node depend on the HP NonStop Communications controller.

### SNAX/XF Line Attributes

The following table lists the required SNAX/XF line attributes and their corresponding definitions as they relate to the type of controller. Type the appropriate values on the worksheets. Refer to your HP NonStop documentation if you require additional information.

Required SNAX/XF Line Attribute	6203/6204 Bit-Synchronous Controller	6100 CSS Using 6101, 6105, and 3605 Controllers	3840 Controller (SNAXLINK)
TYPE	58	58	58
SUBTYPE	0	1	2
RSIZE	4096	4096	4096
SMLDEV	\$SSCP	\$SSCP	\$SSCP
INTERRUPT	SNA^6203^INTERRUPT	SNA^CSS^INTERRUPT	SNA^3840^INTERRUPT

### SNAX Line Attributes

The following table lists the required SNAX line attributes and their corresponding definitions as they relate to the type of controller:

Required SNAX Line Attribute	6203/6204 Bit-Synchronous Controller
TYPE	11
SUBTYPE	40
RSIZE	4096
INTERRUPT	BS^6203^INTERRUPT^XF

Complete the *Line, PU, and LU Definitions Worksheet*. The worksheet guides you through SYSGEN and SCF definitions for your connectivity. Use separate worksheets for each line, PU, and LU.

Sample line, PU, and LU definitions appear in the following appendixes:

- ❖ *Appendix A, Defining HP NonStop as the SNA Primary Environment*
- ❖ *Appendix B, Defining HP NonStop as the SNA Secondary Environment*



## Line, PU, and LU Definitions Worksheet

---

### SYSGEN Line Definitions

---

**SNATS TYPE 58** Required for sending and receiving connectivity.

**SDLCFX TYPE 11** Required for peer-to-peer connectivity.

**SUBTYPE** 0 1 2 (circle one for sending and receiving connectivity.)  
40 is required for peer-to-peer connectivity.

(The value for SUBTYPE is dependent on the controller. Refer to the tables beginning on page 32 for required line attributes for each controller type.)

**SMLDEV \$SSCP** Required.

**INTERRUPT** (circle one)

SNA^6203^INTERRUPT  
SNA^6204^INTERRUPT  
SNA^CSS^INTERRUPT  
SNA^3840^INTERRUPT  
BS^6203^INTERRUPT^XF

(This value is dependent on the controller. Refer to the tables beginning on page 32 for required line attributes for each controller type.)

**RSIZE** 4096.

**PRIMARY** Required for receiving connectivity.

**SECONDARY** Required for sending connectivity.

**FULL HALF** (DUPLEX)

(Specify FLAGFILL and REJ if connectivity is peer-to-peer and duplex is FULL.)

**TWS TWA** Circle one for peer-to-peer connectivity only.

(Specify TWS for a full-duplex line. Specify TWA for a half-duplex line.)

**ADDRESSSIZE 1** Required for peer-to-peer connectivity.

**MAXPUS** \_\_\_\_\_

**SPEED** \_\_\_\_\_

**SWITCHED** Y or N (if N, omit)

**FRAMESIZE** \_\_\_\_\_

**L2WINDOW** \_\_\_\_\_

**MAXLUS** \_\_\_\_\_

---

**SCF Entries Definitions for LU0 Connections**


---

**PU Definitions****ADDRESS**

\_\_\_\_\_

(Expressed in hexadecimal (%hxx) or decimal format)

**RECSIZE****MAXLUS****WINDOW****TYPE**

\_\_\_\_\_

(13,2) is required.

**LU Definitions****ADDRESS**

\_\_\_\_\_

(Expressed in decimal format)

**TYPE**

(14,0) is required for *sending* connections.

**TYPE**

(14,2) is required for *receiving* connections.

**RECSIZE****PUNAME****PROTOCOL**

\_\_\_\_\_

SNALU is required.

**CHARACTERSET**

\_\_\_\_\_

ASCII is required.

---

## Defining Adjacent Node Records for TCP/IP Connections

You have several options for creating entries in the network map for TCP/IP connections. In addition to creating individual adjacent node records for each stand-alone node with which your system communicates, you can also create domain node records to manage inbound connections that originate from a group of Connect:Direct/Plex Servers or nodes within a TCP domain that use dynamically assigned IP addresses. Domain node records simplify your network map by enabling you to define a range of IP addresses from which the Connect:Direct HP NonStop node accepts connections instead of defining an adjacent node record and exact IP address for each node that initiates connections.

You can also use session redirection to route outbound TCP/IP connections to a Connect:Direct/Plex system through the Connect:Direct/Plex Manager to simplify your network map. This section provides information to help you determine whether domain nodes and session redirection will help you manage your TCP/IP connections, how to implement domain nodes, and considerations for choosing the security option that best suits your environment.

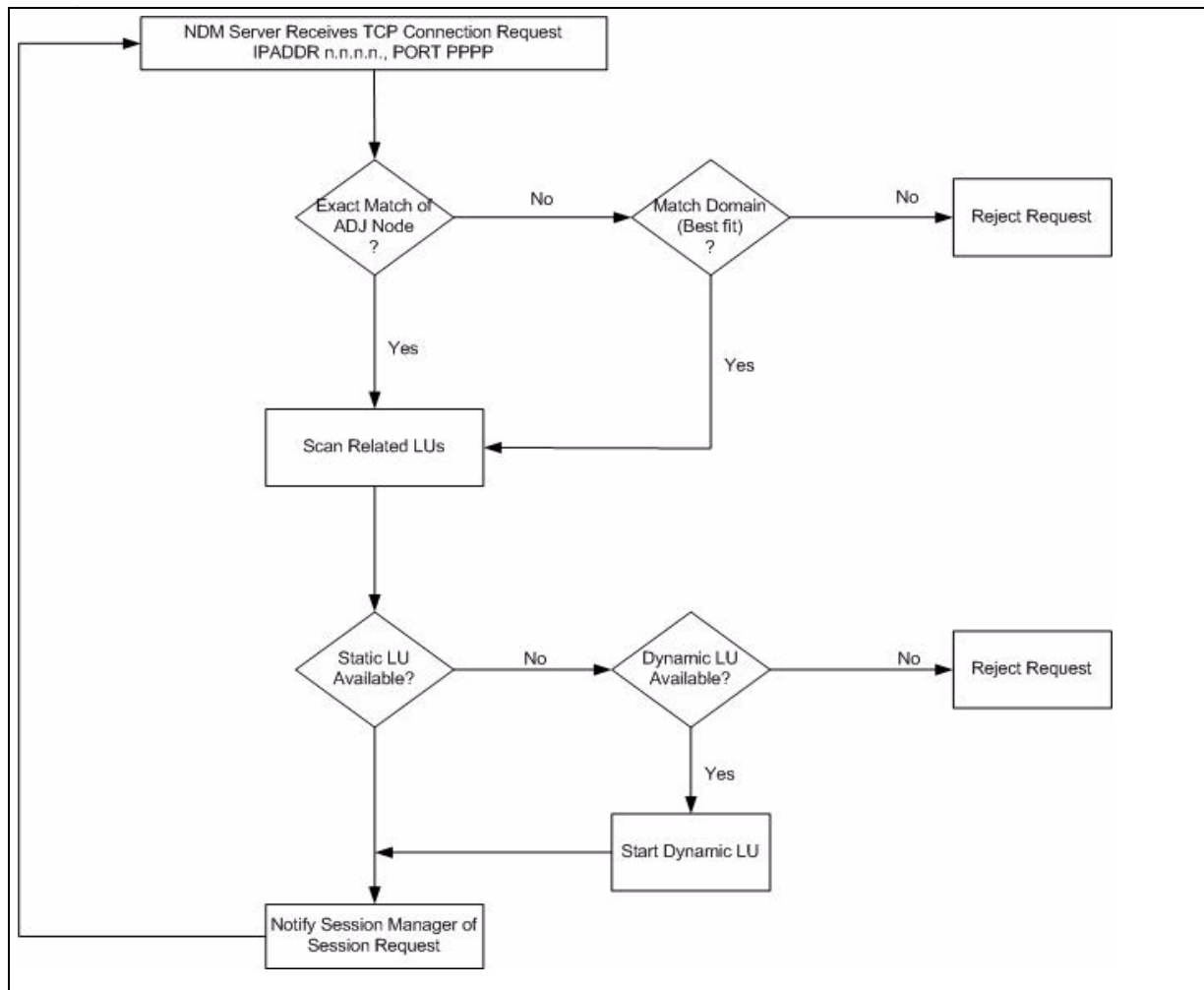
After you have reviewed the information in this section, see *AIMS Network Map Definition* on page 43 to prepare the information required to define adjacent node records for your network map.

## Inbound TCP/IP Connection Requests

This section explains how using domain node records in the network map simplifies the task of administering inbound connections from a large number of nodes connecting over public networks. An overview of the processing flow of inbound TCP/IP requests provides the background for understanding the benefits of using domain nodes.

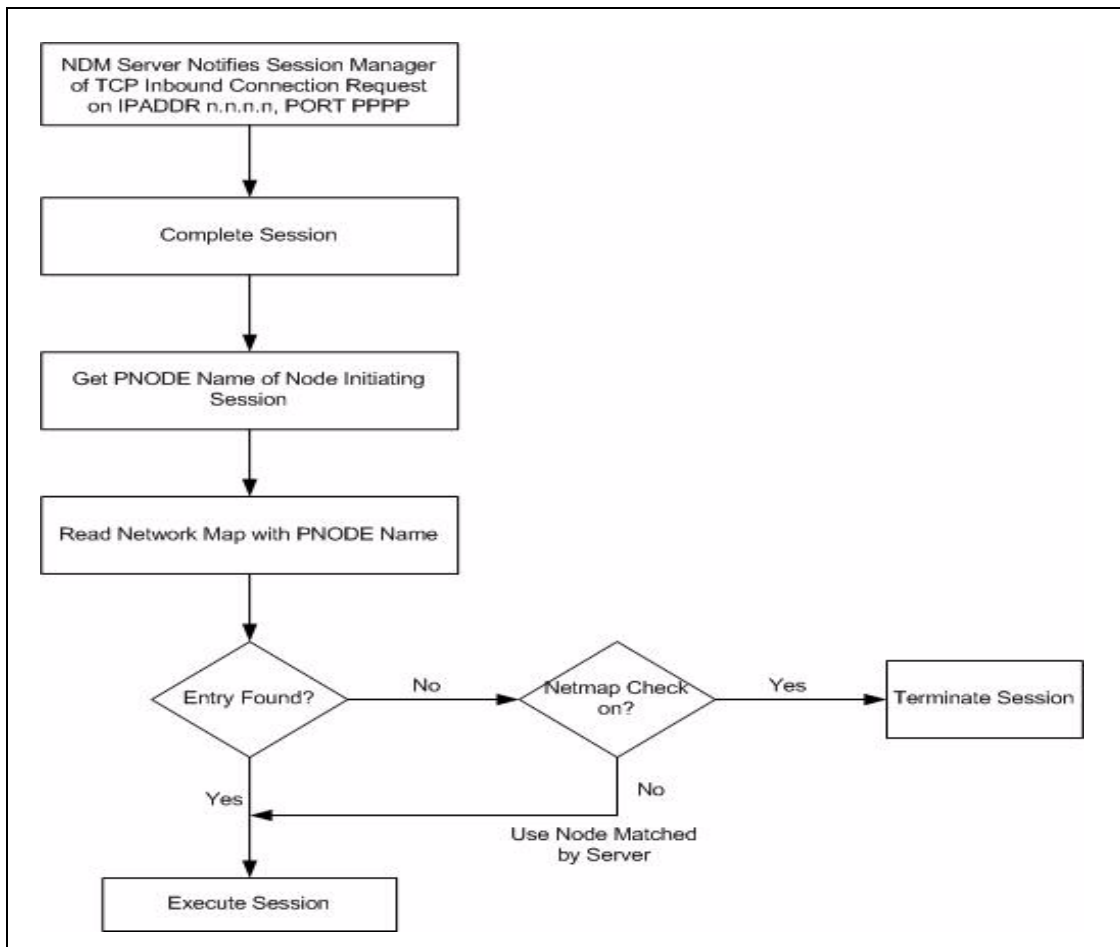
## Processing Flow for Inbound TCP/IP Connection Requests

The following figure illustrates the processing flow of inbound TCP/IP connections up to the point that the Connect:Direct HP NonStop Server process (NDMSRVR) notifies the Connect:Direct HP NonStop Session Manager process (NDMSMGR) of the request. As the figure shows, when the Connect:Direct HP NonStop server receives a connection request, it first attempts to match the originating IP address with a specific adjacent node entry in the network map. If this search attempt fails, the server searches for adjacent nodes of the type NDM.DOMAIN and then uses the IPMASK setting as a template to identify the node that best fits the mask pattern. Processing continues if the IP address of the inbound request is an exact match of an adjacent record in the network map or falls within a range of IP addresses defined in a domain node record; otherwise, the connection request is rejected.



**Note:** As the preceding figures shows, after the connection request, adjacent node records are read sequentially. A match will always be made with the first adjacent node record that contains the exact IP address of the originator, even if multiple node entries have the same IP address defined. Only LUs related to that entry are scanned for availability.

After the Server process notifies the Session Manager of the request, additional security checks against the network map are performed using the PNODE name of the node initiating the session, as shown in the following figure. If the PNODE name is verified by an explicit adjacent node record in the network map, then the session is executed. If the PNODE name is not verified and the NETMAPCHECK parameter is enabled, the session is terminated. However, if the PNODE name is not verified in an explicit adjacent node record and the NETMAPCHECK parameter is disabled, then the session is executed using the adjacent node record that corresponds to the IP address that the Server process matched to a domain node record.



These figures illustrate the efficiency of using domain node records to manage large numbers of Connect:Direct nodes in a TCP domain. Without domain node records, which specify a range of IP addresses, the IP address of each inbound connection request must match an adjacent node record in the network map; otherwise, the request is rejected. For connection requests from a Connect:Direct/Plex node with multiple Connect:Direct/Plex Servers, you can create an adjacent node record for the Connect:Direct/Plex Manager to validate the source of the request instead of creating an adjacent node record for every Connect:Direct/Plex Server, if network map checking is enabled.

## Resolving Host Names in the Netmap

Connect:Direct HP NonStop calls the TCP library function `gethostbyname()` to resolve host names found in the network map. For the host name resolution to work correctly, the proper TCP process and resolver file name must be defined to the application. The default TCP process name is `$ZTC0`, and the default resolver file name is `$$SYSTEM.ZTCPIP.RESCONF`. If you are using a non-standard name for one of these entities, it must be declared using a `DEFINE` value prior to starting Connect:Direct.

In the following example, `DEFINE` values, declared in the `TACL` environment prior to starting Connect:Direct, change the TCP process name and resolver file name to the specified values:

```

delete define =TCPIP^PROCESS^NAME
ADD DEFINE =TCPIP^PROCESS^NAME, FILE $ztcl
delete define =TCPIP^RESOLVER^NAME
ADD DEFINE =TCPIP^RESOLVER^NAME, FILE $$SYSTEM.ZTCPIP.RESCONF2
  
```

For more information on the use of these DEFINE names, refer to TCP/IP Configuration and Management manuals in the HP documentation library.

## Defining Domain Node Records in the Network Map

You can define a domain node for a system as small as only two Connect:Direct Servers or as large as the entire TCP/IP network. The following table describes the tasks required to define domain node network map records for connection requests originating from multiple nodes in the same TCP domain and for connection requests from a Connect:Direct/Plex node with multiple Connect:Direct/Plex Servers.

Objective	Task
Define inbound connectivity for a group of nodes originating from the same TCP domain (IP address range)	<ul style="list-style-type: none"> <li>• Set DOMAIN SERVER initialization parameter=Yes</li> <li>• Create one or more adjacent node records as follows:</li> <li>• ADJacent.node=name of domain node</li> <li>• TYPE=NDM.DOMAIN</li> <li>• IPADDRESS=IP address range, or domain, for connection requests from the Connect:Direct nodes</li> <li>• IPMASK= IP address range for Connect:Direct nodes</li> <li>• If the NETMAPCHECK parameter is enabled, create an adjacent node record with the node name for any node that will connect through the domain node definition.</li> <li>• Define and relate sufficient TCP LUs to the NDM.DOMAIN adjacent node entry to handle expected traffic. Because the IP address match is made through the domain node entry, only LUs related to that entry can be used to execute sessions.</li> </ul>
Define inbound connectivity for a Connect:Direct/Plex node with multiple Servers (that is, multiple dynamic origination IP addresses on connection requests)	<ul style="list-style-type: none"> <li>• Set DOMAIN SERVER initialization parameter=Yes</li> <li>• Create one or more adjacent node records for domain nodes as follows:</li> <li>• ADJacent.node=name of domain node</li> <li>• TYPE=NDM.DOMAIN</li> <li>• IPADDRESS=IP address range (domain) of the Connect:Direct/Plex Servers</li> <li>• IPMASK=IP mask that corresponds to Connect:Direct/Plex server IP addresses</li> <li>• If the NETMAPCHECK parameter is enabled, create an adjacent node record for the Connect:Direct/Plex Manager as follows to validate the name of the Connect:Direct/Plex node requesting the connection:</li> <li>• ADJacent.node=node name of Connect:Direct/Plex Manager</li> <li>• TYPE=NDM.zOS</li> <li>• IPADDRESS=IP address of Connect:Direct/Plex Manager</li> <li>• PORTNUM=</li> <li>• Define and relate sufficient TCP LUs to the NDM.DOMAIN adjacent node entry to handle expected traffic. Because the IP address match is made through the domain node entry, only LUs related to that entry can be used to execute sessions.</li> </ul>

## Sample Scenario: Defining Inbound Connectivity for Nodes in the Same TCP Domain

This sample scenario illustrates using domain nodes to manage inbound connection requests from multiple nodes in the same TCP domain and a domain node (General) that permits connections from any IP address. The network map for the sample Connect:Direct HP NonStop system contains the following adjacent node records defined as domain nodes:

Adjacent Node	Host Name	IP Address	IP Mask
YC	yourcompany.com	192.168.1.0	255.255.255.0
PYC	payroll.yourcompany.com	192.168.0.0	255.255.128.0
AYC	accounts.yourcompany.com	192.168.0.0	255.255.0.0
General	0.0.0.0	0.0.0.0	0.0.0.0

The following three remote nodes initiate connections with the Connect:Direct HP NonStop system:

Host Name	IP Address
manager.payroll.yourcompany.com	192.168.44.23
parts1.engineering.yourcompany.com	192.168.1.34
reception.management.theircompany.com	172.16.34.12

Inbound connection requests from the remote nodes are managed as follows:

- ❖ Connection requests from `manager.payroll.yourcompany.com` are routed through the PYC adjacent node because:
  - ♦ The 192.168 IP address segment of the `manager.payroll.yourcompany.com` remote node is an exact match to the 192.168 segment of `payroll.yourcompany.com`, which is required because of the 255.255 segment of the IP mask of the PYC adjacent node.
  - ♦ The 128 segment of the IP mask indicates that if the corresponding segment of the IP address is less than 128, the remote node is allowed to connect through this adjacent node.
  - ♦ The 0 segment in the last portion of the IP mask indicates that there does not have to be any type of match of the last portion of the IP address.
- ❖ Connection requests from `parts1.engineering.yourcompany.com` are routed through the YC adjacent node because:
  - ♦ The 192.168.1 segment of the IP address is an exact match, which is required by the corresponding portion of the IP mask (255.255.255) of the YC adjacent node.
  - ♦ The last segment of the IP address (34) of the remote node does not have to match at all because of the last segment of the IP mask is 0.
- ❖ Connection requests from the Connect:Direct `reception.management.theircompany.com` node are routed through the General adjacent node because:
  - ♦ No adjacent node record contains a close match to the IP address (172.16.34.12) of the remote node.
  - ♦ The IP mask of the General domain node indicates that it does not require an exact IP address.

## Providing Security for Domain Nodes

Network map checking and Connect:Direct Secure+ Option offer two approaches to validating connection requests and ensuring the privacy of data. The choice depends on the environments the domain nodes are used to manage. For example, when network map checking is enabled and the domain node records are created to manage inbound connections from Connect:Direct nodes in the same TCP domain, your network map must contain an adjacent node record with the PNODE name for every node that will connect through the domain node in addition to the domain node record; otherwise, the connection is rejected, as shown in the figure on page 36. Therefore, in this environment, it is more efficient to disable network map checking and rely on the certificates and the encryption settings defined for the domain nodes in Connect:Direct Secure+ Option. As the sample scenario shows, you can define a domain node with IP address and IP mask of 0.0.0.0 to permit connections without an exact IP address as long as network map checking is disabled.

In contrast, when domain node records are created to manage inbound connections from a Connect:Direct/Plex node containing a number of Connect:Direct/Plex Servers that use dynamically assigned IP addresses, enabling network map checking is an efficient way to provide security. In this situation, you can create domain node records to specify the IP address range of the Connect:Direct/Plex Servers and validate all inbound connection requests by creating an adjacent node record for the Connect:Direct/Plex Manager that contains its PNODE name. If, however, you want the individual Connect:Direct/Plex Servers to initiate connection requests, you must create an adjacent node record in the network map for each one. You can also combine Connect:Direct Secure+ Option with network map checking to enhance security. See the *Connect:Direct Secure+ Option HP NonStop Implementation Guide* for details on configuring nodes to use Connect:Direct Secure+ Option.

## Using Session Redirection for Outbound TCP/IP Connection Requests to a Connect:Direct/Plex Node

Connect:Direct HP NonStop supports session redirection for outbound connections to a Connect:Direct/Plex system. A connection requests from the Connect:Direct HP NonStop node to the Connect:Direct/Plex system is routed to the Connect:Direct/Plex Manager, which redirects the connection request to the appropriate, available Connect:Direct/Plex Server process. Redirecting communications sessions across multiple Connect:Direct Server processes simplifies the network map, facilitates load-balancing, and ensures continuous, efficient use of resources. The following table describes the tasks required to set up session redirection.

Objective	Task
Define outbound connectivity to a Connect:Direct/Plex Manager	<ul style="list-style-type: none"> <li>• Create an adjacent node record for Connect:Direct/Plex Manager as follows:</li> <li>• ADJacent.node=name of Connect:Direct/Plex Manager</li> <li>• TYPE=NDM.zOS</li> <li>• IPADDRESS=IP address of Connect:Direct/Plex Manager</li> <li>• PORTNUM=</li> <li>• PLEXCLASS=default server class value</li> <li>• Define and relate sufficient TCP LUs to the NDM.zOS adjacent node entry to handle expected traffic.</li> </ul>



---

## Defining Connectivity for a Network Configuration

Connect:Direct supports data transfer over the following communications protocols:

- ❖ TCP/IP
- ❖ LU0
- ❖ NETEX
- ❖ ICE

The HP NonStop administrator must complete worksheets for nodes that use LU0 in the network. The HP NonStop administrator then passes the worksheets to administrators at the adjacent nodes. Each administrator can then use the information on the worksheet to define network connections. The worksheets are designed to assist administrators in defining connectivity across platforms.

For NETEX users, refer to *Modify the Installation for NETEX Users* on page 81 in Chapter 3, *Installing and Configuring Connect:Direct HP NonStop*.

For ICE users, refer to Appendix D, *Defining ICE Connectivity*.

### Defining an SNA Primary Environment

If you are defining an SNA primary node environment between HP NonStop and an i5/OS node or between HP NonStop nodes, complete the appropriate worksheet for your network:

- ❖ *HP NonStop Environment Definitions (for Connectivity Between HP NonStop and i5/OS Nodes Using LU0)* on page 116
- ❖ *HP NonStop Environment Definitions (for Connectivity Between HP NonStop Nodes Using LU0)* on page 117

Sample network definitions and worksheets are provided in Appendix A, *Defining HP NonStop as the SNA Primary Environment*.

### Defining an SNA Secondary Environment

If you are defining an SNA secondary node connection between an IBM node and a HP NonStop node, the IBM administrator must complete the *IBM Environment Information* worksheet in Appendix B. The HP NonStop administrator can then use the information to complete the *HP NonStop Environment Information (for Connectivity Between HP NonStop and IBM 370 Nodes)* worksheet. For sample definitions and worksheets, refer to Appendix B, *Defining HP NonStop as the SNA Secondary Environment*.

### HP NonStop-IBM 370 Connectivity Worksheets

If your HP NonStop connection to another node is sending (to an IBM node through SNAX or NETEX) or peer-to-peer (through SNAX), the IBM node is responsible for network management and user interconnection functions. Therefore, various definitions for the HP NonStop node must conform to values specified at the IBM node. It is critical to coordinate the initial values and any subsequent changes with the administrators of both nodes. Ensure that the IBM administrator completes the *IBM Environment Information* worksheet and passes it to the HP NonStop administrator, who uses the values to set corresponding HP NonStop attributes as appropriate.

---

## Preparing to Define the Network Map through AIMS

The network map is a file that contains network information used by Connect:Direct. The information includes the network name for the local node and adjacent nodes in the network. It also contains the rules or protocols the nodes adhere to when communicating.

Use the worksheet *AIMS Network Map Definition* to organize the Connect:Direct HP NonStop network map definitions for your node and the nodes with which you communicate. Complete this worksheet before beginning the installation procedure. You can make a copy for each adjacent node, API manager, and LU you plan on adding to the network map.

## AIMS Network Map Definition

Use this worksheet during the installation procedure to organize the definition of your network map for each adjacent node, API Manager, LU, or LOGMODE. If appropriate, review the environment worksheets for applicable network map values. Names for the local node, adjacent nodes, and LUs, and their types must correlate. Set Network Map Definitions using Options 1.4.1 through 1.4.4 in the AIMS tool.

### LOCAL.NODE

---

(Name of the Connect:Direct HP NonStop local node)

### ADJACENT.NODE

---

(Name of the adjacent node you want to add to the network map)

### APPLID

---

(VTAM application identifier (APPLID) associated with the adjacent node name. This field only applies to OS/390, VM, and VSE nodes using SNA connectivity.)

### PARSESS

---

(Default class for Processes submitted to run on the adjacent node.)

### ADJACENT NODE TYPE

---

(Identifies the adjacent node as NDM.NonStop, NDM.VMS, NDM.400, NDM.UNIX, NDM.VM, NDM.VSE, NDM.NT, NDM.zOS, NDM.API, NDM.DOMAIN, PS, or PNODESNODE.)

### ADJACENT NODE MAXRETRY

---

(Specifies the number of attempts to connect to a session with the adjacent node. The default is 7. This value is overridden by LU MAXRETRY.)

### NDM400.LIBRARY

---

(Specifies the library name for Connect:Direct on an i5/OS node.)

### HOST/IP ADDR 1

---

### HOST/IP ADDR 2

---

### HOST/IP ADDR 3

---

(Symbolic host name or numerical IP addresses of adjacent nodes (maximum of 3) that are compared to the incoming IP address of the originating node to identify the PNODE. Specify IP addresses in nnn.nnn.nnn.nnn (IPv4), xxxx:xxxx:xxxx:xxxx:xxxx:xxxx:xxxx:xxxx (IPv6), or DNS format. Maximum of 3.)

### TCPNAME

---

(Specifies the TCP/IP process name for the adjacent node.)

### NETEX.HOSTID

---

(Specifies the NETEX host name. This value must correspond to the actual host.name by which an OS/390 NETEX system is known.)

### IP MASK (only for NDM.DOMAIN type)

---

(Defines an IP mask for the adjacent node using either IPv4 or IPv6 format)

### PORT NUMBER

---

(Specifies the communications port that Connect:Direct monitors for connection requests. The default is 1364.)

### PLEXCLASS

---

(Specifies the class representing a type of server in the Connect:Direct/Plex system to which you want to connect.)

**CRC** \_\_\_\_\_

(Indicates whether the global setting for Cyclic Redundancy Checking (CRC) established in the Set Initialization Parameters Screen (Screen 2 of 4) can be overridden for this node.)

**VOLUME** \_\_\_\_\_

(Specifies the default Volume.Subvolume name for files received over this node.)

**DESCRIPTION** \_\_\_\_\_

(Provides a brief description of this adjacent node.)

**ALLOC.RETRY.ADJ Error Codes** \_\_\_\_\_

(Identifies the Connect:Direct message IDs from the adjacent node to treat as file allocation failures following the failure of a COPY step.)

**LU** \_\_\_\_\_

(Name of the LU you want to add to the network map)

**LOGMODE** \_\_\_\_\_

(Name of the LOGMODE entry associated with the LU.)

**CPU** \_\_\_\_\_

(Number of the HP NonStop central processing unit (CPU) where processing for this LU takes place.)

**LU TYPE** \_\_\_\_\_

(Identifies the communications protocol for this LU as SNA.P, SNA or SNA.S, NETEX, PS, TCP.D, or TCP.S.)

**LU MAXRETRY** \_\_\_\_\_

(Specifies the number of attempts to connect to a session with the LU)

**LU TIMEOUT** \_\_\_\_\_

(Specifies the time Connect:Direct waits for an LU I/O to complete. The default is 3 minutes.)

**PRIORITY** \_\_\_\_\_

(Defines the priority of the LU in the CPU in which it runs. Enables you to facilitate load-balancing. Values range from 1 to 199. If left blank, the LU defaults to the server Process priority, minus one.)

**TCPNAME** \_\_\_\_\_

(Identifies one or more local TCP process names to use when initiating an outbound session. Process names can be system-qualified. This parameter facilitates load balancing outbound TCP traffic. Multiple entries provide for session retry attempts from a different TCP stack. The attempts are retried in the order listed.)

---

**Set LOGMODE Definitions (Option 1.4.7-For SNA Primary Connections Only)**

---

**LOGMODE** \_\_\_\_\_

(Name of the LOGMODE record)

**RUSIZE** \_\_\_\_\_

(Transmission buffer size or maximum length of data (request units) in bytes that are transmitted between LUs and the SNA application)

**PSNDPAC** \_\_\_\_\_

(Specifies the primary send pacing count)

**SSNDPAC** \_\_\_\_\_

(Specifies the secondary send pacing count)

**SRCVPAC** \_\_\_\_\_

(Specifies the secondary receive pacing count)

**PSERVIC** \_\_\_\_\_

(Represents the LU presentation services profile and usage field for this LOGMODE)

**TYPE** \_\_\_\_\_

(Specifies the type of NLD to send, nonnegotiable)

**FMPROF** \_\_\_\_\_

(Specifies the function management profile)

**TSPROF** \_\_\_\_\_

(Specifies the transmission services profile)

**PRIPROT** \_\_\_\_\_

(Specifies the primary protocol)

**SECPROT** \_\_\_\_\_

(Specifies the secondary protocol)

**COMPROT** \_\_\_\_\_

(Specifies the common protocol)

---

## Verifying SNAX/XF or ICE Installation

If you are using SNAX/XF or ICE, confirm that the following software is generated and defined:

- ❖ Based on installation needs, verify that the SYSGEN (System Generation) restored the distribution subvolumes to at least one of the following subvolumes:
  - ♦ SNAX
  - ♦ ZSNAX
  - ♦ ZSNAXHLS
- ❖ Determine if SNAX/XF was installed during a SYSGEN by verifying that ZSNAX is in the DEFINES for HPNONSTOP^LIBRARY^CODE^FILES and that HPNONSTOP^PROCESS^CODE^FILES is in the CONFAUX (SYSGEN) file.
- ❖ Determine if SNAX/XF lines have been defined by executing an SCF command from TACL. Check for devices shown as Type 58 (SNAX lines). If SNAX has been generated, but the lines have not been defined, define the SNAX lines. Perform a SYSGEN, and then use CMI or SCF to add lines, PUs, and LUs to the system.

---

# Installing and Configuring Connect:Direct HP NonStop

The automated installation and management system (AIMS) automates the installation of Connect:Direct HP NonStop. This chapter provides instructions on installing Connect:Direct HP NonStop.

When installing and configuring Connect:Direct HP NonStop, certain tasks must be performed before other tasks. Complete tasks in the following order:

- ❖ Unpack the installation files.
- ❖ Upload the license key.
- ❖ Prepare AIMS for execution.
- ❖ Start AIMS.
- ❖ Set the AIMS environment.
- ❖ Review the license key.
- ❖ Install Connect:Direct HP NonStop.
- ❖ Modify the installation for NETEX users (optional step).
- ❖ Start Connect:Direct HP NonStop.
- ❖ Load the network map.
- ❖ Load the default LOGMODE records.
- ❖ Verify the installation.
- ❖ Update the license key.

---

## Unpack the Installation Files

The Connect:Direct HP NonStop package application is distributed as a CD-ROM or as a file from the Sterling Commerce Electronic Software Distribution Portal. The `cdhpnsvvrr.zip` file (where `vv` indicates the version number and `rr` the release modification number) contains the application files you extract and restore as the installation files. For information on extracting and uploading the application files, see the *Connect:Direct HP NonStop Release Notes*.

---

## Upload the License Key

To start Connect:Direct HP NonStop, you must have a license key. The license key file identifies the product features of Connect:Direct that are available at a site. A temporary key is sent to you when you purchase the product. This key enables operation of Connect:Direct for a limited amount of time.

During Connect:Direct operation, the license key file is validated up to four times a day: when you start the application, at 10:00 am, at 2:00 pm, and at midnight (00.01 am). When the key is validated, the integrity of the key is checked to ensure that the hash of the key is intact. If the key is valid, the content of the license key file is compared to the content of the active key to check for updates. If the license key file has been updated, the key in the new file becomes the active key.

## Request a Permanent License Key

If you are installing Connect:Direct with a temporary license key, request a permanent key before the temporary key expires. To request a permanent key, respond to the e-mail from Sterling Commerce with the system number of the computer where Connect:Direct HP NonStop is installed. Use the TACL command SYSINFO to determine the system number.

The permanent key will be sent to you as an attachment to an e-mail. The key is supplied as a Windows text file. The key request is submitted directly to the Order Fulfillment department. For an emergency production down situation, call the local support center. After you receive a permanent license key, complete the procedure, *Update the License Key* on page 91.

## Upload the License Key

The license key file sent to you by Sterling Commerce must be uploaded in text mode to a code 101 Edit file and stored in the same subvolume where the initialization parameters file, NDMINIT, is located. (You define the name and location of the files used to start and run Connect:Direct HP NonStop in the procedure, *Set the AIMS Environment* on page 52.) If you use the default settings, the NDMINIT file is located in the NDMINSTL subvolume.

1. Save the license key to a text file named LICENSE. Do not edit this file. Text editors may insert a carriage return or truncate lines. Make a copy of the original license file and keep it in a safe place.
2. Upload the license key in ASCII (text) mode to the subvolume NDMINSTL. Modify the IXF or FTP command as necessary to ensure that lines up to 150 bytes long are copied. To upload and update the license key, your Guardian userid must have read, write, and purge access to the license key file.

---

**Note:** The IXF command may truncate lines if changes are not made to allow 150 byte long lines to be copied. Truncated lines create an invalid license key file.

---

---

## Prepare AIMS for Execution

The NDMAIMS module can be found in the NDMAIMS subvolume after unpacking the installation files.

AIMS is a menu-driven system that collects information about your node and the nodes you are communicating with and guides you through the installation of Connect:Direct HP NonStop. The first time you run AIMS, a



key-sequenced file (AIMSENV) is created in the same volume and subvolume as NDMAIMS. AIMSENV contains the file names and last saved entries used by AIMS.

1. Type the following command to begin working in the same volume and subvolume as AIMS:

```
>vol $vol.ndmaims
```

2. To resolve the reference to the user library, CDLIB, type one of the following commands:
  - a. On MIPS systems, type:

```
>run ndmaims/lib $vol.ndmobj.cdlib/cdlib
```

- b. On Integrity systems, type:

```
>eld -change libname $vol.ndmobj.cdlib ndmaims
```

---

**Note:** Resolving the user library reference only needs to be done before using AIMS for the first time.

---

---

## Start AIMS

Start AIMS by typing the following command:

```
RUN NDMAIMS
```

---

**Note:** Run AIMS from a HP NonStop 6530-type terminal or a PC with an emulation pack.

---

By default, AIMS will start with the main menu panel. To go directly to a submenu when starting AIMS, type the menu identifier in the RUN command.

For example, if you type the following command:

```
>RUN NDMAIMS 1.2
```

you will go directly to menu option 1.2, **Set Initialization Parameters**.

The Connect:Direct HP NonStop AIMS Main Menu displays.

```

=====
08.03.2008          Connect:Direct HP NonStop          09:55:35 AM
3.5.00             Automated Installation & Management System (AIMS)
=====
Current Option -> M          M A I N   M E N U          Quick Path -> T

                    T. AIMS Tutorial
                    E. Set the AIMS Environment
                    L. License Management
                    U. UTILITIES

                    1. Install Connect:Direct
                    2. Start Connect:Direct
                    3. Secure+ Administration

-----
F<n>=Options          <F16>=Quick Path
SF1=Help              SF5=Print   SF16=Exit

```

**Note:** The last option on the Main Menu, Secure+ Administration, displays only when your license key includes the option SECURE-SSL.

## Navigate AIMS

Menus and user-input screens have a **Quick Path** field in the upper-right corner of the screen that indicates the number for the next step in the installation procedure.

- ❖ To advance through AIMS, press **F16** to select the option displayed in the **Quick Path** field.
- ❖ To override the specified option, type a new value in the **Quick Path** field and press **F16**.
- ❖ AIMS uses the standard editing keys of the HP NonStop keyboard. Press **Tab** to move the cursor from field to field. Type **Shift + Tab** to move the cursor back a field. Use the cursor keys to move between input fields. The following keys are used in AIMS:

Key	Description
Function keys <F(n)>	Display options from your current menu.
<RETURN>	Moves the cursor to the next line (LF).
<SHIFT> <F1> (SF1)	Displays Help for your current screen.
<SHIFT> <F2> (SF2)	Saves the information you type in the user-input screen or executes a specified function, such as loading the Xlate file. Press <SHIFT> + F2 before proceeding to another screen to save the information you type.
<SHIFT> <F3> (SF3)	Returns to the previous screen.
<SHIFT> <F4> (SF4)	Returns to the Main Menu from menus and user-input screens, but not from Help screens and the tutorial.

Key	Description
<SHIFT> <F5> (SF5)	Prints the current screen. The printer is defined in Option E when you set the AIMS environment.
<SHIFT> <F16> (SF16)	Exits from AIMS, returning to the prompt from which you typed.
<F16> (F16)	Moves to the screen specified in the <b>Quick Path</b> field. From the Help and tutorial screens, returns you to the screen from where you selected Help or tutorial.
<NEXT PAGE>	Scrolls the text forward one screen at a time (primarily used in Help screens and the tutorial).
<PREV PAGE>	Scrolls the text backward one screen at a time (primarily used in Help screens and the tutorial).
	<b>Note:</b> Some keyboards have <PAGE UP> and <PAGE DOWN> keys instead of <NEXT PAGE> and <PREV PAGE>.

## Get Help

Use the T option to get a summary of the installation tasks by reviewing the Tutorial.

## Run User-Written or System Programs from AIMS

Option U enables you to run any user-written or system programs without exiting AIMS. To run any user-written or system programs, type the name of the utility or user program from the PROGRAM field on the Utilities screen as if you were at a TACL prompt. Press **SF2** to execute.

For example:

```
PROGRAM : edit
PROGRAM : tedit myfile;search xyz
PROGRAM : run fup dup afile,bfile
PROGRAM : run peruse
```

After execution of the command, a prompt directs you to *Press <ENTER> or <RETURN> to continue.*

---

**Note:** Do not specify runtime options or run TACL macros and routines from AIMS.

---

## Set the AIMS Environment

After you start AIMS, you must set the AIMS environment and define the names of files used during installation. Modify default values as required by your environment.

1. From the Main AIMS panel, select **E** to display the AIMS Environment panel.

```

=====
08.03.2008          Connect:Direct HP NonStop          09:54:37 AM
3.5.00             Automated Installation & Management System (AIMS)
=====
Current Option -> E      Set the AIMS Environment      Quick Path -> M

Printer                : $$.#AIMSOUT

Initialization Parameters File : $DSMSCM.NDMINSTL.NDMINIT

User Definitions Obey File   : $DSMSCM.NDMINSTL.ONDMUSER

Network Map Obey File       : $DSMSCM.NDMINSTL.ONDMNET

LOGMODE Obey File          : $DSMSCM.NDMINSTL.ONDMLOG

NDMFUPIN File              : $DSMSCM.NDMINSTL.NDMFUPIN

-----
                                     <F16>=Quick Path
SF1=Help SF2=Save SF3=Prev Option SF4=Main Menu SF5=Print SF16=Exit

```

2. If necessary, change the default AIMS file names by typing over the data displayed. Following is a description of the environment fields:

Entry Field	Description
Printer	Directs any screens selected for print to the designated spooler file. The default spooler file name is \$\$.#AIMSOUT.
Initialization Parameters File	Contains parameters that are processed during startup of Connect:Direct. The default file name is NDMINSTL.NDMINIT.
User Definitions Obey File	Specifies the file that contains security authorization for a default user (NDM.DEFAULT) and the installer. The default file name is NDMINSTL.ONDMUSER.
Network Map Obey File	Specifies the file that defines the network map values (LOCAL.NODE, ADJACENT.NODEs, LUs, AMGRs, LOGMODEs). The default file name is NDMINSTL.ONDMNET.
LOGMODE Obey File	Specifies the file that contains default LOGMODE records for the network map file. The default file name is NDMINSTL.ONDMLOG.
NDMFUPIN File	Specifies the file of FUP commands that set various data file attributes during file creation. The default file name is NDMINSTL.NDMFUPIN.

3. Press **SF2** to save the environment file definitions. Connect:Direct generates a message indicating that the AIMS environment is set.

---

**Note:** During installation, you can modify these values by typing Option E in the **Quick Path** field from any user-input screen.

---



---

## Review the License Key

Perform the following procedure to review the license key and to verify that it contains the features you have requested:

1. From the Main AIMS panel, type **L** in the Quick Path field and press **F16**. The License Verification panel displays listing the values in the license key along with the message, *Valid License*, as shown in the following example. (This message does not indicate if the license has expired or not. An expired license is identified with the message, *Invalid License*.)

```

=====
08.03.2008          Connect:Direct HP NonStop          09:59:17 AM
3.5.00             Automated Installation & Management System (AIMS)
=====
Current Option -> L      License Verification Panel      Quick Path -> 2

-----
      Current License LICENSE  New License

LICENSE-ID           10020

TCPIP                YES
SNA                  YES
NETEX                YES
Secure+              YES
                    Valid License

-----
                                                    <F16>=Quick Path
SF1=Help  SF2=Execute SF3=Prev Option SF4=Main Menu      SF5=Print  SF16=Exit

```

---

**Note:** If the key is invalid, the message, *Invalid License*, displays. Stop performing this procedure and contact Sterling Commerce Customer Support for assistance.

---



---

**Note:** The Secure+ field on this panel is displayed only if Secure+ Option is activated in the license key.

---

---

## Install Connect:Direct HP NonStop

Once you set the AIMS environment variables, you are ready to install Connect:Direct HP NonStop.

1. From the Main AIMS panel, select **1** to begin the Connect:Direct HP NonStop installation. The Install Connect:Direct panel displays:

```

=====
06.03.2008          Connect:Direct HP NonStop          02:44:04 PM
3.5.00             Automated Installation & Management System (AIMS)
=====
Current Option -> 1          Install Connect:Direct          Quick Path -> 1.1

                    1. Restore Connect:Direct
                    2. Set Initialization Parameters
                    3. Set Default User Authorization
                    4. Set Network Map
                    5. Create Files

-----
F<n>=Options          <F16>=Quick Path
SF1=Help              SF3=Prev Option    SF4=Main Menu      SF5=Print          SF16=Exit

```

---

**Note:** Option 1.1, Restore Connect:Direct, is no longer used.

---

### Set Initialization Parameters

Use Option 1.2 to set the initialization parameters. Initialization parameters point to files that provide information to the Connect:Direct server. These parameters are processed during startup and are required for execution. Default values are specified for many of the files; however, you must edit file names to conform to your environment. You defined the initialization parameters file name displayed on the screen when you set the AIMS environment.

You can display and save new initialization parameter files using the DISPLAY PARMS command. For more information about the DISPLAY PARMS command, see Chapter 7, *Viewing System Files*, in the *Connect:Direct HP NonStop User Guide and Reference*.

You can dynamically update the initialization parameters using the UPDATE PARM command. For more information about the UPDATE PARM command, see *Modifying Initialization Parameters with the UPDATE PARM Command on page 97*.

Complete the following procedure to set up initialization parameters:

1. Press **F2** and begin defining the initialization parameters. The first Set Initialization Parameters panel displays:

```

11.21.2008          Connect:Direct HP NonStop          02:51:20 PM
3.5.00             Automated Installation & Management System (AIMS)
=====
Current Option -> 1.2 Set Initialization Parameters    Quick Path -> 1.3
| NDMKEY | $DSMSCM.NDMINSTL.LICENSE
Before Connect:Direct will start, the application license key you received
from Sterling Commerce must be loaded into file LICENSE located in the
subvolume shown above.

TCP PROCESS : $ZTC0          PORT NUMBER: 1364      NTXOFFERS : 2
PRTYDEF      : 10           NTXWINDOW : 100
STATPERCENT  : 85          NTXAPPLID : NDMS
STATCRITERIA: 8D          TCQ           : WARM       NTXBLKSIZE: 0
STATMIDNITE  : ON          RUNTASKMSGID: SRTT010I   SRVRTRACE  :
SMNAME       : $SM        APINAME     : $AM       SMTRACE    :
QUIESCE      : YES       CKITVL      :          APITRACE   :
LOG-TCP-CONN-RQ: YES     TCPBUFFSIZE: 8740      NTXTRACE   :
ALLOC-RETRY-MAX: 3      ALLOC-RETRY-INT: 00:05:00  WTRTRIES  : 00:03:00
ALLOC-RETRY-LOC:
Init. Param. File: $DSMSCM.NDMINSTL.NDMINIT          (Page 1 of 4)

<NEXT PAGE>=Next Page                                <F16>=Quick Path
SF1=Help SF2=Save SF3=Prev Option SF4=Main Menu SF5=Print SF16=Exit

```

Following is a description of each entry field:

Entry Fields	Description
NDMKEY	Specifies the license key supplied with the installation tape.
TCP PROCESS	Specifies the name of the TCP/IP Process running on HP NonStop. The name must be a valid HP NonStop Process name. If a value is not specified, Connect:Direct uses the default name of \$ZTC0.
PORT NUMBER	Specifies the communications port that Connect:Direct monitors for connection requests. The format is a number. The default is 1364.
NTXOFFERS	Specifies maximum number of simultaneous connection requests (not actual sessions). Valid values range from 1 to 9. The default is 2. Any specified value greater than 9 defaults to 9. AIMS only uses this field if you are using a NETEX interface.
PRTYDEF	Specifies the default priority for Processes submitted to Connect:Direct. If a priority is not specified on the PROCESS statement, Connect:Direct uses the default priority of 10 when placing the Process in the TCQ. Values range from 0 to 15.

Entry Fields	Description
NTXWINDOW	Specifies maximum number of RUs sent by a copy routine before the status of the send is checked. If Connect:Direct detects an error, the copy fails. Any value for NTXWINDOW less than or equal to 0 defaults to 100. AIMS only uses this field if you are using a NETEX interface.
STATPERCENT	Defines the maximum allowable percentage the statistics files are utilized before NDMSTDL is created. The numeric value ranges from 50 to 95; the default is 85%.
NTXAPPLID	Specifies the APPLID parameter used by the adjacent node for communicating with the local node. AIMS only uses this field if you are using a NETEX interface.
STATCRITERIA	Specifies the deletion criteria for records maintained in the statistics file. Valid values are nD, nH, or nM, where nD equals 1–31 days, nH equals 1–23 hours, and nM equals 1–59 minutes. The default is 8D.
TCQ	Specifies how the TCQ is initialized. If you specify WARM, Connect:Direct uses the TCQ as it exists. If you specify COLD, Connect:Direct reinitializes the TCQ when Connect:Direct is started.. Any Processes left on the TCQ are lost, and new Process numbers begin with 1. WARM is the default.
NTXBLKSIZE	Specifies maximum transmission buffer size for NETEX sessions. If you specify 0, Connect:Direct uses the NETEX configuration default (RUSIZE). Valid values range from 0 to 24576 (24K). AIMS only uses this field if you are using a NETEX interface.
STATMIDNITE	Specifies whether the server runs NDMSTDL each night at midnight. Valid values for this parameter are ON or OFF; the default is ON.
RUNTASKMSGID	Defines the MSGID logged at successful termination of a "waited" local RUN TASK step. SRTT010I is the default value.
SRVRTRACE	Turns on server trace bits. SRVRTRACE is only used for debugging. The default is OFF if not specified.
SMNAME	<p>Defines a constant prefix, for example, the default \$SM prefix, used to create session manager process names. The name is created by taking the value defined in the SMNAME initialization parameter (for instance, \$SM) and appending a numeric value to it: 0, 1, 2, ..., nnn up to the limit imposed by the maximum number of characters in a file name. The numeric suffix is generated as a hexadecimal string. If the server runs out of available names, it uses system-generated names.</p> <p>The following prefixes are reserved for use by the operating system:</p> <ul style="list-style-type: none"> <li>• \$DM</li> <li>• \$SIM</li> <li>• \$X</li> <li>• \$Y</li> <li>• \$Z</li> </ul> <p>In accordance with Guardian naming requirements, the first character after \$ must be an alphabetic character. The prefix may be as short as two characters (\$A) but no longer than four characters (\$xxx). If these restrictions are violated, the server defaults to \$SM as a prefix.</p> <p>If SMOUT (another initialization parameter on the next Set Initialization Parameters screen described below) is designated as a spooler file (\$S.#NDM), the trace file job name is created as \$S.#NDM.NDMxnT, where 'x' is the last character in SMNAME, 'n' is the numeric suffix appended as part of the session manager process name, and 'T' indicates a trace file.</p> <p>If SMOUT is designated as \$volume.subvolume, then the trace file name for session manager process \$xxxnn is \$volume.subvolume.NDMxnT.</p>



Entry Fields	Description
APINAME	<p>Defines a constant prefix, for example, the default \$AM prefix, used to create API Manager process names. The name is created by taking the prefix and appending a numerical suffix 0,1,2,...,nnn as API Managers are created (\$AM0, \$AM1 ... \$AMnnn). Process names are reused as API Manager processes are started and stopped.</p> <p>In accordance with Guardian naming requirements, the first character after \$ must be an alphabetic character. The prefix may be as short as two characters (\$x) but no longer than four characters (\$xxx). If these restrictions are violated the server defaults to \$AM as a prefix.</p> <p>If APIOUT (another initialization parameter on the next Set Initialization Parameters screen described below) is designated as a spooler file (\$S.#NDM), then the trace file job name is created as \$S.#NDM.NDMxnT, where 'x' is the last character in APINAME, 'n' is the numeric suffix appended as part of the API Manager process name, and 'T' indicates a trace file.</p> <p>If APIOUT is designated as \$volume.subvolume, then the trace file name for API Manager process \$xxxnn is \$volume.subvolume.NDMxnT.</p>
SMTRACE	Turns on session manager trace bits. SMTRACE is only used for debugging. The default is OFF if not specified.
QUIESCE	Specifies whether session managers are started when Connect:Direct is started. The default value is NO. If you specify YES, session managers are not initiated when Connect:Direct is started.
CKITVL	<p>Specifies the checkpoint interval or approximate number of bytes used for checkpointing. Valid values are nM (megabytes) or nK (kilobytes). The default is NONE.</p> <p>To specify checkpointing in a COPY statement, see the Processes web site at <a href="http://www.sterlingcommerce.com/documentation/processes/processhome.html">http://www.sterlingcommerce.com/documentation/processes/processhome.html</a>.</p>
APITRACE	Turns on API Manager trace bits. APITRACE is only used for debugging. The default is OFF if not specified.
LOG-TCP-CONN-RQ	<p>Indicates whether TCP connection requests are to be logged. Valid values are Y/N. When YES, the application logs all inbound TCP connection requests and outgoing attempts to the STAT file in the following format:</p> <pre data-bbox="683 1262 1442 1339">Date =&gt; 07.08.2008 Time =&gt; 10:35:23:88 MESSAGE - MSG Conn rcvd \NONSTOP.\$SAM2 port 17132 from fd:00::20a0:209:6bff:fe65:9a73 port 484</pre>
TCPBUFFSIZE	Specifies the size of the data buffer passed between two nodes during a TCP session. This value is set to 8740 by default since this value gives the best throughput under most conditions. Before making changes to this value, ensure that you have run benchmarks to verify that throughput is improved.
NTXTRACE	Turns on trace bits for tracing activity between the session manager and the NETEX interface. The default is OFF if not specified.
ALLOC-RETRY-MAX	Specifies the maximum number of times a step is retried after an allocation failure occurs. Value values are 0–99, where 0 indicates that the Process is retried indefinitely. The default is 3.
ALLOC-RETRY-INT	Specifies the interval that a Process waits in the TIMER queue after encountering an allocation error, regardless if the error occurred on the local or remote node in the format hh:mm:ss. The default is 00:05:00 (five minutes).
WTRETRIES	Indicates the session retry interval. Set the value in the hh:mm:ss format. The default value is 00:03:00.

Entry Fields	Description
ALLOC-RETRY-LOC	Defines a list of local HP NonStop NonStop file system errors ( <i>nn</i> ) that are retried after an allocation failure occurs on a local HP NonStop file. The entries are delimited by any non-numeric characters. Valid range values are 2–9999, inclusive. Excluded values are 0, which represents a successful operation, and 1, which indicates an end-of-file.
Init. Param. File:	Displays the name of the file containing the parameters that are processed during startup of Connect:Direct.

2. Press **SF2** to save the initialization parameters file.
3. Press <PAGE DOWN> or <NEXT PAGE> to display the next Initialization Parameters panel:

```

11.21.2008                      Connect:Direct HP NonStop                      02:51:48 PM
3.5.00          Automated Installation & Management System (AIMS)
=====
Current Option -> 1.2  Set Initialization Parameters          Quick Path -> 1.3

CMPRLEVEL : 6      WINDOWSIZE   : 15  MEMLEVEL   : 8      SENDNULLRECS: NO
EMS       : OFF   STATS        : ON   COLLECTOR  : $0
CRC       : ON    CRC OVERRIDE : YES  NETMAPCHECK: NO     SENDOPENFILE: WARN
OSS FILES : NO    DOMAIN SERVER: NO   FILENAME EXT: NO  LOGCPUTIME  : NO
SMOUT     : $$.#SMOUT
APIOUT    : $$.#APIOUT
NTXOUT    : $$.#NTXOUT
PRINTER   : $$.#SM
NDMNTXO   : $DSMSCM.NDMOBJ.NDMNTXO
NDMNTXK   : $DSMSCM.NDMOBJ.NDMNTXK
NDMSTDLD  : $DSMSCM.NDMOBJ.NDMSTDLD
NDMSMGR   : $DSMSCM.NDMOBJ.NDMSMGR
APIMGR    : $DSMSCM.NDMOBJ.APIMGR
STUTIL    : $DSMSCM.NDMOBJ.STUTIL
Init. Param. File: $DSMSCM.NDMINSTL.NDMINIT                      (Page 2 of 4)

<PREV PAGE>=Previous Page      <NEXT PAGE>=Next Page      <F16>=Quick Path
SF1=Help  SF2=Save  SF3=Prev Option  SF4=Main Menu  SF5=Print  SF16=Exit

```

4. Modify the following fields as necessary for your environment:

Entry Fields	Description
CMPRLEVEL	Specifies the default compression level used on a particular node. Valid values are 1-9; 9 specifies the deepest compression level. The default level is 1.
WINDOWSIZE	Specifies the size of the floating window used for compression and decompression. Valid values are 9-15; 15 specifies the largest possible window size.
MEMLEVEL	Specifies the memory level used in compression. Valid values are 1-9; 9 specifies the highest amount of memory allocated. The default level is 4.
SENDNULLRECS YES   NO	Controls whether Connect:Direct transmits zero length files. YES - Transmits zero length files. NO - Does not transmit zero length files. This is the default value.

Entry Fields	Description
EMS	Controls whether Connect:Direct logs events to Event Management Service (EMS). Valid settings are OFF and ON. The default is OFF.
STATS	Controls whether Connect:Direct logs events to the Connect:Direct statistics file. Valid settings are OFF and ON. The default is ON.
COLLECTOR	Specifies the collector used for event-message generation. The collector is the primary collector for the system (\$0) or an alternate collector. The default collector is \$0.
CRC	Global setting for CRC checking for all PNODE processes. ON—Indicates that the CRC checking is performed for all PNODE processes. OFF—Indicates that the CRC checking is not performed for all PNODE processes.
CRC OVERRIDE	Determines if PROCESS statement, SUBMIT command, or Adjacent Node setting can override the global CRC parameter. YES—Global CRC setting can be overridden. NO—Global CRC setting cannot be overridden.
NETMAPCHECK	Determines if Connect:Direct HP NonStop only accepts connections from nodes defined in the network map. YES—Only accepts connections from nodes defined in the network map. NO—Accepts connections from any Connect:Direct node.
SENDOPENFILE YES   NO   WARN	Determines how HP NonStop Connect:Direct responds if it opens a file for transmission, but the file is open for update by an external application (for example, the file is still being created). You can override this parameter by using the SYSOPTS parameter, SET OPENFILEXMT=YES, in the FROM clause of your COPY statement. YES - Executes the COPY step and reports SCPA000I following a successful termination. NO - Terminates the COPY step immediately with SFLH951I, RC=8, FDBK=0. WARN - Executes the COPY step, but reports SFLH950I, RC=4, FDBK=0   12 (12 means the file was still open when Connect:Direct reached the file EOF). This is the default value.
OSS FILES	Determines if support for OSS files is to be included. YES—Supports OSS files. NO—Does not support OSS file.
DOMAIN SERVER	Determines if Connect:Direct HP NonStop accepts connection requests from domains specified in domain nodes. YES—Accepts connection requests from domains specified by domain nodes. NO—Does not accept connection requests from domains specified by domain nodes.
FILENAME EXT	Determines if file name extensions from other platforms are to be concatenated with platform name to create a typekey in the TYPE file to set file attributes. YES—Uses file name extensions. NO—Does not use file name extensions.
LOGCPU YES   NO	Enables or disables logging CPU usage statistics in the statistics file, including usage statistics for Secure+ activities such as handshake and encryption. If this parameter is specified, the usage statistics appear at the end of the MESSAGE-MSG record, for example, CPU S+ Handshake 0.04 secs, S+ Crypting 0.09 secs, total 0.13 secs. Use LOGCPU to assist with resource utilization planning. YES—Enables logging CPU usage statistics. NO—Disables logging CPU usage statistics. This is the default value.
SMOUT	Specifies the output file for the session manager. The default file name is \$\$S.#NDM. Connect:Direct appends a unique identify to each SMOUT file name for each session being traced.
APIOUT	Specifies the output file for the API Manager.

Entry Fields	Description
NTXOUT	Specifies the output file name for diagnostics output and error messages generated by the NDMNTXO Process. To display output on your terminal, specify your terminal as the output destination. The default file name is \$\$.#NTXOUT.
PRINTER	Points to the valid HP NonStop spooler name used by NDMCOM for printed output. The default file name is \$\$.#NDM.
NDMNTXO	Specifies the object name of the NETEX program Process. The NDMNTXO Process is only started if you specify this parameter. AIMS only uses this field if you are using a NETEX interface.
NDMNTXK	Specifies the object file name used for NETEX error recovery. The default is NDMNTXK. AIMS only uses this field if you are using a NETEX interface.
NDMSTDL	Points to the object file that automatically deletes statistics records if the statistics file passes the percentage of file full established by you. The default file name is NDMOBJ.NDMSTDL.
NDMSMGR	Points to the session manager object module. The default file name is NDMOBJ.NDMSMGR.
APIMGR	Specifies the location of the API Manager executable.
STUTIL	Points to the object file that determines the utilization of the statistics file. The default file name is NDMOBJ.STUTIL.
Init. Param. File:	Displays the name of the file containing the parameters that are processed during startup of Connect:Direct.

5. Press <PAGE DOWN> or <NEXT PAGE> to display the next Initialization Parameters panel:

```

11.21.2008          Connect:Direct HP NonStop          02:52:02 PM
3.5.00             Automated Installation & Management System (AIMS)
=====
Current Option -> 1.2 Set Initialization Parameters      Quick Path -> 1.3

MSGFILE   : $DSMSCM.NDMFILES.MSGFILE
NDMCDL    : $DSMSCM.NDMFILES.NDMCDL
AUTHFILE  : $DSMSCM.NDMFILES.AUTHFILE
CKPTFILE  : $DSMSCM.NDMFILES.CKPTFILE
INFOFILE  : $DSMSCM.NDMFILES.INFOFILE
NETFILE   : $DSMSCM.NDMFILES.NETFILE
SECFILE   : $DSMSCM.NDMFILES.SECFILE
STATFILE  : $DSMSCM.NDMFILES.STATFILE
STATSRCH  : $DSMSCM.NDMFILES.STATSRCH
TCQFILE   : $DSMSCM.NDMFILES.TCQFILE
TCQXFILE  : $DSMSCM.NDMFILES.TCQXFILE
TYPEFILE  : $DSMSCM.NDMFILES.TYPEFILE
XLFILE    : $DSMSCM.NDMFILES.XLFILE
SECURE+   : $DSMSCM.SECUREPL
Init. Param. File: $DSMSCM.NDMINSTL.NDMINIT          (Page 3 of 4)

<PREV PAGE>=Previous Page      <NEXT PAGE>=Next Page          <F16>=Quick Path
SF1=Help  SF2=Save  SF3=Prev Option  SF4=Main Menu      SF5=Print  SF16=Exit

```

**Note:** The last entry on this panel, SECURE+, displays only when your license key includes the option SECURE-SSL.

6. Modify the following fields as necessary for your environment:

Entry Fields	Description
MSGFILE	Points to the file containing error messages used by Connect:Direct. The default file name is NDMFILES.MSGFILE.
NDMCDL	Points to the Command Definition Language (CDL) object module. The default file name is NDMFILES.NDMCDL.
AUTHFILE	Specifies the name of the file containing user authorization information. The default file name is NDMFILES.AUTHFILE.
CKPTFILE	Specifies the name of the file used for checkpoint-restart support. The default file name is NDMFILES.CKPTFILE.
INFOFILE	Specifies the name of the file used internally by the server and session manager processes. The default file name is NDMFILES.INFOFILE.
NETFILE	Specifies the name of the file containing network map information. The default file name is NDMFILES.NETFILE.
SECFILE	Specifies the name of the file containing user security information. The default file name is NDMFILES.SECFILE.
STATFILE	Specifies the name of the file containing statistics created by Connect:Direct. The default file name is NDMFILES.STATFILE.
STATSRCH	Contains the keys for searching the statistics file. The default file name is NDMFILES.STATSRCH.
TCQFILE	Stores Connect:Direct Processes. TCQFILE and TCQXFILE combine to create the TCQ. The default file name is NDMFILES.TCQHFILE.
TCQXFILE	Contains header information for the TCQFILE parameter. TCQXFILE and TCQFILE combine to create the TCQ. The default file name is NDMFILES.TCQXFILE.
TYPEFILE	Specifies the name of the file containing type file entries. The default file name is NDMFILES.TYPEFILE.
XLFILE	Points to the key-sequenced file containing translation tables.
SECURE+	Points to the file containing the Secure+ Option program. Identify this directory if you have purchased Secure+ Option. <b>Note:</b> This field is used only if Secure+ Option is activated in the license key.
Init. Param. File:	Displays the name of the file containing the parameters that are processed during startup of Connect:Direct.

7. Press <PAGE DOWN> or <NEXT PAGE> to display the next Initialization Parameters panel:

```

11.21.2008          Connect:Direct HP NonStop          02:52:14 PM
3.5.00             Automated Installation & Management System (AIMS)
=====
Current Option -> 1.2 Set Initialization Parameters      Quick Path -> 1.3
                    TCP LISTEN PROCESSES AND PORTS

1: $ZSAM1 1364          2:                          3:
4:                    5:                          6:
7:                    8:                          9:
10:                   11:                         12:
13:                   14:                         15:
16:                   17:                         18:
19:                   20:                         21:
22:                   23:                         24:
25:                   26:                         27:
28:                   29:                         30:
31:                   32:                         33:
34:                   35:                         36:

Init. Param. File:  $DSMSCM.NDMINSTL.NDMINIT          (Page 4 of 4)

```

8. Modify the TCPLIST Processes and ports as necessary for your environment. Following is a description of the field:

Entry Field	Description
TCP LISTEN	Specifies additional TCP processes and port numbers (1-36) on which the application posts listens for inbound TCP connection requests. The 20 character entries enable you to define this NDMINIT parameter. If specifying listens on more than one Parallel TCP/IP (PTCPIP) that share a common pool of ports, each listen must specify a different port number, even if the process names are not different.  TCPLISTENnn \system.\$xxxx pppp Where: nn = 1, 2, 3, ... , 36 (no 0 padding) \system.\$xxxx = TCP Process name (system qualifier is optional) pppp = LISTEN port number, 1024-9999 inclusive
Init. Param. File:	Displays the name of the file containing the parameters that are processed during startup of Connect:Direct.

9. Press **SF2** to save the initialization parameters file.

## Set Default User Authorization

Option 1.3 creates an NDM.DEFAULT record in the authorization file (AUTHFILE). This record is a template for predefining user authority. It enables you to log on to Connect:Direct without being individually defined in the user authorization file. The DEFAULT.AUTHORITY parameter enables you to define user authority without specifying values for each command; however, specifying values for individual commands overrides the value specified in this parameter.

In addition, this option automatically creates a record that provides full authority to the user logged on and running AIMS.

These attributes are copied to each user defined by the NDM.DEFAULT record, which you can modify with USER commands. Refer to the *Connect:Direct HP NonStop Administration Guide* for the format and parameters for USER commands.

This option builds a record that defines the installer as the Connect:Direct system administrator. The installer is granted all privileges and assigned an A in the DEFAULT.AUTHORITY parameter, which permits execution of all Connect:Direct operations (PROCESS, USER, NETMAP, SUBMIT, TYPE, MODIFY, STATISTICS, STOP ALL, and SECURITY commands).

You can assign the following authority levels to Connect:Direct commands:

Authority Level	Description
A	All authority
G	Group authority
O	Owner authority
N	No —cannot perform function
Y	Yes—can perform function

Complete the following procedure to create an authorization file:

1. Press **F3**. The Default User Authorization panel displays:

```

=====
06.03.2008          Connect:Direct HP NonStop          02:34:47 PM
3.5.00             Automated Installation & Management System (AIMS)
=====
Current Option -> 1.3 Set Default User Authorization   Quick Path -> 1.4

                      USERID = NDM.DEFAULT
DEFAULT.AUTHORITY = O  UPDATE.STATISTICS = N          UPDATE.LOGGING = N
PROCESS CHANGE = O   DELETE = O   FLUSH = O   SELECT = O   SUSPEND = O
USER DELETE = N     INSERT = N   SELECT = N   UPDATE = N
NETMAP DELETE = N   INSERT = N   RELATE = N   SELECT = Y   UPDATE = N
TYPE DELETE = N     INSERT = Y   SELECT = Y   UPDATE = Y
SECURITY DELETE = N INSERT = N   SELECT = Y   UPDATE = N
STATISTICS = O     MODIFY = N   SUBMIT = N   STOP ALL= N

VOLUME =
PROCVOLUME =
OBEYVOLUME =
PHONE =
NAME =
      User Definitions Obey File: $DSMSCM.NDMINSTL.ONDMUSER

-----<F16>=Quick Path
SF1=Help SF2=Save SF3=Prev Option SF4=Main Menu SF5=Print SF16=Exit

```

2. Define the default authority levels for each Connect:Direct commands. Modify default values as required for your environment. Following is a description of each field:

Entry Fields	Description
USERID	Displays the ID of the default user in the authorization file.
DEFAULT.AUTHORITY	Defines the default user authority without having to specify values for each command; however, specifying values for individual commands overrides the value specified in this parameter. Valid values are: A—All authority G—Group authority O—Owner authority N—No authority Fields that accept only Y (yes) or N (no) values are set to Y if the default authorization parameter is set to A. If the DEFAULT.AUTHORITY parameter is set to G, O, or N, then the fields accepting only Y or N are set to N.
UPDATE.STATISTICS	Specifies whether a user has the authority to update settings for statistics (CRITERIA, MIDNITE, and PERCENT). Valid values are Y and N.



Entry Fields	Description
UPDATE.LOGGING	Specifies whether you have the authority to update settings for event logging (EMS, STATS, and COLLECTOR). Valid values are Y and N.
PROCESS commands	Specifies level of authority for activities associated with Processes. Set the level of authority for CHANGE PROCESS, DELETE PROCESS, FLUSH PROCESS, SELECT PROCESS, and SUSPEND PROCESS. Valid values are: A—All authority G—Group authority O—Owner authority N—No authority
USER commands	Specifies the level of authority assigned to define and maintain local user records in the AUTHFILE. Set the level of authority for DELETE USER, INSERT USER, SELECT USER, and UPDATE USER. Valid values are: A—All authority G—Group authority N—No authority
NETMAP commands	Specifies the level of authority assigned to define and maintain node records. Includes DELETE NETMAP, INSERT NETMAP, RELATE NETMAP, SELECT NETMAP, and UPDATE NETMAP. Valid values are Y and N.
TYPE commands	Includes DELETE TYPE, INSERT TYPE, SELECT TYPE, and UPDATE TYPE. TYPE commands allow you to define and maintain type records. Type records define file attributes for new files. Valid values are Y and N.
SECURITY commands	Includes DELETE SECURITY, INSERT SECURITY, SELECT SECURITY, and UPDATE SECURITY. SECURITY commands allow you to define and maintain security records in the SECFILE for submitters of Processes at remote nodes. Valid values are Y and N.
STATISTICS command	Displays or prints statistics from the statistics log. Valid values are: A—All authority O—Owner authority N—No authority
MODIFY command	Enables you to request session manager and server traces or modify certain Connect:Direct operational functions. Valid values are Y and N.
SUBMIT COMMAND	Enables you to submit Processes. Valid values are Y and N.
STOP ALL command	Stops Connect:Direct operation. Valid values are Y and N.
VOLUME (optional)	Specifies the default volume for the NDM.DEFAULT record.
ALIAS.CONVERT	When set to Y for a specific ID in the USER file, enables all aliases of that ID to be treated as the owner at logon. This enables all aliases of an ID to be treated as a single user from a security standpoint without having to assign security to every alias in the USER file.
PROCVOLUME (optional)	Specifies the default PROCVOLUME for the NDM.DEFAULT record.
OBEYVOLUME (optional)	Specifies the default OBEYVOLUME for the NDM.DEFAULT record.
PHONE (optional)	Identifies the phone number of a user.
NAME (optional)	Identifies the name of a user.
User Definitions Obey File	Displays the name of the file containing security authorization for a default user (NDM.DEFAULT) and the installer.

---

**Note:** If you want to assign a system administrator other than the installer, edit the user definitions obey file defined in Option E on the Utilities (U) screen after executing this option.

---

3. Press **SF2** to create the user information and save the specified data to the user definitions obey file; however, the values typed are no longer displayed on the AIMS screen. Note that the user definitions obey file name displayed on the screen was defined in Option E, when you set the AIMS environment.

## Configure the Network Map

Option 1.4 defines the nodes with which Connect:Direct can communicate. Use the information recorded in the *AIMS Network Map Definition Worksheet* in Chapter 2, *Planning the Installation*, to complete this task. This option builds the network map definitions that define the characteristics of the local HP NonStop node and the nodes with which it communicates.

Setting the network map requires completing the following tasks:

- ❖ Identifying the local node. The LOCAL.NODE field represents the logical node name for the node on which you installed Connect:Direct. Note that the Network Map Obey File name displayed on the screen was defined in Option E when you set the AIMS environment.
- ❖ Describing adjacent nodes. An adjacent node is the node definition for a remote node that is used when the local node requests the connection.

---

**Note:** AIMS automatically creates an adjacent node entry for the local node, using the same local node name as set in Option 1.4.1. A logical LU (named \$pnode.#snode) is also created. AIMS automatically relates these entries to permit PNODE=SNODE transmission, which enables you to move files in your local system.

---

- ❖ Describing the HP NonStop LUs used by Connect:Direct to communicate with adjacent nodes.
- ❖ Describing the API Managers used by Connect:Direct to link external Connect:Direct applications with adjacent nodes.
- ❖ Linking an adjacent node with its LU or API Manager.
- ❖ Describing LOGMODE definitions for the network map. Connect:Direct uses the LOGMODE records to build an NLD image and start a session with a secondary LU. If you are unfamiliar with building LOGMODE records, execute Option 2.4 to add default LOGMODE records.

You can create multiple adjacent nodes, API Managers, LUs, and LOGMODE entries by typing new data in the input fields and pressing **SF2**. Modifications to the network map are performed dynamically, either by issuing individual NETMAP commands or by editing the network map obey file. Refer to the *Connect:Direct HP*

*NonStop Administration Guide* for command format and parameters for modifying the network map. Complete the following procedure to activate option 1.4.1 and begin building the network map:

1. Press **F4** to begin building the network map. The Set Network Map panel displays:

```

=====
06.03.2008          Connect:Direct HP NonStop          02:35:31 PM
3.5.00             Automated Installation & Management System (AIMS)
=====
Current Option -> 1.4      Set Network Map              Quick Path -> 1.4.1

                    1. Enter Local Node Information
                    2. Enter Adjacent Node Information
                    3. Enter LU Information
                    4. Enter API Manager Information
                    5. Relate Adjacent Nodes with LUs
                    6. Relate Adjacent Nodes with APIMGRs
                    7. Enter LOGMODE Information

-----
                                                    <F16>=Quick Path
SF1=Help          SF3=Prev Option   SF4=Main Menu    SF5=Print        SF16=Exit

```

2. To enter local node information, press **F1** to select option 1.4.1. The Enter Local Node Information panel displays:

```

=====
08.03.2008          Connect:Direct HP NonStop          10:04:54 AM
3.5.00             Automated Installation & Management System (AIMS)
=====
Current Option -> 1.4.1  Enter Local Node Information  Quick Path -> 1.4.2

                    LOCAL.NODE      :

-----
Network Map Obey File: $DSMSCM.NDMINSTL.ONDMNET

-----
                                                    <F16>=Quick Path
SF1=Help  SF2=Save  SF3=Prev Option   SF4=Main Menu    SF5=Print        SF16=Exit

```

3. Type the name of the local node and press **SF2**. The LOCAL.NODE field specifies the 1–16 alphanumeric character name of the local node.

The correct NETMAP command is generated and stored in the network map obey file.

---

**Note:** AIMS automatically creates PNODE=SNODE entries in the network map obey file after you execute this option. A PNODE=SNODE entry enables you to transmit files in your local system.

---

4. Press **SF2** to save the specified data to the network map obey file. Bypass this screen by pressing F16.

## Define Adjacent Node Information

The next step is to define adjacent node information for nodes that communicate with the local node. Complete the following procedure to activate option 1.4.2 and generate adjacent node definitions for the network map:

1. Press **F2** to access option 1.4.2 and enter adjacent node information. The Enter Adjacent Node panel displays:

```

=====
06.03.2008          Connect:Direct HP NonStop          02:35:57 PM
3.5.00             Automated Installation & Management System (AIMS)
=====
Current Option -> 1.4.2 Enter Adjacent Node Information Quick Path -> 1.4.3

ADJACENT.NODE      :                               NODE TYPE      :
APPLID             :                               NETEX.HOSTID   :
PARSES             :                               MAXRETRY       : 7
NDM.400 LIB NAME  :
HOST/IP ADDR 1    :                               IP MASK        :
HOST/IP ADDR 2    :
HOST/IP ADDR 3    :
PORT NUMBER       :                               DYNAMIC DNS    :
TCPNAME           :
CRC               :                               SECURE         :
VOLUME           :                               PLEX CLASS     :
DESCRIPTION       :
ALLOC.RETRY.ADJ Error Codes:

Network Map Obey File: $AUDIT.SS35.ONDMNET

<F16>=Quick Path
SF1=Help SF2=Save SF3=Prev Option SF4=Main Menu SF5=Print SF16=Exit

```

---

**Note:** The SECURE field on this panel is displayed only if Secure+ Option is activated in the license key.

---

2. Supply the following information to describe the adjacent node:

Entry Fields	Description
ADJACENT.NODE	Specifies the 1–16 alphanumeric character name of an adjacent node you want to add to the network map. Adjacent nodes are the nodes with which you want to communicate.

Entry Fields	Description
APPLID	<p>Specifies the 1–8 character host VTAM or NETEX application identifier (APPLID) associated with the adjacent node. The NETEX APPLID is the logical application name of the OS/390 NETEX system and connected to by the HP NonStop NETEX system when a connection request is received.</p> <p>This field applies only to OS/390, VM, or VSE nodes. Although this field is not used for TCP/IP connection, it requires a value.</p> <p><b>Note:</b> The APPLID specified for an IBM ADJACENT.NODE record in the HP NonStop network map must match the APPLID specified in the LOCAL.NODE record in the host network map.</p>
NETEX.HOSTID	<p>Specifies the NETEX host name. This value must correspond to the actual host.name by which an OS/390 NETEX system is known. If NETEX is not used, skip this field.</p>
PARSESS	<p>Specifies the default class to use for Processes that run on the adjacent node. Each LU has an assigned default class value, which enables a Process to execute on an LU having a matching class value or on LUs with higher class values. A value in the CLASS parameter in the PROCESS or SUBMIT statement of a Process overrides any default class specified in this field. If you specify a class value of 1, a Process runs on the first available LU.</p>
PLEXCLASS	<p>Specifies the class representing a type of server in the Connect:Direct/Plex system to which you want to connect.</p>
NODE TYPE	<p>Identifies the adjacent node as one of the following types:</p> <ul style="list-style-type: none"> <li>• NDM.NONSTOP</li> <li>• NDM.VMS</li> <li>• NDM.NT</li> <li>• NDM.400</li> <li>• NDM.VM</li> <li>• NDM.VSE</li> <li>• NDM.UNIX</li> <li>• PNODESNODE (or PS)</li> <li>• NDM.zOS</li> <li>• NDM.API</li> <li>• NDM.DOMAIN</li> </ul>
MAXRETRY	<p>Specifies the number of times to attempt connection to a session with the adjacent node or to attempt a Process that has failed because a session is unavailable. The valid range of values for this field is 1–99. The default is 7.</p> <p>The MAXRETRY parameter for the LU overrides the MAXRETRY parameter on the adjacent node record.</p>
NDM400.LIB NAME	<p>Specifies the library name for the Connect:Direct i5/OS node. This alphanumeric parameter accepts 1–10 characters.</p>
HOST/IP ADDR 1 HOST/IP ADDR 2 HOST/IP ADDR 3	<p>Symbolic host name or numerical IP addresses of adjacent nodes (maximum of 3) that are compared to the incoming IP address of the originating node to identify the PNODE. Specify IP addresses in nnn.nnn.nnn.nnn (IPv4), xxxx:xxxx:xxxx:xxxx:xxxx:xxxx:xxxx:xxxx (IPv6), or DNS format.</p> <p>For more information on specifying IP addresses and host names, see the <i>Specifying IP Addresses, Host Names, and Ports</i> appendix in the <i>Connect:Direct for HP NonStop Administration Guide</i>.</p> <p><b>Note:</b> The “temporary addresses” feature of IPv6 causes problems in Connect:Direct HP NonStop. If the outgoing address of the PNODE randomly changes, the SNODE will always fail the connection because the PNODE’s IP would never match the IP configured in the Netmap. See RFC 3041 for more information on temporary addresses.</p>
IP MASK	<p>Defines an IP mask for the adjacent node using either IPv4 or IPv6 format. For use only with NDM.DOMAIN node type.</p>

Entry Fields	Description
TCPNAME	Identifies one or more local TCP Process names to use when initiating an outbound session. Process names can be system-qualified. This parameter facilitates load balancing outbound TCP traffic. Multiple entries provide for session retry attempts from a different TCP stack. The attempts are retried in the order listed.
PORT NUMBER	Identifies the communications port that Connect:Direct monitors for connection requests. The format is a number. The default is 1364, which is a well-known port number reserved for Connect:Direct on the Internet.
DYNAMIC DNS	Specifies that symbolic address resolution will be used for this adjacent node when the IP address of an inbound connection attempt cannot be matched to an existing IP address.
CRC	Indicates whether the setting for Cyclic Redundancy Checking (CRC) established in the Set Initialization Parameters Screen (Screen 2 of 4) can be overridden for this node (see <i>Set Initialization Parameters</i> on page 54). ON—Indicates that the CRC setting can be changed for this node. OFF—Indicates that the CRC setting cannot be changed for this node. Blank—Indicates that the default CRC setting will be used.
SECURE	Identifies the node name in the Secure+ Option file (SPNODES) containing the Secure+ Option parameters for connections over this node. Identify this directory if you have purchased Secure+ Option.  <b>Note:</b> This field is used only if Secure+ Option is activated in the license key.
VOLUME	Specifies the default Volume.Subvolume name for files received over this node.
DESCRIPTION	Provides a brief description of this adjacent node.
ALLOC.RETRY.ADJ Error Codes	Identifies the Connect:Direct message IDs from the adjacent node to treat as file allocation failures following the failure of a COPY step. Allocation failures will be retried by the local node based on the ALLOC-RETRY-INT and ALLOC-RETRY-MAX parameters set on the Set Initialization Parameters Screen (Screen 1 of 4). See <i>Set Initialization Parameters</i> on page 54 for more information.
Network Map Obey File	Displays the file that defines the network map values (LOCAL.NODE, ADJACENT.NODEs, LUs, AMGRs, LOGMODEs). The default file name is NDMINSTL.ONDMNET.

3. Depending on the node, supply the following information as required:
  - ❖ For a Connect:Direct for i5/OS node, supply the library name for Connect:Direct on the i5/OS.
  - ❖ For TCP/IP protocol, supply the symbolic host name or numerical IP address of the host running Connect:Direct and the number of the port that Connect:Direct monitors for connection requests.
4. Save the specified data to your network map obey file by pressing **SF2**. Bypass this screen by pressing **F16**.
5. Repeat this procedure as necessary to define multiple adjacent nodes.

## Enter LU Information

Option 1.4.3 generates LU definitions for the network map. This option defines the SNAX or TCP/IP LUs used for communication between the local and adjacent nodes. Complete the following procedure to define LU information:

1. From the **Enter Adjacent Node Information** panel, press **F16** to open the Enter LU Information panel.

```

=====
08.03.2008          Connect:Direct HP NonStop          10:05:53 AM
3.5.00             Automated Installation & Management System (AIMS)
=====
Current Option -> 1.4.3      Enter LU Information      Quick Path -> 1.4.4

          LU           :
          LOGMODE      :
          CPU          :
          LU TYPE      :
          LU MAXRETRY  :
          LU TIMEOUT   : 3
          PRI          :
          TERM         :
          USE          :
          TCPNAME      :

Network Map Obey File: $DSMSCM.NDMINSTL.ONDMNET

                                                                    <F16>=Quick Path
SF1=Help SF2=Save SF3=Prev Option SF4=Main Menu SF5=Print SF16=Exit

```

2. Provide the following information for each LU:

Entry Fields	Description
LU	Specifies a 1–26 alphanumeric character name of an LU inserted in the network map. You can include system names. For SNA LUs, you must fully qualify the LU name, for example, \$L1.#L01.
LOGMODE	Specifies a 1–8 character LOGMODE entry associated with an LU. For secondary LU (SLU) sessions with IBM systems (any LUs defined as SNA secondary), specify a VTAM LOGMODE. For primary LU (PLU) sessions, specify a Connect:Direct LOGMODE. Ignore this field if LU TYPE=TCP.D or TCP.S.
CPU	Specifies the HP NonStop central processing unit (CPU) where processing for this LU is initiated. Specify primary and backup CPUs by enclosing the grouping in parentheses. Values for this parameter range from 0 to 15 and are dependent on your HP NonStop system.
LU TYPE	Identifies the communications protocol for the LU. Valid values for this field are: SNA.P—Defines the LU as a primary LU (PLU) using SNA LU0. If you specify SNA.P, LOGMODE is a required field. SNA or SNA.S—Defines the LU as a secondary LU (SLU) using SNA LU0. If you specify SNA or SNA.S, LOGMODE is a required field. NETEX—Defines the LU for transmissions using a NETEX interface. TCP.D—Identifies the LU as a dynamic LU using TCP/IP for connectivity. Dynamic LUs are started by Connect:Direct as needed and automatically stopped upon Process completion. TCP.S—Identifies the LU as a static LU using TCP/IP for connectivity. LU shuts down and restarts automatically following a Secure+ session.

Entry Fields	Description
LU MAXRETRY	<p>Specifies the number of times to attempt connection to a session with the defined LU or to attempt a Process that failed because a session is unavailable. The valid range of values for this field is 0–99; the field can also be blank.</p> <p>If the LU MAXRETRY field is blank and no Process is waiting execution in the TCQ, three attempts are made to connect to a session with the LU.</p> <p>If an error occurs during Process execution and the LU MAXRETRY field is blank, the number of attempts to connect to a session with the LU defaults to the value specified in the ADJACENT NODE MAXRETRY field. If you type <b>0</b> in this field, Connect:Direct retries indefinitely. The MAXRETRY parameter for the LU overrides the MAXRETRY parameter on the adjacent node record.</p>
LU TIMEOUT	<p>Specifies the time Connect:Direct waits for an SNA, TCP/IP, or NETEX I/O to complete. An error is generated if SNA, TCP/IP, or NETEX I/O does not complete in the specified time frame. If you are using NETEX, the value specified in the NETEX configuration parameters overrides the value specified for this parameter if the NETEX value is the shorter of the two. Valid values for this parameter range from 1 to 30 minutes; the default is 3 minutes.</p> <p><b>Note:</b> The LU TIMEOUT value automatically increases to 30 minutes during file open processing. This increase provides additional time for tape mounts.</p>
PRI	<p>Defines the priority of the LU in the CPU in which it runs. Enables you to facilitate load-balancing. Values range from 1 to 199. If left blank, the LU defaults to the server Process priority, minus one.</p>
TERM	<p>Specifies the home terminal file to assign to the session manager.</p> <p>Use this parameter if you are using the Virtual Hometerminal System for Connect:Direct and you need more than 512 simultaneous sessions.</p> <p>If no TERM value is specified, the system will assign the home terminal of the server to the session manager.</p>
USE	<p>Specifies whether the LU is reserved for inbound, outbound, or any transmissions. Valid values for this field are:</p> <p>PNODE—Reserves the LU for inbound sessions.</p> <p>SNODE—Reserves the LU for outbound sessions.</p> <p>ANY—Defines the LU as available for inbound or outbound sessions. This is the default value.</p> <p>If you reserve at least one LU for SNODE sessions only, this will guarantee that session managers will always be available for incoming traffic regardless of how many PNODE sessions are submitted on the local system.</p> <p>If you reserve at least one LU for PNODE sessions, this will guarantee that session managers will be available for locally submitted processes regardless of how many SNODE sessions come in to the local system.</p> <p>This parameter is only valid for TCP.D and TCP.S communications protocols.</p> <p><b>Note:</b> TCP/IP outbound session requests should only use the TCP/IP stacks and related LUs defined in the netmap for that adjacent node. TCP/IP stacks defined in the TCPLISTENx entries in the NDMINIT file should only be used to listen for incoming connection requests. If you use TCPLISTENx stacks for outbound connections, it will be impossible to restrict certain adjacent nodes to certain communication paths.</p>
TCPNAME	<p>Identifies one or more local TCP process names to use when initiating an outbound session. Process names can be system-qualified. This parameter facilitates load balancing outbound TCP traffic. Multiple entries provide for session retry attempts from a different TCP stack. The attempts are retried in the order listed.</p>
Network Map Obey File	<p>Displays the file that defines the network map values (LOCAL.NODE, ADJACENT.NODEs, LUs, AMGRs, LOGMODEs). The default file name is NDMINSTL.ONDMNET.</p>

3. Save the specified data to your network map obey file by pressing **SF2**. Bypass this screen by pressing **F16**.
4. Repeat this procedure to define multiple LUs and press **SF2** to save each LU definition.



If you are running Connect:Direct with any LUs defined as SNA, refer to *Enter LOGMODE Information* on page 78 to build LOGMODE records, or you can load the default LOGMODE records provided with the product. Refer to the *Load the Default LOGMODE Records* on page 89 to review the default LOGMODE records.

---

**Note:** For SNA LUs, ensure that the LU is defined to a line through SCF prior to its insertion in the network map.

---

## Enter API Information

Option 1.4.4 generates API Manager definitions for the network map. This option defines the TCP/IP connection between the AMGR used for communications between the adjacent node and the external application. Complete the following procedure to define AMGR information:

1. From the **Enter Adjacent Node Information** panel, press **F16** to open the Enter API mgr Information panel

```

=====
06.03.2008          Connect:Direct HP NonStop          02:36:22 PM
3.5.00             Automated Installation & Management System (AIMS)
=====
Current Option -> 1.4.4  Enter API mgr Information      Quick Path -> 1.4.5

                AMGR      :
                CPU       :
                PRI       :
                TCPNAME   :
                PORT NUMBER :
                TERM      :
                TIMEOUT   :

Network Map Obey File: $DSMSCM.NDMINSTL.ONDMNET

                                                                    <F16>=Quick Path
SF1=Help  SF2=Save  SF3=Prev Option  SF4=Main Menu  SF5=Print  SF16=Exit

```

2. Provide the following information for each AMGR:

Entry Fields	Description
AMGR	Specifies the 1–25 alphanumeric character name of the API Manager. This is a required field.
CPU	Specifies the HP NonStop central processing unit (CPU) where processing for this API Manager is initiated. Specify primary and backup CPUs by enclosing the grouping in parentheses. Values for this parameter range from 0 to 15 and are dependent on your HP NonStop system.
PRI	Defines the priority of the AMGR in the CPU in which it runs. Enables you to facilitate load-balancing. Values range from 1 to 199. If left blank, the API Manager defaults to the server Process priority, minus one.

Entry Fields	Description
TCPNAME	Identifies one or more local TCP process names to use when initiating an outbound session. This is a required field. Process names can be system-qualified. This parameter facilitates load balancing for outbound TCP traffic. Multiple entries provide for session retry attempts from a different TCP stack. The attempts are retried in the order listed.
PORT NUMBER	Specifies the communications port that Connect:Direct monitors for connection requests. This is a required field. The format is a number. The default is 1364.
TERM	Specifies the home terminal file to assign to the API manager. Use this parameter if you are using the Virtual Hometerminal System for Connect:Direct and you need more than 512 simultaneous sessions. If no TERM value is specified, the system will assign the home terminal of the server to the API manager.
TIMEOUT	Specifies the time Connect:Direct waits for TCP/IP I/O to complete. An error is generated if TCP/IP I/O does not complete in the specified time frame. Valid values for this parameter range from 1 to 30 minutes; the default is 3 minutes.
Network Map Obey File	Displays the file that defines the network map values (LOCAL.NODE, ADJACENT.NODEs, LUs, AMGRs, LOGMODEs). The default file name is NDMINSTL.ONDMNET.

## Relate Adjacent Nodes with LUs

The next step in defining the network map is to relate the LUs to the adjacent nodes with which they communicate. Option 1.4.5 links adjacent nodes and the LUs they use to communicate. Multiple LUs are related to the same adjacent node. Complete the following procedure to activate option 1.4.4 and relate the LUs to the adjacent nodes:

1. Press **F16** to select option 1.4.5 and associate adjacent nodes with the LUs with which they communicate. The Relate Adjacent Nodes with LUs panel displays:

```

=====
08.03.2008          Connect:Direct HP NonStop          10:07:02 AM
3.5.00             Automated Installation & Management System (AIMS)
=====
Current Option -> 1.4.5      Relate Adjacent Nodes      Quick Path -> 1.4.6
                             with LUs

                                ADJACENT.NODE :
                                LU              :

Network Map Obey File: $DSMSCM.NDMINSTL.ONDMNET

                                                                    <F16>=Quick Path
SF1=Help  SF2=Save  SF3=Prev Option  SF4=Main Menu  SF5=Print  SF16=Exit

```

2. Provide the name of an adjacent node and the name of the LU you want to relate to it. Following is a description of each entry field:

Entry Fields	Description
ADJACENT.NODE	Specifies the 1–16 alphanumeric character name of the adjacent node to relate to an LU.
LU	Specifies the fully qualified 1–25 alphanumeric character name of the LU to be related to an adjacent node, for example, \$LINE1.#LU03.
Network Map Obey File	Displays the file that defines the network map values (LOCAL.NODE, ADJACENT.NODEs, LUs, AMGRs, LOGMODEs). The default file name is NDMINSTL.ONDMNET.

You can only relate adjacent nodes to LUs of the same type. For example, you cannot relate an adjacent node with a TYPE parameter of PNODESNODE to an LU with a TYPE of SNA.S. The following table shows valid relationships between LUs and adjacent nodes:

Adjacent Node Type	LU Type (Protocol)			
	SNA.S	SNA.P	PNODE-SNODE	TCP.D/TCP.S.
z/OS	YES	YES (SNAX)	NO	YES
VM	YES	YES (SNAX)	NO	YES
VSE	YES	YES (SNAX)	NO	YES
OpenVMS	NO	NO	NO	YES
HP NonStop	YES	YES	NO	YES
i5/OS	NO	YES	NO	YES
PNODESNODE	NO	NO	YES	NO
UNIX	NO	NO	NO	YES
Windows	NO	NO	NO	YES

**Note:** You can only relate the NDM.API type to API manager entries (AMGRs). To implement connections between Connect:Direct and Sterling Control Center or Connect:Direct Browser User Interface, use an AMGR definition.

3. Save the specified data to your network map obey file by pressing **SF2**. Bypass this screen by pressing **F16**.
4. Repeat this procedure as many times as necessary to relate multiple nodes to an LU or multiple LUs to an adjacent node.

## Relate Adjacent Nodes with AMGRs

The next step in defining the network map is to relate AMGRs to the adjacent nodes with which they communicate. Option 1.4.6 links adjacent nodes and the AMGRs they use to communicate. Multiple AMGRs are related to the same adjacent node.

Complete the following procedure to activate option 1.4.6 and relate the LUs to the adjacent nodes:

1. Press **F16** to select option 1.4.6 and associate adjacent nodes with the AMGRs with which they communicate. The Relate API Nodes with API mgrs panel displays:

```

=====
08.04.2008          Connect:Direct HP NonStop          10:23:57 AM
3.5.00             Automated Installation & Management System (AIMS)
=====
Current Option -> 1.4.6  Relate API Nodes with API mgrs  Quick Path -> 1.4.7

                ADJACENT.NODE :

                APIMGR         :

Network Map Obey File: $DSMSCM.NDMINSTL.ONDMNET

                                                                    <F16>=Quick Path
SF1=Help  SF2=Save  SF3=Prev Option  SF4=Main Menu  SF5=Print  SF16=Exit

```

2. Provide the name of an adjacent node and the name of the AMGR you want to relate to it. Following is a description of each entry field:

Entry Fields	Description
ADJACENT.NODE	Specifies the 1–16 alphanumeric character name of the adjacent node to relate to an LU.
APIMGR	Specifies the 1–25 alphanumeric character name of the API Manager.
Network Map Obey File	Displays the file that defines the network map values (LOCAL.NODE, ADJACENT.NODEs, LUs, AMGRs, LOGMODEs). The default file name is NDMINSTL.ONDMNET.

3. Save the specified data to your network map obey file by pressing **SF2**. Bypass this screen by pressing **F16**.
4. Repeat this procedure as many times as necessary to relate multiple nodes to an AMGR or multiple AMGRs to an adjacent node.

## Enter LOGMODE Information

Option 1.4.7 defines the LOGMODE attributes used by an LU to build a bind image when Connect:Direct HP NonStop is operating as an SNA primary node and is communicating with an OS/400 node or another HP NonStop node. The LOGMODE is not required if Connect:Direct is always the SNA secondary node or if TCP/IP is the only connection used. If you do not require these records, or if you prefer to use the values provided in the ONDMLOG file provided with the product (Option 2.4), bypass this option by pressing **F16**.

To create individualized tables, complete the following procedure to activate option 1.4.7 and define the LOGMODE attributes used by an LU:

1. Press **F5** to select option 1.4.7 and enter LOGMODE information. The Enter LOGMODE Information panel displays:

```

=====
08.03.2008          Connect:Direct HP NonStop          10:09:46 AM
3.5.00             Automated Installation & Management System (AIMS)
=====
Current Option -> 1.4.7      Enter LOGMODE Information      Quick Path -> 1.5

          LOGMODE      :
          RUSIZE       : 8686
          PSNDPAC      : 00
          SSNDPAC      : 00
          SRCVPAC      : 00
          PSERVIC      : 000000000000000000000000
          TYPE         : 01
          FMPROF       : 04
          TSPROF       : 04
          PRIPROT      : B1
          SECPROT      : B1
          COMPROT      : 7080

          Network Map Obey File: $DSMSCM.NDMINSTL.ONDMNET

          <F16>=Quick Path
SF1=Help  SF2=Save  SF3=Prev Option  SF4=Main Menu  SF5=Print  SF16=Exit

```

2. Either press **F16** to bypass this panel and use the default settings or supply the following information:

Entry Fields	Description
LOGMODE	Specifies the 1–8 alphanumeric character name of the LOGMODE record.
RUSIZE	Specifies the transmission buffer size or the maximum length of data (request units), in bytes, Connect:Direct can transmit between the primary and secondary LUs in a session. The default, in hexadecimal, is 8686. Refer to <i>Compute RU Sizing</i> on page 79 for instructions on computing the RU size.

Entry Fields	Description
PSNDPAC	Specifies the primary send pacing count. Code any hexadecimal number in the range of 0 through 3F. The default value is 00.
SSNDPAC	Specifies the secondary send pacing count. Code any hexadecimal number in the range of 0 through 3F. The default value is 00.
SRCVPAC	Specifies the secondary receive pacing count. Code any hexadecimal number in the range of 0 through 3F. The default value is 00.
PSERVIC	Represents the LU presentation services profile and usage field for this logon mode. The default value, in hexadecimal, is 000000000000000000000000.
TYPE	Indicates the type of NLD command represented by this LOGMODE entry. The default value is 01.
FMPROF	Represents the function management profile for this logon mode. The default value is 04.
TSPROF	Represents the transmission services profile for this logon mode. The default value is 04.
PRIPROT	Represents the primary LU protocol for this logon mode. The default value, in hexadecimal, is B1.
SECPROT	Represents the secondary LU protocol for this logon mode. The default value, in hexadecimal, is B1.
COMPROT	Represents the common LU protocols for this logon mode. The default value, in hexadecimal, is 7080.
Network Map Obey File	Displays the file that defines the network map values (LOCAL.NODE, ADJACENT.NODEs, LUs, AMGRs, LOGMODEs). The default file name is NDMINSTL.ONDMNET.

- To save the specified data to your network map obey file, press **SF2**.
- Repeat this procedure as necessary to define multiple LOGMODE records.

## Compute RU Sizing

RU sizing is assigned on the host node through the RUSIZE entry in the LOGMODE table. The first two digits of the RUSIZE value (RUSIZE = X'abab') apply to the secondary logical unit (LU); the last two digits apply to the primary LU.

The formula that enables you to compute RUSIZE is  $a \times b^2$ . The following table shows valid values for the RUSIZE parameter. For example, a primary and secondary RU size of 256 is expressed as RUSIZE=X'8585', or  $8 \times 2^5$ .

a								
b	8*	9	A(10)	B(11)	C(12)	D(13)	E(14)	F(15)
0	8	9	10	11	12	13	14	15
1	16	18	20	22	24	26	28	30
2	32	36	40	44	48	52	56	60
3	64	72	80	88	96	104	112	120
4	128	144	160	176	192	208	224	240
5*	<u>256</u>	288	320	352	384	416	448	480

<b>a</b>								
<b>b</b>	<b>8*</b>	<b>9</b>	<b>A(10)</b>	<b>B(11)</b>	<b>C(12)</b>	<b>D(13)</b>	<b>E(14)</b>	<b>F(15)</b>
6	512	576	640	704	768	832	896	960
7	1,024	1,152	1,280	1,408	1,536	1,664	1,792	1,920
8	2,048	2,304	2,560	2,816	3,072	3,328	3,584	3,840
9	4,096	4,608	5,120	5,632	6,144	6,656	7,168	7,680
A(10)	8,192	9,216	10,240	11,264	12,288	13,312	14,336	15,360
B(11)	16,384	18,432	20,480	22,528	24,576	26,624	28,672	30,720
C(12)	32,768	36,864	40,960	45,056	49,152	53,248	57,344	61,440
D(13)	65,536	73,728	81,920	90,112	98,304	106,496	114,688	122,880
E(14)	131,072	147,456	163,840	180,224	196,608	212,992	229,376	245,760
F(15)	262,144	294,912	327,680	360,448	393,216	425,984	458,752	491,520

## Create Data Files

Option 1.5 creates data files required to run Connect:Direct. These files include AUTHFILE, CKPTFILE, INFOFILE, MSGFILE, NDMCDL, NETFILE, SECFILE, STATFILE, STATSrch, TCQFILE, TCQXFILE, TYPEFILE, and XLFILE. When you extracted the installation files, a file containing FUP control statements that defines all of your files in a subvolume named NDMFILES was also included. This option invokes FUP and defines and creates these files.



Complete the following procedure to activate option 1.5 and create data files:

1. Press **F16** to select 1.5. The Create Files panel displays:

```

=====
08.03.2008          Connect:Direct HP NonStop          10:12:26 AM
3.5.00             Automated Installation & Management System (AIMS)
=====
Current Option -> 1.5      Create Files                Quick Path -> 2

                                NDMFUPIN File   : $DSMSCM.NDMINSTL.NDMFUPIN

                                FUP Out File    : $$.#NDM.FUP

-----
                                <F16>=Quick Path
SF1=Help  SF2=Execute SF3=Prev Option SF4=Main Menu  SF5=Print  SF16=Exit

```

2. To change the subvolume for these files, edit the NDMFUPIN file and modify the specified subvolume. You can invoke the editor through Quick Path Option U.

Entry Fields	Description
NDMFUPIN File	Specifies the HP NonStop name for the file containing Connect:Direct file definitions.
FUP OUT File	Contains the output generated by FUP. The default file name is \$\$.#NDM.FUP. If the file name is blank, Connect:Direct routes output to the user terminal.

The FUP Out file name is a default name that you can modify at this screen. This spooler file is used for the report generated by FUP as your files are defined. If you do not specify a value for the output file, FUP routes messages to your terminal.

3. To execute the HP NonStop FUP utility, press **SF2**. Bypass this screen by pressing F16. When AIMS is creating these files, your screen temporarily goes blank and enters conversational mode. Connect:Direct generates a message indicating that the NDMFUPIN Obey File is executing. Upon completion, a prompt directs you to *Press <ENTER> or <RETURN> to continue.*

## Modify the Installation for NETEX Users

Because of the migration of Connect:Direct to Native C, the application installation procedures for NETEX users have changed. The executable files for the NDMSMGR, NDMNTXK, and NDMNTXO modules must be

relinked with local versions of the NETEX API libraries. Connect:Direct HP NonStop requires using the Native Mode Linker (NLD) instead of the BIND utility.

1. After you complete the installation, modify the parameters in each of the three NLD script files, located in the NDMNETEX subvolume, as follows:

Parameter Modification	Description
-o NDMOBJ.NDMprog	Identify the desired target location for the executable being built.
-L \$SYSTEM.SYSnn	Identify the subvol in which the current system image is located by going to a TACL prompt and executing the "STATUS 0,0" command. Record the subvol for the OSIMAGE program.
-libname \$vol.NDMOBJ.CDLIB	Identify the current location of the CDLIB run-time library module. The CDLIB file name must be fully qualified with a \$vol and subvol. If not, PROCESS_CREATE_() errors occur when the application attempts to run the objects.
++ NDMNETEX.NDMprogR	Identify the location of the relinkable code for the application module being relinked.
++ \$vol.NETEX.NMGLIB ++ \$vol.NETEX.NMTLIB ++ \$vol.NETEX.NMUDEF	Identify the \$vol and subvol of the specified Native NETEX libraries.

2. Run the NLD scripts to create the updated Connect:Direct files called NDMSMGR, NDMNTXK, and NDMNTXO.
3. Start Connect:Direct HP NonStop.

## Start Connect:Direct HP NonStop

Option 2 starts Connect:Direct. The final portion of the installation procedure consists of the following tasks:

- ❖ Resolving library references in Connect:Direct executables
- ❖ Loading optional translation files in the Xlate file—See Chapter 6, *Defining Character Translation Tables*, in *Connect:Direct HP NonStop Administration Guide*.
- ❖ Starting the Connect:Direct server Process—NDMSRVR is created and monitored by a fault-tolerant program named NDMMON. When an abnormal end (ABEND) occurs on the NDMSRVR process or the CPU executing the NDMSRVR process fails, NDMMON creates a new NDMSRVR process, retaining the original name and parameters. The NDMMON process terminates when the NDMSRVR process is stopped with a Connect:Direct STOP ALL command or a HP NonStop STOP Process command. It is not required that you run NDMMON. NDMMON ensures fault-tolerant processing.
- ❖ Loading the optional NDM.DEFAULT user to the AUTHFILE—Obey File to add both the installer and the NDM.DEFAULT records in the AUTHFILE. After running the NDMSRVR process, load the default user to the authorization file and insert a record that defines the installer as the Connect:Direct system administrator and the NDM.DEFAULT record. See Chapter 2, *Defining and Maintaining Security*, in *Connect:Direct HP NonStop Administration Guide*.
- ❖ Loading network map definitions into the NETFILE

- ❖ Loading optional LOGMODE records provided with the product into the NETFILE. This step is only required if Connect:Direct HP NonStop is used as an SNA primary node with i5/OS or another HP NonStop.

---

**Note:** Before continuing the installation, make sure you have identified the location of the initialization parameters file for this node. Settings defined in the parameter definitions called NDMNTXO, NDMNTXK, NDMSTD, NDMSMGR, and STUTIL are resolved during the following procedure.

---

Complete the following steps to start Connect:Direct HP NonStop:

1. Press **F2** to select the Start Connect:Direct option. The Start Connect:Direct panel displays:.

```
=====
08.03.2008          Connect:Direct HP NonStop          10:13:36 AM
3.5.00             Automated Installation & Management System (AIMS)
=====
Current Option -> 2          Start Connect:Direct          Quick Path -> 2.1

      1. Resolve Library References in Connect:Direct Executables
      2. Load the XLATE file
      3. Start the Connect:Direct Server
      4. Load the Default User Authorization
      5. Load the Network Map
      6. Load the Default LOGMODE records

-----
F<n>=Options          <F16>=Quick Path
SF1=Help             SF3=Prev Option   SF4=Main Menu   SF5=Print   SF16=Exit
```

2. Press **F1** to select option 1. This option enables you to map required Connect:Direct components to the executable files that use these components to run Connect:Direct. The Resolve User Library References panel displays:

```

=====
03.06.2008          Connect:Direct HP NonStop          10:14:15 AM
3.5.00             Automated Installation & Management System (AIMS)
=====
Current Option -> 2.1  Resolve User Library References  Quick Path -> 2.2

It is necessary to execute this step after installing or updating
any Connect:Direct object module(s), or fatal errors will result!.

NOTE:  1. All Connect:Direct Processes must be stopped
        2. The user executing NDMAIMS must have WRITE
           access to the Connect:Direct executables.

CDLIB           : $DSMSCM.NDMOBJ.CDLIB
NDMMON Object Name : $DSMSCM.NDMOBJ.NDMMON
Server Object Name : $DSMSCM.NDMOBJ.NDMSRVR
NDMCOM Object Name : $DSMSCM.NDMOBJ.NDMCOM
NDMMSG Object Name : $DSMSCM.NDMOBJ.NDMMSG
NDMXLATE Object Name : $DSMSCM.NDMOBJ.NDMXSPL
NDMSPL Object Name : $DSMSCM.NDMOBJ.NDMXSPL
CDLIBRES File    : $DSMSCM.NDMINSTL.CDLIBRES
Lib Res OUT File : $S.#LIBOUT

                                                                    <F16>=Quick Path
SF1=Help SF2=Execute SF3=Prev Option SF4=Main Menu SF5=Print SF16=Exit

```

3. Identify the location of the following files:

Entry Field	Description
CDLIB	Specifies the location of the Connect:Direct object library.
NDMMON Object Name	Specifies the location of the Monitor Program.
Server Object Name	Specifies the location of the Server Program.
NDMCOM Object Name	Specifies the location of the Command Interface Program.
NDMMSG Object Name	Specifies the location of the Message Utility Program.
NDMXLATE Object Name	Specifies the location of the Translation Program.
NDMSPL Object Name	Specifies the location of the print process module.
CDLIBRES File	Contains RUN commands (MIPS platforms) or ELD commands (HP Integrity platform) that update the user library reference in each Connect:Direct application module to point to the locally-installed CDLIB module.
Lib Res OUT File	Specifies the TAOL output file showing the resolution of the preceding objects.

4. To load the XLATE file, press **F2** to activate Option 2.2 and execute the Xlate facility to load any user-defined character translation tables into the file created. The Load optional Xlate Tables panel displays:

```

=====
08.03.2008          Connect:Direct HP NonStop          10:15:15 AM
3.5.00             Automated Installation & Management System (AIMS)
=====
Current Option -> 2.2          Load the Xlate File          Quick Path -> 2.3

                                NDMXLATE Object File: NDMOBJ.NDMXLATE

                                XLFILE                   : $DSMSCM.NDMINSTL.XLFILE

                                NDMXLIN                   : NDMINSTL.NDMXLIN

                                NDMXLATE Out File        : $$.#NDMAIMS.XLT

-----
                                                                <F16>=Quick Path
SF1=Help  SF2=Execute SF3=Prev Option SF4=Main Menu  SF5=Print  SF16=Exit

```

5. Provide the following information to identify the translation table to load:

Entry Fields	Description
NDMXLATE Object File	Specifies the object file name of the Xlate program.
XLFILE	Specifies the key-sequenced file to contain translation tables.
NDMXLIN	Specifies the text file containing the commands and data for the NDMXLATE utility to create translation tables in XLFILE.
NDMXLATE Out File	Contains output generated by the Xlate utility. The default file name is \$\$.#NDMAIMS.XLT. If the field is blank, Connect:Direct routes output to the user terminal.

6. Press **SF2** to execute the Xlate load program. Bypass this screen by pressing **F16**.  
When AIMS is loading the Xlate file, the screen temporarily goes blank and enters conversational mode. Connect:Direct generates a message indicating that the Xlate load is executing.
7. When the translation file is loaded, press **Enter** when prompted.

8. Press **F16** to go to the next step and start the Connect:Direct Server. Option 2.3 starts the Connect:Direct server (NDMSRVR) process and the associated NDMMON process. The Start the Connect:Direct Server panel displays:

```

=====
08.03.2008          Connect:Direct HP NonStop          10:15:50 AM
3.5.00             Automated Installation & Management System (AIMS)
=====
Current Option -> 2.3  Start the Connect:Direct Server  Quick Path -> 2.4

      NDMMON Object Name      : NDMOBJ.NDMMON

      Server Object Name     : NDMOBJ.NDMSRVR

      Server Process Name    : $NDMS
      Initialization
      Parameters File Name   : $DSMSCM.NDMINSTL.NDMINIT

      SERVER Out File       : $$.#NDM

      NDMMON Process Name   : $MON

      NDMMON Primary CPU    :          Backup CPU:

-----
                                <F16>=Quick Path
SF1=Help  SF2=Execute SF3=Prev Option SF4=Main Menu  SF5=Print  SF16=Exit

```

9. Specify values or accept the default values for the following parameters:

Entry Fields	Description
NDMMON Object Name (optional)	Specifies the Connect:Direct monitor program. If this field is blank, the server runs without the benefit of fault-tolerant operation.
Server Object Name	Specifies the object name of the Connect:Direct server program.
Server Process Name	Specifies the name of the NDMSRVR process.
Initialization Parameters File Name	Specifies the file containing the initialization parameters read by NDMSRVR.
SERVER Out File	Specifies the spooler file that contains NDMSRVR output.
NDMMON Process Name	Specifies the process name of the NDMMON monitor. Specify a value only when you are running NDMSRVR through NDMMON. If you omit the NDMMON Object Name, this field must be blank.
NDMMON Primary CPU	This parameter and the Backup CPU parameter start NDMMON as a NonStop process pair. Specify values only when you are running NDMSRVR through NDMMON.
Backup CPU	Starts NDMMON as a NonStop process pair. Specify values only when you are running NDMSRVR through NDMMON.

10. Press **SF2** to execute this option and start the Connect:Direct server. Bypass this screen by pressing **F16**.

---

**Note:** If Connect:Direct generates a message indicating AIMS is unable to start the server, verify that the server and NDMMON processes are not currently running. In addition, check your output file and EMS log (\$0) for any other messages. If you do not specify an output file, Connect:Direct routes messages to the EMS log or your home terminal.

---

11. Press **F16** to select Option 2.4 and load the Default User Authorization. The Load the Default User Authorization panel displays:

```

=====
08.03.2008                Connect:Direct HP NonStop                10:16:52 AM
3.5.00                    Automated Installation & Management System (AIMS)
=====
Current Option -> 2.4      Load the Default User      Quick Path -> 2.5
                          Authorization

Server Process Name : $NDMS
User Definitions
Obey File           : $DSMSCM.NDMINSTL.ONDMUSER

NDMCOM Object Name  : NDMOBJ.NDMCOM

NDMCOM Out File     : $$.#NDMAIMS.DEFUSER

Password           :                (Password will not be displayed)

-----
SF1=Help  SF2=Execute SF3=Prev Option SF4=Main Menu  <F16>=Quick Path
SF5=Print  SF16=Exit

```

12. Provide the following information:

Entry Fields	Description
Server Process Name	Specifies the name of the executing NDMSRVR.
User Definitions Obey File	Contains the NDM.DEFAULT definition generated in Option 1.3.
NDMCOM Object Name	Specifies the object file of the Connect:Direct command interpreter.
NDMCOM OUT File	Contains output generated by this option. All steps performed by AIMS to load the default user are recorded in the specified OUT file. This includes the logon of NDMCOM, which records the password provided in this option. You can set the OUT file so that access is only permitted for the administrator. You can set the OUT file to the Process \$NULL, if it is set up for your HP NonStop system. If the field is blank, Connect:Direct routes output to the user terminal.
Password	Specifies the password of the user logged on and performing this installation. The password is not displayed on this screen.

13. Type your password to allow AIMS to identify your user ID as the administrator in the AUTHFILE.

- Press **SF2** to load the installer and NDM.DEFAULT records.

---

**Note:** You must run NDMSRVR before you execute this option.

---

Your screen temporarily goes blank and enters conversational mode during this step. Connect:Direct generates a message indicating that the option is executing.

- When the default records are loaded, press **Enter** when prompted.

---

**Note:** To ensure sufficient authority to load the network map, LOGMODEs, and translation tables, run this option before proceeding with the remaining AIMS options.

---

## Load the Network Map

The next step in the installation procedure is loading the network map definitions. Option 2.5 loads the network map entries that you defined during the installation. Complete the following steps to load the network map:

- Press **F16** to activate option 2.5 and begin loading the network map. The Load the Network Map panel displays:

```

=====
08.03.2008          Connect:Direct HP NonStop          10:17:25 AM
3.5.00             Automated Installation & Management System (AIMS)
=====
Current Option -> 2.5      Load the Network Map      Quick Path -> 2.6

Server Process Name   : $NDMS

Network Map Obey File: $DSMSCM.NDMINSTL.ONDMNET

NDMCOM Object Name   : NDMOBJ.NDMCOM

OUT File Name        : $$.#NDMAIMS.NETMAP

-----
SF1=Help  SF2=Execute SF3=Prev Option SF4=Main Menu      <F16>=Quick Path
SF5=Print  SF16=Exit

```

- Use the default names or supply the following information:

Entry Fields	Description
Server Process Name	Specifies the name of the executing NDMSRVR.



Entry Fields	Description
Network Map Obey File	Contains the network map definitions generated in Options 1.4.1 through 1.4.5.
NDMCOM Object Name	Specifies the object file of the Connect:Direct command interpreter.
OUT File Name	Contains output generated by NDMCOM. The default file name is \$S.#NDMAIMS.NETMAP. If the field is blank, Connect:Direct routes output to the user terminal.

**Note:** You must run NDMSRVR before executing this option. Also, you must have NETMAP update authority; the installer automatically has this authority.

3. Press **SF2** to load the network map definitions. Bypass this screen by pressing F16.
4. When prompted, press **Enter** to continue.

## Load the Default LOGMODE Records

The next step in the installation procedure is loading the LOGMODE records. Option 2.6 loads the LOGMODE records you defined and those provided with the product. Complete the following steps to load the LOGMODE records:

1. Press **F16** to select option 2.6 and load the LOGMODE records. The Load the default LOGMODE Records panel displays:

```

=====
08.03.2008          Connect:Direct HP NonStop          10:18:06 AM
3.5.00             Automated Installation & Management System (AIMS)
=====
Current Option -> 2.6          Load the default          Quick Path -> Q
                             LOGMODE Records

Server Process Name   : $NDMS

LOGMODE Obey File    : $DSMSCM.NDMINSTL.ONDMLOG

NDMCOM Object Name   : NDMOBJ.NDMCOM

OUT File Name        : $S.#NDMAIMS.LOGMODE

-----
                                     <F16>=Quick Path
SF1=Help  SF2=Execute SF3=Prev Option SF4=Main Menu  SF5=Print  SF16=Exit

```

- To load the default LOGMODE records, press F16 or change the following values:

Entry Fields	Description
Server Process Name	Specifies the name of the executing NDMSRVR.
LOGMODE Obey File	Contains the default network map LOGMODE records.
NDMCOM Object Name	Specifies the object file of the Connect:Direct command interpreter.
OUT File Name	Contains output generated by NDMCOM. The default file name is \$\$.#NDMAIMS.LOGMODE. If the file name is blank, Connect:Direct routes output to the user terminal.

LOGMODE entries for iSeries and HP NonStop are defined in the LOGMODE Obey File as follows:

LOGMODE	RUSIZE	PSNDPAC	SSNDPAC	SRCVPAC
LOGAS400	8989	10	07	07
LOGTAN	8989	10	07	07

- To load the LOGMODE entries, press **SF2**.

---

**Note:** You must run NDMSRVR before you execute this option.

---

- When the LOGMODE record file is loaded, press **Enter** when prompted.

---

**Note:** If you have a Secure+ Option license, at this point you need to set up Secure+ Option before verifying the installation. After the Secure+ Option Parameters File (SPNODES File) is synched up with the network map, you can continue with the next procedure, *Verifying the Installation*. See the *Connect:Direct HP NonStop Secure+ Option Implementation Guide* for more information.

---

## Verify the Installation

Perform the following steps to verify the installation:

- Press **SF16** to exit AIMS.
- Change to the volume where the NDMCOM object file resides.
- Type RUN NDMCOM at the TACL prompt. If you changed the default server name, issue the command as RUN NDMCOM server-name.
- Execute Connect:Direct commands, such as SELECT USER and SELECT NETMAP, to ensure that the installation was successful.

## Update the License Key

To replace a temporary key with a permanent key, or to update an existing key, perform the following procedure.

1. Upload the license key file using FTP ASCII (text) mode in the ASCII mode to the subvolume where the NDMINIT file is located. Name the new license key LICENSEN.
2. Start NDMAIMS.
3. From the Main AIMS panel, type **L** (for License Management) in the **Quick Path** field and press **F16** to display the License Verification panel. If you have a license key installed, the values in existing license key are displayed:

```

12.03.2008          Connect:Direct HP NonStop          06:35:30 PM
3.5.00             Automated Installation & Management System (AIMS)
=====
Current Option -> L      License Verification Panel      Quick Path -> 2
-----
      Current License LICENSE  New License

LICENSE-ID           92391

TCP/IP               YES
SNA                  YES
NETEX                NO
Secure+              NO
                    Valid License

-----
                                     <F16>=Quick Path
SF1=Help  SF2=Execute SF3=Prev Option SF4=Main Menu      SF5=Print  SF16=Exit

```

4. Type **LICENSEN** as the name of the new license key file in the field next to **New License** and press **SF2**. The new license is displayed as shown below. (In this example, the Secure+ feature has been enabled in the new license key.)

```

12.03.2008          Connect:Direct HP NonStop          06:43:54 PM
3.5.00             Automated Installation & Management System (AIMS)
=====
Current Option -> L      License Verification Panel      Quick Path -> 2

-----
Current License LICENSE  New License  LICENSEN
-----
LICENSE-ID              92391          93759

TCPIP                   YES            YES
SNA                     YES            YES
NETEX                   NO             NO
Secure+                 NO             YES
                       Valid License  Valid License

-----
Install New License          F16>=Quick Path
SF1=Help  SF2=Execute SF3=Prev Option SF4=Main Menu  SF5=Print  SF16=Exit

```

5. To install the new key, type **X** in the field next to **Install New License**, and press **SF2**. After you do this, Connect:Direct performs the following actions:
- Purges the file named LICENSEO, if it exists.
  - Renames the current license file LICENSE, to file LICENSEO.
  - Renames the new license, LICENSEN, to file LICENSE.
  - If the Connect:Direct server is running, the AIMS program attempts to open the server process and directs it to update the active license. If the server process is not running, the new license key will take effect after you start Connect:Direct.

---

**Note:** If the server process name is not named \$NDMS, you must have started the server process at least once from AIMS in screen 2.3 in order for AIMS to open the server process. The server process name is defined to AIMS in that screen.

---

The following panel is an example of an updated license:

```
12.03.2008          Connect:Direct HP NonStop          06:52:00 PM
3.5.00             Automated Installation & Management System (AIMS)
=====
Current Option -> L      License Verification Panel      Quick Path -> 2
-----
      Current License LICENSE  New License
-----
LICENSE-ID             93759
TCPIP                  YES
SNA                    YES
NETEX                  NO
Secure+                YES
                       Valid License

-----
                                     <F16>=Quick Path
SF1=Help  SF2=Execute SF3=Prev Option SF4=Main Menu  SF5=Print  SF16=Exit
```



---

# Starting and Stopping Connect:Direct HP NonStop

This chapter provides the information to perform the following tasks:

- ❖ Starting Connect:Direct HP NonStop
- ❖ Changing initialization parameters
- ❖ Stopping Connect:Direct HP NonStop

---

## Starting Connect:Direct HP NonStop

A fault-tolerant program named NDMMON creates and monitors the NDMSRVR Process. NDMMON provides for constant availability of the server. When an ABEND occurs on the NDMSRVR Process or the CPU executing the NDMSRVR Process fails, NDMMON creates a new NDMSRVR Process, retaining the original NDMSRVR Process name and parameters.

Connect:Direct HP NonStop supports high-PIN processing for NDMMON and NDMSRVR.

The NDMMON Process only terminates when the NDMSRVR Process is stopped with a Connect:Direct STOP ALL command or a HP NonStop STOP PROCESS command.

---

**Note:** Refer to the *Connect:Direct HP NonStop User Guide and Reference* for instructions on starting NDMCOM.

---

## Starting Connect:Direct HP NonStop Manually

Issue the following command to start NDMMON and NDMSRVR outside of AIMS:

```
RUN NDMMON /IN ndmunitfile , OUT spooler-file-name ,  
TERM hometerm , NAME ndmmon-process-name , CPU number (primary),  
nowait/ backup CPU number|? ndmsrvr-process-name|?  
ndmsrvr-object-file|?
```

Following is a description of the NDMMON parameters:

Command	Description
srvipin	Specifies whether the NDMSRVR Process runs as a high- or low-PIN Process. The default is high-PIN. (Optional)
RUN NDMMON	Specifies the program that brings up NDMSRVR under NDMMON.
IN ndminifile	Specifies the file that contains initialization parameters read by NDMSRVR.
OUT spooler-file-name	Specifies the file that receives output from NDMSRVR and any process creation messages.
TERM hometerm	Specifies the home terminal of the application. <b>Caution:</b> It is strongly recommended that you explicitly declare an operations console or other permanent device to avoid possible interruption of the application in the event of a failure of the home terminal. The TERM parameter defaults to the local TACL if it is not specified; if the local TACL was dynamically started for a temporary TCP session under a terminal emulator, it will be stopped when the session stops.
NAME ndmmon-process-name	Specifies the name of the NDMMON Process.
CPU number	Specifies the number of the NDMMON primary CPU. This number is the number of any CPU on your system (from 0–15). If you do not specify this parameter, specify the default as the backup CPU number. When specifying this parameter, you must specify CPU and the number; however, the backup CPU is specified only by the number.
nowait	Specifies the HP NonStop Run command option that causes NDMSRVR to run in background mode.
backup CPU number	Specifies the number of the NDMMON backup CPU. This number is the number of any CPU on your system (from 0–15) or the default. If you set the parameter value to '?', any other cpu is used. ** <server-process-name> = \$NDMS ** <server-object-file> = NDMSRVR
ndmsrvr-process-name	Specifies the symbolic Process name for the new NDMSRVR Process. This name must be a valid HP NonStop Process name. Connect:Direct uses the default NDMSRVR Process name \$NDMS. If you set the parameter value to '?', the \$NDMS server process name is used.
ndmsrvr-object-file	Specifies the name of the file containing the object program to run. This name must be an existing program file name. Connect:Direct uses the default NDMSRVR. Partial file names are expanded using the current defaults for the system, volume, and subvolume. If you set the parameter value to '?', the NDMSRVR is used.

## Starting Connect:Direct HP NonStop Automatically

Startup commands for the HP NonStop system are typically in \$SYSTEM.STARTUP.CIIN. After the HP NonStop system is cold-started, the file executes automatically. Include Connect:Direct startup commands in the file to eliminate any additional operator intervention.

**Note:** To increase automation, set the value for QUIESCE in the NDMINIT file to NO, which starts the session managers automatically.



---

## Modifying Initialization Parameters with the UPDATE PARM Command

Connect:Direct processes initialization parameters during startup. Initially, you set these parameters when you install Connect:Direct HP NonStop. However, after installation, you can modify some of the parameters.

Use the UPDATE PARM command to dynamically alter the operating parameters from the NDMINIT file without restarting Connect:Direct HP NonStop. When you restart the application, the operating parameters will be reset to their original values.

---

**Note:** To save the current operating parameters permanently to a file, issue the following NDMCOM command,

CD.5.>DISPLAY PARM OUT filename

For more information, see *Saving Changes to the Initialization Parameters File* in the *Connect:Direct HP NonStop User Guide and Reference*.

---

### Format

Following is the UPDATE PARM command format:

UPDate PARM	CKITVL CRC CRCOVERRIDE DOMAINSERVER FILENAMEEXT LOGCPUTIME LOG-TCP-CONN-RQ NETMAPCHECK OSSFILES PRTYDEF RUNTASKMSGID SENDNULLRECS SENDOPENFILE TCPBUFFSIZE
-------------	---

### Required Parameters

The UPDATE PARM command has no required parameters.

### Optional Parameters

Optional parameters for the UPDATE PARM command are as follows:

---

Parameter	Description
<u>CKITVL</u> =n	Specifies the default checkpointing interval or approximate number of bytes used for checkpointing. Valid values are nM (megabytes) and nK (kilobytes). The default is NONE. CKITVL=0K indicates that checkpointing is not used unless specified in the Connect:Direct Process. You must set the checkpoint interval (CKITVL) in increments of 56K for SNA LU0 connectivity. For details, refer to the Connect:Direct Processes web site at <a href="http://www.sterlingcommerce.com/documentation/processes/processhome.html">http://www.sterlingcommerce.com/documentation/processes/processhome.html</a> .

---

Parameter	Description
CRC= <u>ON</u>   OFF	Global setting for CRC checking for all PNODE Processes. ON—CRC checking is turned on. This is the default. OFF —CRC checking is not turned on.
CRCOVERRIDE= <u>YES</u>   NO	Determines if PROCESS statement or ADJ NODE setting can override the global CRC parameter. YES—Can override global CRC parameter. This is the default. NO—Cannot override global CRC parameter.
DOMAINSERVER= <u>YES</u>   <u>NO</u>	Determines if Connect:Direct can accept connection requests from domains specified in domain nodes. YES—Connect:Direct can accept connection requests from domains specified in domain nodes. NO—Connect:Direct cannot accept connection requests from domains specified in domain nodes. This is the default.
FILENAMEEXT= <u>YES</u>   <u>NO</u>	File name extensions can be concatenated with platform name to create typekeys in the TYPE file to set file attributes. YES—File name extensions can be concatenated to set file attributes. NO—File name extensions cannot be concatenated to set file attributes. This is the default.
LOGCPUIME= <u>YES</u>   <u>NO</u>	Determines whether Connect:Direct logs usage statistics in the session statistics file, including statistics for Secure+ activities such as handshake and encryption. YES—Usage statistics are logged in the statistics file. NO—Usage statistics are not logged in the statistics file. This is the default.
LOG-TCP-CONN-RQ= <u>YES</u>   NO	Indicates whether TCP connection requests are to be logged. Valid values are Y/N. When YES, the application logs inbound TCP connection requests and outgoing attempts to the STAT file in the following format:  Date => 07.08.2008 Time => 10:35:23:88 MESSAGE - MSG Conn rcvd \NONSTOP.\$SAM2 port 17132 from fd:00::20a0:209:6bff:fe65:9a73 port 484  YES— enables logging of all inbound TCP connection requests and outgoing attempts.
NETMAPCHECK= <u>YES</u>   <u>NO</u>	YES—Only accepts connections from nodes defined in the Netmap. NO—Accepts connections from any Connect:Direct node. This is the default.
OSSFILES= <u>YES</u>   <u>NO</u>	YES—Include support for OSS files. NO—No support for OSS files included. This is the default.
PRTYDEF=n	Specifies the default priority for Processes submitted to Connect:Direct HP NonStop. If you do not specify a priority on the PROCESS statement, Connect:Direct uses the default priority when placing the Process on the TCQ. Valid values are 0–15. Default value is <b>10</b> .
RUNTASKMSGID=SRTT000I   <u>SRTT010I</u>	Defines the run task completion message. <b>SRTT010I</b> is the default.
SENDNULLRECS= <u>YES</u>   <u>NO</u>	This option controls the default action of a SEND operation when the session manager reads an ESDS file and encounters a zero-length record. If NO, the default action is to bypass the record. If YES, the zero-length record is sent.

Parameter	Description
SENDOPENFILE=YES   NO   <u>WARN</u>	<p>Determines how HP NonStop Connect:Direct responds if it opens a file for transmission, but the file is open for update by an external application (for example, the file is still being created).</p> <p>You can override this parameter by using the SYSOPTS parameter, SET OPENFILEXMT=YES, in the FROM clause of your COPY statement.</p> <p>YES - Executes the COPY step and reports SCPA000I following a successful termination.</p> <p>NO - Terminates the COPY step immediately with SFLH951I, RC=8, FDBK=0.</p> <p><u>WARN</u> - Executes the COPY step, but reports SFLH950I, RC=4, FDBK=0   12. (12 means the file was still open when Connect:Direct reached the file EOF.)</p>
TCPBUFSIZE=n  <u>30720</u>	<p>Specifies the size of the data buffer passed between two nodes during a TCP session. This value is set to 8740 by default since this value gives the best throughput under most conditions. Before making changes to this value, ensure that you have run benchmarks to verify that throughput is improved. Valid values are 1024—31978. The value is set to 30720 by default.</p>

## Examples

The following command updates the TCPBUFSIZE:

```
CD.4.>upd parm tcpbuffsize 16000
SAPI210I: (RC=0, FDBK="0")
UPDate command successfully completed.
```

## Editing the Initialization Parameters file

You can also change system settings by editing the initialization parameters file. Any changes made in the initialization parameters file take effect only after you stop and then start NDMSRVR. Ensure that any file names you specify correspond to the files created during installation. Fully qualify the file names if the files are on a different volume than the NDMINIT file.

---

**Note:** NDMINSTL.NDMINIT is the default file name of the initialization parameters file unless you change the name during installation.

---

The following table describes initialization parameters and the values set when you start Connect:Direct:

Initialization Parameter	Default Value	Description
ALLOC-RETRY-INT	00:05:00 (five minutes)	Specifies the interval that a Process waits in the TIMER queue after encountering an allocation error.
ALLOC-RETRY-LOC	None	Defines a list of the HP NonStop file system errors that are retried, after an allocation failure occurs on a local HP NonStop file. If this entry is not included in the NDMINIT file, allocation failures originating on the local node will not be retried. Valid values are <i>nn ... nn</i> , where <i>nn</i> is a HP NonStop file system error.

Initialization Parameter	Default Value	Description
ALLOC-RETRY-MAX	3	Specifies the maximum number of times to retry a step after an allocation failure occurs. Valid values are 0–99, where 0 indicates that the Process is retried indefinitely.
APIMGR	None	Specifies the location of the API Manager executable.
APINAME	\$AM	<p>Defines a constant prefix, for example, the default \$AM prefix, used to create API Manager process names. The name is created by taking the prefix and appending a numerical suffix 0,1,2,...,nnn as API Managers are created (\$AM0, \$AM1 ... \$AMnnn). Process names are reused as API Manager processes are started and stopped.</p> <p>In accordance with Guardian naming requirements, the first character after \$ must be an alphabetic character. The prefix may be as short as two characters (\$x) but no longer than four characters (\$xxx). If these restrictions are violated the server defaults to \$AM as a prefix.</p> <p>If APIOUT is designated as a spooler file (\$S.#NDM), then the trace file job name is created as \$S.#NDM.NDMxnT, where 'x' is the last character in APINAME, 'n' is the numeric suffix appended as part of the API Manager process name, and 'T' indicates a trace file.</p> <p>If APIOUT is designated as \$volume.subvolume, then the trace file name for API Manager process \$xxxnn is \$volume.subvolume.NDMxnT.</p>
APIOUT	None	Specifies the output file for the API Manager.
APITRACE	OFF (if not specified)	Turns on API Manager trace bits. Only used for debugging.
AUTHFILE	NDMFILES.AUTHFILE	Points to the AUTHFILE containing user authorization information.
CKITVL	None	Specifies the default checkpointing interval or approximate number of bytes used for checkpointing. Valid values are nM (megabytes) and nK (kilobytes). CKITVL=0K indicates that checkpointing is not used unless specified in the Connect:Direct Process. You must set the checkpoint interval (CKITVL) in increments of 56K for SNA LU0 connectivity. For details, the Connect:Direct Processes web site at <a href="http://www.sterlingcommerce.com/documentation/processes/processhome.htm">http://www.sterlingcommerce.com/documentation/processes/processhome.htm</a> .
CKPTFILE	NDMFILES.CKPTFILE	Points to the CKPTFILE containing the key to checkpoint-restart records.
CMPRLEVEL	1	Specifies the default compression level used on a particular node. Valid values are 1–9, with 9 being the highest compression level.
COLLECTOR	\$0	Specifies the collector used for event-message generation. The collector can be either the primary (\$0) or an alternate collector for the system .
CRC	ON	Global setting for CRC checking for all PNODE Processes. ON—CRC checking is turned on. OFF —CRC checking is not turned on.
CRC OVERRIDE	YES	Determines if PROCESS statement or ADJ NODE setting can override the global CRC parameter. YES—Can override global CRC parameter. NO—Cannot override global CRC parameter.

Initialization Parameter	Default Value	Description
DOMAIN SERVER	NO	Determines if Connect:Direct can accept connection requests from domains specified in domain nodes. YES—Connect:Direct can accept connection requests from domains specified in domain nodes. NO—Connect:Direct cannot accept connection requests from domains specified in domain nodes.
EMS	OFF	Controls whether Connect:Direct logs events to Event Management Service (EMS). ON—Connect:Direct does log events to EMS. OFF—Connect:Direct does not log events to EMS.
FILENAME EXT	NO	File name extensions can be concatenated with platform name to create typekeys in the TYPE file to set file attributes. YES—File name extensions can be concatenated to set file attributes. NO—File name extensions cannot be concatenated to set file attributes.
INFOFILE	NDMFILES.INFOFILE	Points to the INFOFILE, used internally by the server and session manager processes.
LOGCPU TIME	NO	Enables/disables logging of CPU utilization in the Connect:Direct HP NonStop. The utilization is recorded as an informational message in the statistics file at "step end" and "process end".
LOG-TCP-CONN-RQ	None	Indicates whether TCP connection requests are to be logged. Valid values are Y/N. When YES, the application logs inbound TCP connection requests and outgoing attempts to the STAT file in the following format:  Date => 01.11.2008 Time => 14:31:46.07 MESSAGE - MSG TCP Conn Req rcvd by \K2.\$ZTC0 port 6131 from 199.1.4.8 port 2240  YES— enables logging of all inbound TCP connection requests and outgoing attempts.
MEMLEVEL	4	Specifies the memory level used in compression. Valid values are 1–9, with 9 being the highest amount of memory allocated.
MSGFILE	NDMFILES.MSGFILE	Points to the file containing error and help messages.
NDMCDL	NDMFILES.NDMCDL	Points to the Command Definition Language (CDL) object module and report definitions.
NDMKEY	None	File containing the Product License supplied by Sterling Commerce.
NDMNTXK	NDMOBJ.NDMNTXK	Fully qualified object file name used for NETEX error recovery.
NDMNTXO	NDMOBJ.NDMNTXO	Fully qualified object name of the NETEX program Process. Connect:Direct starts the NDMNTXO Process only if you specify this parameter.
NDMSMGR	NDMOBJ.NDMSMGR	Points to the session manager object module.
NDMSTDL	NDMOBJ.NDMSTDL	Points to the object file that automatically deletes statistics records based on deletion criteria and a percentage setting.
NETFILE	NDMFILES.NETFILE	Points to the NETFILE containing network map information.

Initialization Parameter	Default Value	Description
NETMAPCHECK	NO	YES—Only accepts connections from nodes defined in the Netmap. NO—Accepts connections from any Connect:Direct node.
NTXAPPLID	None	Specifies the NETEX application name used by the adjacent node for communicating with the local node.
NTXBLKSIZE	0	Specifies maximum transmission buffer size for NETEX sessions. If you specify 0, Connect:Direct uses the NETEX configuration default. Valid values are 0–24576 (24K).
NTXOFFERS	2	Specifies maximum number of simultaneous connection requests (not actual sessions). Valid values 1–9. Any specified value greater than 9 defaults to 9.
NTXOUT	\$\$.#NTXOUT	Specifies the output file name for diagnostics output and error messages generated by the NDMNTXO Process. To display output on your terminal, specify your terminal as the output destination.
NTXTRACE	OFF (if not specified)	Turns on trace bits for tracing activity between the session manager and the NETEX interface.
NTXWINDOW	100	Specifies maximum number of RUs sent by a copy routine before Connect:Direct checks the status of the send. If an error is detected, the copy fails. Any value for NTXWINDOW less than or equal to 0 defaults to <b>100</b> . Valid values are 0—32767.
OSS FILES	NO	YES—Include support for OSS files. NO—No support for OSS files included.
PORTNUM	1364	Identifies the communications port that Connect:Direct listens on for connection requests. The format is a number.
PRINTER	\$\$.#NDM	Points to the valid HP NonStop spooler name used for output from print-enabled commands.
PRTYDEF	10	Specifies the default priority for Processes submitted to Connect:Direct HP NonStop. If you do not specify a priority on the PROCESS statement, Connect:Direct uses the default priority when placing the Process on the TCQ. Valid values are 0–15.
QUIESCE	NO	Runs the session manager when Connect:Direct is started. If you specify YES, Connect:Direct does not start session managers when it is initiated.
RUNTASKMSGID	SRT010I	Defines the run task completion message. Valid values are SRTT000I and SRTT010I
SECFILE	NDMFILES.SECFILE	Points to the SECFILE containing security records added with the INSERT SECURITY command.
SECURE+	None	The \$vol.subol where Connect:Direct SECURE+ Option configuration files are stored.
SENDNULLRECS	NO	This option controls the default action of a SEND operation when the session manager reads an ESDS file and encounters a zero-length record. If NO, the default action is to bypass the record. If YES, the zero-length record is sent.

Initialization Parameter	Default Value	Description
SENDOPENFILE	WARN	<p>Determines how HP NonStop Connect:Direct responds if it opens a file for transmission, but the file is open for update by an external application (for example, the file is still being created). You can override this parameter by using the SYSOPTS parameter, SET OPENFILEXMT=YES, in the FROM clause of your COPY statement.</p> <p>YES - Executes the COPY step and reports SCPA000I following a successful termination.</p> <p>NO - Terminates the COPY step immediately with SFLH951I, RC=8, FDBK=0.</p> <p>WARN - Executes the COPY step, but reports SFLH950I, RC=4, FDBK=0   12 (12 means the file was still open when Connect:Direct reached the file EOF).</p>
SMNAME	\$SM	<p>Defines a constant prefix, for example, the default \$SM prefix, used to create session manager process names. The name is created by taking the value defined in the SMNAME initialization parameter (for instance, \$SM) and appending a numeric value to it: 0, 1, 2, ..., nnn up to the limit imposed by the maximum number of characters in a file name. The numeric suffix is generated as a hexadecimal string. If the server runs out of available names, it uses system-generated names.</p> <p>The following prefixes are reserved for use by the operating system:</p> <ul style="list-style-type: none"> <li>• \$DM</li> <li>• \$SIM</li> <li>• \$X</li> <li>• \$Y</li> <li>• \$Z</li> </ul> <p>In accordance with Guardian naming requirements, the first character after \$ must be an alphabetic character. The prefix may be as short as two characters (\$A) but no longer than four characters (\$xxx). If these restrictions are violated, the server defaults to \$SM as a prefix.</p> <p>If SMOUT (another initialization parameter on the next Set Initialization Parameters screen described below) is designated as a spooler file (\$S.#NDM), the trace file job name is created as \$S.#NDM.NDMxnT, where 'x' is the last character in SMNAME, 'n' is the numeric suffix appended as part of the session manager process name, and 'T' indicates a trace file.</p> <p>If SMOUT is designated as \$volume.subvolume, then the trace file name for session manager process \$xxxnn is \$volume.subvolume.NDMxnT.</p>
SMOUT	\$S.#NDM	<p>Specifies the location where Connect:Direct creates or sends the session manager output files to the spooler, such as \$DATA.NDM and \$S.#NDM.</p> <p><b>Note:</b> Note: You cannot include destination suffix in this parameter.</p>
SMTRACE	OFF (if not specified)	Turns on session manager trace bits.
SRVRTRACE	OFF (if not specified)	Turns on server trace bits.
STATCRITERIA	8D (8 days)	Specifies the deletion criteria for records maintained in the statistics file. NDMSTDL automatically deletes statistics older than the specified criteria. Valid values are nD   nH   nM, where nD equals 1–31 days, nH equals 1–23 hours, and nM equals 1–59 minutes.

Initialization Parameter	Default Value	Description
STATFILE	NDMFILES.STATFILE	Points to the STATFILE containing statistics created by Connect:Direct.
STATMIDNITE	ON	Specifies whether the server runs NDMSTDL each night at midnight.
STATPERCENT	85%	Defines the maximum allowable percentage the statistics files are utilized before NDMSTDL runs.
STATS	ON	Controls whether Connect:Direct logs events to the Connect:Direct statistics file. Valid settings are OFF and ON. If EMS parameter is set to OFF, then the STATS parameter is set to ON automatically.
STATSRCH	NDMFILES.STATSRCH	Contains the keys for searching the STATFILE.
STUTIL	NDMOBJ.STUTIL	Points to the object file that determines the utilization of the statistics file.
TCPLISTENnn	None	Used to define additional TCP processes and port numbers (1-36) on which the application post listens for inbound TCP connection requests. If specifying listens on more than one Parallel TCP/IP (PTCPIP) that share a common pool of ports, each listen must specify a different port number, even if the process names are not different.  TCPLISTENnn \system.\$xxxxx pppp Where: nn = 1, 2, 3, ... , 36 (no 0 padding) \system.\$xxxxx = TCP Process name (system qualifier is optional) pppp = LISTEN port number, 1024-9999 inclusive <b>Note:</b> If the Parallel TCP/IP facility is to be used, please review the configuration requirements for PTCPIP in <i>Configuring Connect:Direct HP NonStop to Use the HP NonStop Parallel TCP Utility</i> on page 26.
TCPNAME	\$ZTC0	Identifies the name of the TCP/IP Process running on HP NonStop. The name must be a valid HP NonStop Process name and cannot be system qualified.
TCPBUFFSIZE	30720	Specifies the size of the data buffer passed between two nodes during a TCP session. This value is set to 30720 by default since this value gives the best throughput under most conditions.
TCQ	WARM	Specifies how the TCQ is initialized. If you specify WARM, Connect:Direct uses the TCQ as it exists. If you specify COLD, Connect:Direct reinitializes the TCQ. Any Processes left on the TCQ are lost; new Process numbers begin with 1.
TCQFILE	NDMFILES.TCQFILE	Stores Processes. This file and TCQXFILE combine to create the TCQ.
TCQXFILE	NDMFILES.TCQXFILE	Contains header information for the TCQFILE parameter. This file and TCQFILE combine to create the TCQ.
TYPEFILE	NDMFILES.TYPEFILE	Points to the TYPEFILE containing type file definitions.
WINDOWSIZE	15	Specifies the size of the floating window used for compression and decompression. Valid values are 9–15, with 15 being the largest window size.



Initialization Parameter	Default Value	Description
WTRETRIES	00:03:00 (3 minutes)	Indicates the interval to wait before attempting to restart a Process. Set the value in the hh:mm:ss format.
XLFILE	NDMFILES.XLFILE	Points to the key-sequenced file containing translation tables.

## Overriding Initialization Parameters with TACL PARAM Commands

To override initialization parameters without changing the NDMINIT file, you can set TACL PARAMs prior to starting Connect:Direct.

For example, if you specified STATFILE \$VOL.NDMFILES.STATFILE in the initialization parameters file and later type PARAM STATFILE \$VOL.TEMPFILE.STATFILE from your terminal, Connect:Direct opens the statistics file on \$VOL.TEMPFILE when it opens the statistics file.

You can only use TACL PARAM commands if you start Connect:Direct HP NonStop from the terminal where you type the PARAM command. You cannot log off that terminal or issue a CLEAR PARAM STATFILE or CLEAR ALL PARAM before startup. The CLEAR command or logging off erases previous PARAM commands.

To revert to the original parameter, specify STOP ALL I from NDMCOM and restart without the PARAM settings.

---

**Note:** Type PARAM from TACL to display the parameters that are currently set on that terminal.

---

## Exceptions to TACL PARAM Commands

The following initialization parameters cannot be overridden by a TACL PARAM command and are specified only in the NDMINIT file:

- ❖ NTXWINDOW
- ❖ NTXBLKSIZE
- ❖ NTXAPPLID
- ❖ NTXOFFERS
- ❖ CKPTFILE
- ❖ SECFILE
- ❖ XLFILE
- ❖ TYPEFILE
- ❖ INFOFILE

---

## Stopping Connect:Direct HP NonStop

Use the STOP ALL command to stop Connect:Direct. Connect:Direct issues a message informing you of the pending shutdown except when you specify a forced shutdown.

Following is the STOP ALL command format:

```
STOP ALL          Force
                  Immediate
                  Quiesce
                  Step
```

## Required Parameters

The STOP ALL command has no required parameters.

## Optional Parameters

The optional parameters for the STOP ALL command are:

Optional Parameter	Description
Force	Stops Connect:Direct HP NonStop immediately. The system produces a SAVEABEND file for each active NDMSMGR process and puts executing Processes in the Wait queue.
Immediate	Specifies to terminate all active transmissions immediately. Connect:Direct HP NonStop writes the statistics record, closes the files, and shuts down.
Quiesce	Specifies that all active transmissions run until the Process is complete. No new transmissions are started, and no additional Processes are accepted. Quiesce is the default. All interactive sessions are terminated except the issuer of the STOP ALL command. All Processes currently running must complete, and then the issuer of the command must sign off before the operation stops.
Step	Specifies that all active transmissions run until the Process step completes. When all transmissions stop, Connect:Direct writes the statistics records, closes the files, and shuts down. Processes resume execution when Connect:Direct is reinitialized.

## Samples

The following command stops Connect:Direct HP NonStop, produces a SAVEABEND file for each session manager, and places an executing Process in the Wait queue:

```
STOP ALL FORCE
```

---

## Defining HP NonStop as the SNA Primary Environment

This appendix contains sample definitions for receiving connections for leased and switched lines and HP NonStop Environment Definitions Worksheets. Additional connectivity considerations are also addressed.

Supported receiving connections are as follows:

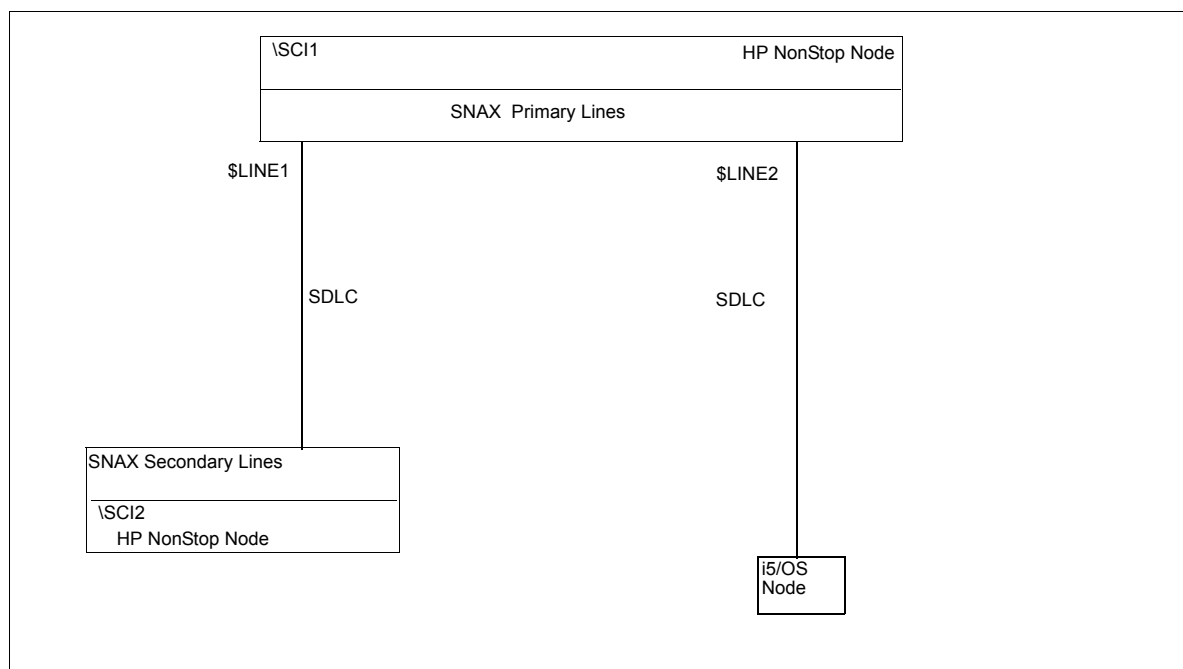
- ❖ HP NonStop to i5/OS (using LU0)
- ❖ HP NonStop to HP NonStop (using LU0)

To coordinate compatible definitions between the operating system environments, use the information in this chapter in conjunction with the appropriate worksheets discussed in Chapter 3, *Installing and Configuring Connect:Direct HP NonStop*.

---

### Receiving Connectivity for Leased Lines

The following figure shows a sample configuration for connectivity through synchronous data link controller (SDLC) leased lines between two HP NonStop nodes and between a HP NonStop node and an i5/OS node:



The SYSGEN and Subsystem Communication Facility (SCF) definitions for receiving connectivity over SDLC leased lines follow. They define the HP NonStop node connected to:

- ❖ A HP NonStop node through an SDLC leased line (\$LINE1)
- ❖ An i5/OS operating system through an SDLC leased line (\$LINE2)

## Define HP NonStop Line Attributes

Communication lines on HP NonStop are defined in the peripheral paragraph located in the HP NonStop configuration (CONFTEXT) file. The CONFTEXT file contains system-specific information used by the HP NonStop INSTALL program to create an operating system image.

The following figure shows sample SNAX peripheral definitions for a bit-synchronous controller, followed by an explanation of the parameters. Modify the definitions as appropriate; however, the fields in **BOLD** are required and must not be modified.

The SNA^SCCP (\$SSCP) Process is a required Process for all types of SNAX lines. SNASVM, TYPE, and SUBTYPE have required values included in the following figure. RSIZE can be modified as required for your environment. Refer to the HP NonStop documentation if you require additional information.

```

SNA^SCCP          =SNASVM,
                  TYPE13,
                  SUBTYPE5,
                  RSIZE256 #;
SNA^PRIMARY^LEASED=SNATS,
                  TYPE58,
                  SUBTYPE0,
                  RSIZE4096,
                  SMLDEV$SSCP,
                  FRAME SIZE268,
                  FULL,
                  PRIMARY,
                  L2WINDOW7,
                  MAXPUS8,
                  MAXLUS32,
                  SPEED192,
                  INTERRUPTSNA^6203^INTERRUPT #;

CONTROLLERS:
SYNC1             3604          01,00          %020;
PERIPHERALS:
  $SSCP           DUMMY.0,     DUMMY.1   SNA^SCCP
  $LINE1          SYNC1.0,     SYNC1.1   SNA^PRIMARY^LEASED; ! HPNONSTOP
  $LINE2          SYNC1.2,     SYNC1.3   SNA^PRIMARY^LEASED; ! 3174
  $LINE3          SYNC1.4,     SYNC1.5   SNA^PRIMARY^LEASED; ! VAX
  $LINE4          SYNC1.4,     SYNC1.5   SNA^PRIMARY^LEASED; ! AS/400

```

Below is a description of the fields in the SNA^SCCP (\$SSCP) Process:

Attribute	Description
SNATS TYPE 58	Specifies the device type for the SNAX line handler Process. The number 58 defines a SNAX line and is, therefore, a fixed value.
SUBTYPE	Specifies the device subtype for the SNAX line handler Process. The value is dependent on your controller. See the table on page 32 for required line attributes for each controller type.
RSIZE	Specifies the RU size supported by HP NonStop. The value is dependent on your controller. See the table on page 32 for required line attributes for each controller type.

Attribute	Description
SMLDEV \$SSCP	Specifies the name of the SNAX service manager Process that communicates with the line handler Process. The HP NonStop SSCP definition is required in the HP NonStop configuration file for the SNAX definitions to function properly.
FRAMESIZE	Specifies the SDLC frame size.
FULL	Specifies that the line uses full-duplex mode. Either HALF or FULL is acceptable.
PRIMARY	Specifies that the line contains PUs that act as primary SDLC stations while in session with other SDLC stations. PRIMARY is a required attribute.
L2WINDOW	Specifies the maximum number of information frames (I-frames) for the SDLC that are sent to or received from a remote station before a successful transmission occurs. The number is variable.
MAXPUS	Specifies the maximum number of PUs that are defined on a line. Valid values are 1–254.
MAXLUS	Specifies the maximum number of LUs that are assigned to a PU. Valid values are 1–255.
SPEED	Specifies the line speed in bits per second (BPS) divided by 100. Valid values are 1–32767.
INTERRUPT	Specifies the required name of the interrupt handler for the controller. See the table on page 32 for required line attributes for each controller type.

## Define HP NonStop PUs and LUs

PUs and LUs on the HP NonStop node are dynamically assigned through SCF. The maximum number of PUs and LUs assigned is specified when communications lines are configured.

Sample SCF definitions for PUs and LUs used in Connect:Direct HP NonStop communications follow. You can specify additional attributes as required by your environment.

```

First line (to HP NonStop).....
assume      line  $LINE1
add         line  $LINE1, charsetset ascii
add         pu    #P1,  type(13,2), reysize 265, maxlus 32,    &
                                address 1, window 7
add         lu    #102, type(14,2), puname #P1, protocol SNALU, &
                                reysize 265, address 2
add         lu    #103, type(14,2), puname #P1, protocol SNALU, &
                                reysize 265, address 3
add         lu    #104, type(14,2), puname #P1, protocol SNALU, &
                                reysize 265, address 4

assume      line  $LINE1
start,     sub all
Third line (to iSeries).....
assume      line  $LINE3
add         line  $LINE3, charsetset ascii
add         pu    #P1,  type(13,2), reysize 265, maxlus 32,    &
                                address 1, window 7
add         lu    #102, type(14,2), puname #P1, protocol SNALU, &
                                reysize 265, address 2
add         lu    #103, type(14,2), puname #P1, protocol SNALU, &
                                reysize 265, address 3
add         lu    #104, type(14,2), puname #P1, protocol SNALU, &
                                reysize 265, address 4

assume      line  $LINE3
start,     sub all

```

## Description of Line Attribute

Following is a description of the line attribute:

Attribute	Description
CHARACTERSET ASCII	Specifies that no translation is to take place on this line.

## Description of PU Attributes

Following is a description of the PU attributes:

Attribute	Description
PU	Specifies the name of the PU to add to the network. The 1-8 character PU name must begin with #.
TYPE (13,2)	Specifies the device and sub device types for the PU. Both values are required.
RECSIZE	Specifies the Path Information Units (PIU) size.
MAXLUS	Specifies the maximum number of LUs associated with this PU.
ADDRESS	Specifies the SDLC address for this PU. Express the value in hexadecimal (%hxx) or decimal format.
WINDOW	Specifies the maximum number of SDLC I-frames that are sent before confirming that the I-frames have been received with no errors. The value for WINDOW must correspond to the L2WINDOW value specified in the HP NonStop line definition.

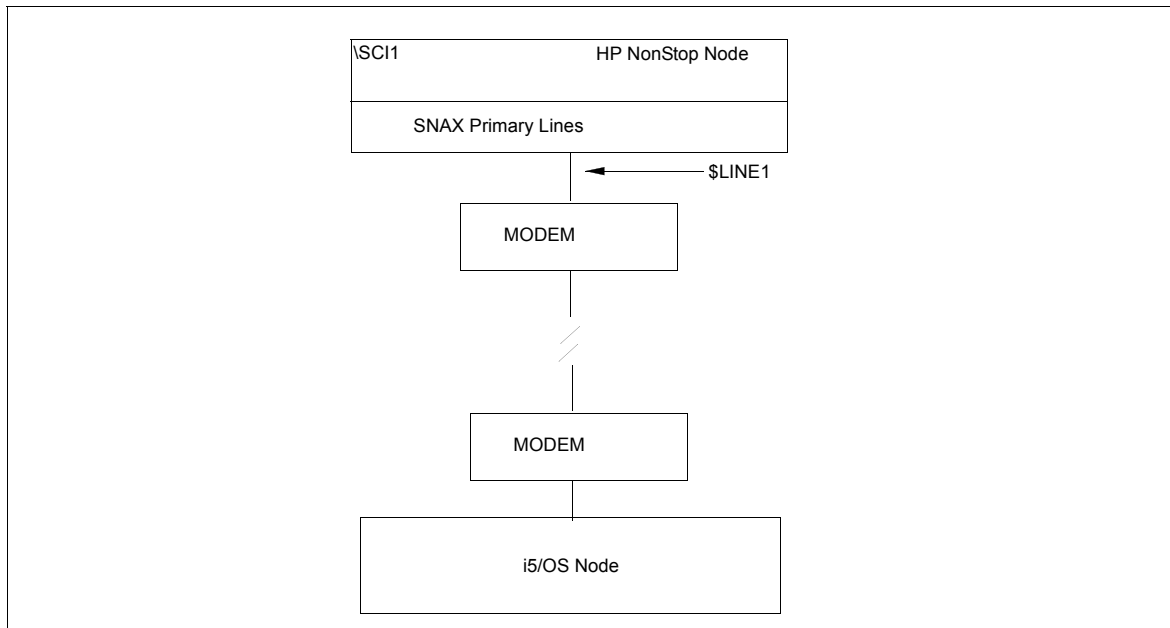
## Description of LU Attributes

Following is a description of the LU attributes:

Attribute	Description
LU	Specifies the name of the LU added to the network. The LU name must be fully qualified, unless you have assumed a line. Refer to the HP NonStop CMI or SCF documentation if you require additional information.
TYPE (14,2)	Specifies the type. Both values are required.
PUNAME	Specifies the name of the PU associated with the LU.
PROTOCOL SNALU	Specifies that the SNA logical unit (SNALU) is the session protocol.
RECSIZE	Specifies the block size between SNAX and the controller.
ADDRESS	Specifies a value that identifies the LU in the environment. Express the value in decimal format.

## Receiving Connectivity for Switched Lines (SDLC)

Following is a sample configuration for an SDLC switched line between a HP NonStop node and an i5/OS node:



The SYSGEN and SCF definitions for receiving connectivity over SDLC switched lines follow. They define the HP NonStop node connected with a switched line connection to an i5/OS node with a synchronous communications board ready to dial in to the HP NonStop node.

### Define HP NonStop Line Attributes

Communication lines on HP NonStop are defined in the peripheral paragraph located in the HP NonStop configuration (CONFTEXT) file. The CONFTEXT file contains system-specific information used by the HP NonStop INSTALL program to create an operating system image.

In all cases, physical SNA connections must be established manually due to SNAX limitations.

The following figure shows sample SNAX peripheral definitions for a bit-synchronous controller, followed by an explanation of the parameters. Modify definitions as appropriate; however, fields in **BOLD** are required and must not be modified.

The SNA^SSCP (\$SSCP) Process is a required Process for all types of SNAX lines. SNASVM, TYPE, and SUBTYPE have required values included in the following figure. Modify RSIZE as required for your environment. Refer to the HP NonStop documentation if you require additional information.

```

SNA^SSCP          =  SNASVM TYPE    13,
                   SUBTYPE        5,
                   RSIZE            256 #;
SNA^PRIMARY^SWITCHED=SNATS TYPE    58,
                   SUBTYPE          0,
                   RSIZE            4096,
                   SMLDEV          $SSCP,
                   FRAMESIZE        524,
                   HALF,
                   SWITCHED,
                   PRIMARY,
                   AUTOACCEPT     ON,
                   SPEED          48,
                   L2WINDOW         7,
                   MAXPUS           8,
                   MAXLUS           32,
                   MDMLOSSFATAL  ON,
                   INTERRUPT        SNA^6203^INTERRUPT #;

CONTROLLERS:
  SYNC1  3604  01,00  %020;
PERIPHERALS:
  $SSCP  DUMMY.0,  DUMMY.1  SNA^SSCP;
  $line1 SYNC1.0,  SYNC1.1  SNA^PRIMARY^SWITCHED; ! LINE TO PC

```

Following is an explanation of the parameters in the SNAX peripheral definitions:

Attribute	Description
SNATS TYPE 58	Specifies the device type for the SNAX line handler Process. The number 58 defines a SNAX line and is, therefore, a fixed value.
SUBTYPE	Specifies the device subtype for the SNAX line handler Process. The value is dependent on your controller. See the table on page 32 for required line attributes for each controller type.
RSIZE	Specifies the RU size supported by HP NonStop. The value is dependent on your controller. See the table on page 32 for required line attributes for each controller type.
SMLDEV \$SSCP	Specifies the name of the SNAX service manager Process that communicates with the line handler Process. The HP NonStop SSCP definition is required in the HP NonStop configuration file for the SNAX definitions to function properly.
FRAMESIZE	Specifies the SDLC frame size.
HALF	Specifies that the line uses half-duplex mode. HALF is a required attribute.
SWITCHED	Enables modem control. SWITCHED is a required attribute.
PRIMARY	Specifies that the line contains PUs that act as primary SDLC stations while in session with other SDLC stations. PRIMARY is a required attribute.
AUTOACCEPT ON	Specifies whether a switched line receives incoming calls when the line is started. AUTOACCEPT ON is a required attribute.



Attribute	Description
SPEED	Specifies the transmission rate of the line divided by 100. SPEED is a required attribute and determined by modem speed.
L2WINDOW	Specifies the maximum number of information frames (I-frames) for the SDLC that are sent to or received from a remote station before a successful transmission occurs. This number is variable.
MAXPUS	Specifies the maximum number of PUs that are defined on a line. Valid values are 1–1254.
MAXLUS	Specifies the maximum number of LUs that are assigned to a PU. Valid values are 1–255.
MDMLOSSFATAL	Specifies that a loss of modem carrier detect is treated the same as a loss of data set ready, which greatly reduces the time needed to reset the connection when a session is discontinued.
INTERRUPT	Specifies the required name of the interrupt handler for the controller. See the table on page 32 for required line attributes for each controller type.

## Define HP NonStop PUs and LUs

PUs and LUs on the HP NonStop node are dynamically assigned through SCF. The maximum number of PUs and LUs assigned is specified when communications lines are configured.

Sample SCF definitions for PUs and LUs used in Connect:Direct HP NonStop communications follow. You can specify additional attributes as required by your environment.

```

assume    line    $LINE1
add       line    $LINE1, character set ascii
alter    line    $LINE1, maxpus 1
add      pu      #P1, type(13,2), recsize 521, maxlus 32, &
          address 1, window 7, puidblk %h017, &
          puidnum %h0EE14
add      lu      #102, type(14,2), puname #P1, protocol &
          SNALU, recsize 521, address 2
add      lu      #103, type(14,2), puname #P1, protocol &
          SNALU, recsize 521, address 3
add      lu      #104, type(14,2), puname #P1, protocol &
          SNALU, recsize 521, address 4
assume    line    $LINE1
start,   sub all

```

## Description of the Line Attribute

Following is a description of the line attribute in the SCF definition:

Attribute	Description
CHARACTERSET ASCII	Specifies that no translation is to take place on this line.

## Description of PU Attributes

Following is a description of the PU attributes in the SCF definition:

Attribute	Description
PU	Specifies the name of the PU added to the network. The 1-8 character PU name must begin with #.
TYPE (13,2)	Specifies the device and sub device types for the PU. Both values are required.
RECSIZE	Specifies the Path Information Units (PIU) size.
MAXLUS	Specifies the maximum number of LUs associated with this PU.
ADDRESS 1	Specifies the SDLC address for this PU. Express the value in hexadecimal (%hxx) or decimal format.
WINDOW	Specifies the maximum number of SDLC I-frames that are sent before confirming that the I-frames have been received with no errors. The value for WINDOW must correspond to the L2WINDOW value specified in the HP NonStop line definition.
PUIDBLK	Specifies the block number for the PU. The acceptable range is %h000 to %hFFE.
PUIDNUM	Specifies a binary value that when used with PUIDBLK defines a PU in the network. The acceptable range is %h00000 to %hFFFFE.

## Description of LU Attributes

Following is a description of the PU attributes in the SCF definition::

Attribute	Description
LU	Specifies the name of the LU added to the network. The LU name must be fully qualified, unless you have assumed a line. Refer to the HP NonStop CMI or SCF documentation if you require additional information.
TYPE (14,2)	Specifies the type. Both values are required.
PUNAME	Specifies the PU associated with this LU.
PROTOCOL SNALU	Specifies that the SNA logical unit (SNALU) is the session protocol.
RECSIZE	Specifies the block size between SNAX and the controller.
ADDRESS 2	Specifies a value that identifies the LU in the environment. Express the value in decimal format.

---

## HP NonStop to i5/OS Connectivity Considerations

Because Connect:Direct i5/OS is SNODE only for SNA LU0, you must define at least one LU for 3270 emulation to submit any Processes from an attached Connect:Direct for i5/OS node. This requires logging on to a HP NonStop node to submit the Process. You do not need the 3270 emulation LU if you are only submitting Processes from the HP NonStop node. A sample 3270 emulation LU definition follows:

```
add lu #105, type(14,2), puname #P1, protocol ITI, &
           resize 80, address 2, devtype 3278-2, &
           character set ebcdic
```

The attribute PROTOCOL ITI specifies to use the LU for 3270 emulation.

For connectivity between HP NonStop and i5/OS, the network map parameter, NDM400.LIBRARY, is required.

---

## HP NonStop Environment Definitions Worksheets

Use the following worksheets to gather the information necessary to define the receiving environment.

## HP NonStop Environment Definitions (for Connectivity Between HP NonStop and i5/OS Nodes Using LU0)

The HP NonStop administrator completes this worksheet and passes it to the i5/OS administrator, who uses the values to set corresponding attributes as appropriate.

### SYSGEN Line Definitions

**LINE macro**

**DUPLEX** \_\_\_\_\_ HALF \_\_\_\_\_ FULL (circle one)

(Corresponds to the DUPLEX parameter in the i5/OS line description.)

### SCF Entries Definitions

**PU Definition**

**ADDRESS** \_\_\_\_\_ Hex \_\_\_\_\_ Decimal \_\_\_\_\_

(Expressed in hexadecimal or decimal format. Corresponds to STNADR on the controller definition.)

**LU Definitions**

List all LUs defined for CONNECT:Direct for i5/OS

LU name	Address	LU name	Address

(ADDRESS corresponds to LOCADDR in the SNUF device description on the i5/OS node.)

### Connect:Direct HP NonStop Network Map Definitions

**LOCAL.NODE** \_\_\_\_\_

**ADJACENT.NODE** \_\_\_\_\_

**NDM400.LIBRARY** \_\_\_\_\_

(Corresponds to the library name for Connect:Direct on the i5/OS node.)

## HP NonStop Environment Definitions (for Connectivity Between HP NonStop Nodes Using LU0)

This worksheet is used by administrators of both HP NonStop nodes to ensure connectivity. Values on both HP NonStop nodes need to correspond.

---

See page 33 for a description of the HP NonStop parameters used when defining lines, PUs, and LUs.

---



---

### SYSGEN Line Definitions

---

**LINE macro**

**DUPLEX**

HALF

FULL (circle one)

(Corresponds to the DUPLEX parameter in the i5/OS line description.)

---

### SCF Entries Definitions

---

**PU Definition**

**ADDRESS**

Hex\_\_\_\_\_

Decimal\_\_\_\_\_

[Expressed in hexadecimal (%hxx) or decimal format.]

**LU Definitions**

List all LUs defined for Connect:Direct HP NonStop

LU name	Address	LU name	Address
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

---

---

**Connect:Direct HP NonStop Network Map Definitions**

---

**LOCAL.NODE** \_\_\_\_\_

(Corresponds to the ADJACENT.NODE parameter in the other network map.)

**ADJACENT.NODE** \_\_\_\_\_

(Corresponds to the LOCAL.NODE parameter in the other network map.)

---

**LUs**

---

**LU name**

**LU name**

**LU name**

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

---

# Defining HP NonStop as the SNA Secondary Environment

This appendix contains worksheets and sample definitions for sending connections between HP NonStop and IBM 370 nodes.

Use the *IBM Environment Information* worksheet and *HP NonStop Environment Information (for Connectivity Between HP NonStop and IBM 370 Nodes)* worksheet, in conjunction with the information presented in this appendix, to coordinate compatible definitions between the operating system environments.

---

## Summary of Required Definitions for Sending Connections

The following table provides a summary of required definitions and specifies where they are defined on the HP NonStop and IBM 370 nodes:

Required Definitions	Where Defined
Physical units (PUs)	IBM 370 Node IBM NCP GEN definitions VTAM channel-attached major node definition for SNAXLINK HP NonStop Node Subsystem Communications Facility (SCF) Maximum number specified in HP NonStop SYSGEN Configuration file peripheral paragraphs
Logical units (LUs)	IBM 370 Node IBM NCP GEN definitions VTAM channel-attached major node definition for SNAXLINK Maximum number specified in the network map HP NonStop Node Subsystem Communications Facility (SCF)
Unformatted Systems Services (USS)	IBM 370 Node VTAM USS table
Session Priority	IBM 370 Node VTAM Class of Service (COS) table
Session Protocol	IBM 370 Node VTAM LOGMODE table

Required Definitions	Where Defined
Network Map	IBM 370 Node VTAM Application Major Node (APPL) NETMAP local source
	HP NonStop Node INSERT NETMAP and RELATE NETMAP commands

## Define the IBM 370 Environment

This section gives samples of the IBM NCP and VTAM definitions required for network connectivity between IBM 370 and HP NonStop nodes. The accompanying text discusses any required values or any values that must correspond at the HP NonStop node.

If you are using SNAXLINK to connect the HP NonStop system directly to an IBM channel, refer to *VTAM Channel-Attached Major Node Definition for SNAXLINK* on page 121.

## NCP Definitions

Data transferred between an IBM 370 node and HP NonStop is routed through the Network Control Program (NCP).

Sample NCP definitions for sending connections between IBM and HP NonStop nodes follow.

G1L1	GROUP	LNCTL=SDLC, CLOCKNG=EXT, DIAL=NO, DATRATE=HIGH, DUPLEX=FULL, IRETRY=NO, NEWSYNC=YES, NRZI=NO, RETRIES= (5, 10, 2) , SERVLIM=4, TYPE=NCP, USE=NCP	X X
L1L1	LINE	ADDRESS= (2, HALF) , ATTACH=DIRECT, ANS=CONTINUE, CLOCKNG=EXT, DUPLEX=FULL, ISTATUS=ACTIVE, ETRATIO=30, LPDATS=NO, SERVLIM=10, MAXPU=8, SPEED=19200	X X X
PUL1P1	PU	ADDR=C1, PUTYPE=2, ISTATUS=ACTIVE, DISCNT=NO, PASSLIM=7, PACING=7, VPACING=7, SSCPFM=USSSCS, MAXDATA=265, MAXOUT=7, USSTAB=NDMUSSTB, MAXLU=16, MODETAB=MODTAB1, DLOGMOD=TANMODE	X X X
N81LU02	LU	LOCADDR=2, ISTATUS=ACTIVE, PACING=5, VPACING=5	X
N81LU03	LU	LOCADDR=3, ISTATUS=ACTIVE, PACING=5, VPACING=5	X
N81LU04	LU	LOCADDR=4, ISTATUS=ACTIVE, PACING=5, VPACING=5	X
N81LU05	LU	LOCADDR=5, ISTATUS=ACTIVE, PACING=5, VPACING=5	X

## NCP Line Definitions

VTAM uses the line definition to define the line that communicates with HP NonStop. CLOCKNG must always equal EXT, indicating to the NCP that the modem attached to the link supplies the clocking. By coding CLOCKNG=EXT, the generation procedure ignores any values that are specified for speed. Also, the value for NRZI is always NO.





## VTAM USS Table Entry

On the PU level, point SNA LUs to a VTAM USS table (USSTAB) to avoid session and SNAX errors.

---

**WARNING:** To accommodate SNAX lines, do not code a message 10 entry. Pointing to a USS table with a message 10 entry results in the termination of Connect:Direct operations.

---

Sample VTAM LOGMODE table entries for IBM-to-HP NonStop sending connections follow.

```

NDMUSSTB USSTAB
LOGON     USSCMD  CMD=LOGON,FORMAT=PL1
          USSPARM  PARM=APPLID
          USSPARM  PARM=LOGMODE
          USSPARM  PARM=DATA
END       USSEND
          END
  
```

## VTAM COS Table Entry

Define an IBM VTAM Class of Service (COS) table for use with Connect:Direct HP NonStop so that file transfers use the lowest priority (0) on any session. In the following sample COS table, BATCH is the entry defined for use with Connect:Direct HP NonStop. The entry name must also correspond to the COS entry in the VTAM LOGMODE table.

```

ISTSDCOS  COSTAB
          COS   VR=( (0,1), (1,1), (2,1), (3,1), (0,0) )
VR=( (0,2), (1,2), (2,2), (3,2), (0,0) )
VR=( (0,0), (1,0), (2,0), (3,0), (0,0) )
VR=( (0,0), (1,0), (2,0), (3,0), (4,0) )
VR=( (0,0), (1,0), (2,0), (3,0), (0,0) )
          END
          ISVTCOS  COS
          NJE      COS
          IBMINNJE COS
          BATCH    COS
          COSEND
  
```

---

## Define the HP NonStop Environment

This section describes how communications lines, PUs, and LUs are defined at the HP NonStop node prior to Connect:Direct installation.

Prior to defining communications lines by editing the CONFTEXT file, review the HP NonStop documentation.

For more specific information on SNAXLINK, refer to the SNAX documentation. This manual also gives general information on the HP NonStop and the SNA environments.

## Configure HP NonStop SNA Communication Lines

SNA communications lines are defined on HP NonStop in the peripheral paragraph located in the HP NonStop configuration (CONFTEXT) file. The CONFTEXT file contains system-specific information used by the HP NonStop INSTALL program to create an operating system image.

---

**Note:** For switched lines, physical SNA connections must be established manually due to SNAX limitations.

---

Lines must be defined and are required. Note that some of the attributes are altered dynamically through SCF, and others require a SYSGEN. Refer to the HP NonStop documentation to determine those attributes requiring a SYSGEN.

Because the line contains one or more SDLC secondary stations (PUs) that are polled by an SNA host, specify the **SECONDARY** attribute, which requires the attributes defined in the following table:

<b>SNAX Line Attributes</b>	<b>Related IBM ACF/NCP Value</b>
L2WINDOW n	Must equal MAXOUT value in PU macro.
MAXPUS n	Generally equal to but not less than the total MAXPUs in the LINE macro.
MAXLUS n	Generally equal to but not less than the sum total of MAXLUs for every PU on the HP NonStop line.

The following figure shows sample SNAX peripheral definitions for a bit-synchronous controller, followed by an explanation of the parameters. Fields in **BOLD** are required and cannot be modified. Specify additional attributes as required by your environment.

The SNA^SCCP (\$SSCP) Process is required for all types of SNAX lines. SNASVM, TYPE, and SUBTYPE have required values listed in the following figure. Modify RSIZE as required for your environment. Refer to your HP NonStop documentation for additional information.

**Note:** Switched line connections require the parameters SWITCHED and AUTOACCEPT ON. SWITCHED enables modem control, and AUTOACCEPT ON specifies whether a switched line receives incoming calls when the line is started.

```

SNA^SSCP      SNASVM,
               TYPE 13,
               SUBTYPE 5,
               RSIZE 256 #;
$L1 PSYNCO.0SNATS TYPE 58,
          SUBTYPE 0,
          RSIZE 4096,
          SMLDEV $SSCP,
          INTERRUPT SNA^6203^INTERRUPT,
          SECONDARY,
          L2WINDOW 7,
          MAXPUS 8,
          MAXLUS 32,
          FRAMESIZE 267,
          FULL,
          SPEED 192;

```

For details on specific attributes, see *SNAX Line Attributes* on page 32. Following is a description of the SNA^SCCP (\$SSCP) Process values:

Attribute	Description
SNATS TYPE 58	Specifies the device type for the SNAX line handler Process. The number 58 defines a SNAX line and is, therefore, a fixed value.
SUBTYPE	Specifies the device subtype for the SNAX line handler Process. The value is dependent on your controller.
RSIZE	Specifies the maximum RU size that HP NonStop supports. The value is dependent on your controller.
SMLDEV \$SSCP	Specifies the name of the SNAX service manager Process that communicates with the line handler Process. The HP NonStop SSCP definition must be present in the HP NonStop configuration file for the SNAX definitions to function properly.
INTERRUPT	Specifies the required name of the interrupt handler for the controller.
SECONDARY	Specifies that this line contains PUs that act as secondary synchronous data link controller (SDLC) stations while in session with other SDLC stations. SECONDARY is a required attribute.
L2WINDOW	Specifies the maximum number of information frames (I-frames) for the SDLC that are sent to or received from a remote station before a successful transmission occurs. This number is variable. This field must correspond to the value specified for the MAXOUT value in the IBM NCP GEN PU definition.
MAXPUS	Specifies the maximum number of PUs that are defined on a line. Valid values are 1–254. The valid value is greater than or equal to the total IBM NCP GEN MAXPU definition.
MAXLUS	Specifies the maximum number of LUs that are assigned to a PU. Valid values are 1–255. The valid value is greater than or equal to the total IBM NCP GEN MAXLU definition.
FRAMESIZE	Specifies the synchronous data link controller (SDLC) frame size. The valid value is two larger than the MAXDATA value defined in the IBM NCP GEN PU definition.
FULL	Specifies that the line uses full-duplex mode. Either HALF or FULL is acceptable; however, the value must correspond to the IBM NCP GEN line definition.
SPEED	Specifies the transmission rate of the line divided by 100. Note that this value is optional and used for informational purposes only. The IBM definition calculates speed.

## Define HP NonStop Line

A sample SCF command string that defines the HP NonStop line for Connect:Direct HP NonStop sending communications follows.

```
ADD LINE $L1, characteraset ascii
```

Attribute	Description
CHARACTERSET ASCII	Specifies that no translation is to take place on this line.

## Define HP NonStop PUs

PUs on the HP NonStop node are dynamically assigned through SCF. You specified the maximum assignable number of PUs when you configured your communications lines.

A sample SCF command string that defines the PUs used in Connect:Direct HP NonStop sending communications follows. Specify additional attributes as required by your environment.

```
ADD PU $L1.#P1, TYPE(13,2), RECSIZE 265, ADDRESS %hC1, WINDOW 7, &
MAXLUS 16
```

Attribute	Description
PU	Specifies the name of the PU added to the network. The 1-8 character PU name must begin with #.
TYPE (13,2)	Specifies the device and sub device types for the PU. Both values are required.
RECSIZE	Specifies a Path Information Units (PIU) size. This entry must correspond to the MAXDATA entry in the IBM NCP GEN PU macro.
ADDRESS	Specifies the synchronous data link controller (SDLC) address for this PU. Express the value in hexadecimal (%hxx) or decimal format. This entry must correspond to the ADDR entry in the IBM NCP GEN PU macro.
WINDOW	Specifies a maximum number of 7 SDLC I-frames that are sent before confirming that the I-frames have been received with no errors. This entry must correspond to the PASSLIM and MAXOUT entries in the IBM NCP GEN PU macro. It must also correspond to the L2WINDOW value specified in the HP NonStop line definition.
MAXLUS	Specifies the maximum number of 16 LUs associated with this PU. This entry must correspond to the MAXLU entry in the IBM NCP GEN PU macro. SNA LUs are assigned dynamically on HP NonStop through SCF LU definitions. The PU definition specifies the maximum number of LUs assigned.

## Define HP NonStop LUs

A sample SCF definition for SNA LUs on HP NonStop follows.

```
ADD LU $L1.#L02, TYPE(14,0), PUNAME #P1, PROTOCOL SNALU, &
RECSIZE 4096, CHARACTERSET ASCII, ADDRESS 2
```

Attribute	Description
LU	Specifies the name of the LU added to the network. The LU name must be fully qualified, unless you have assumed a line. Refer to the HP NonStop SCF documentation if you require additional information.
TYPE (14,0)	Specifies the type. Both values are required.
PUNAME #P1	Specifies that #P1 is the PU associated with this LU.
PROTOCOL SNALU	Specifies that the SNA logical unit (SNALU) is the session protocol.

---

<b>Attribute</b>	<b>Description</b>
RECSIZE	Specifies the block size between SNAX and the controller. The maximum RECSIZE is 4096.
CHARACTERSET ASCII	A required attribute.
ADDRESS	Specifies the address of the LU in the local SNA environment. Express the value in decimal format. This value corresponds to one of the LOCADDR values as specified on the IBM node.

---

## Starting a SNAX/VTAM Link

Starting a SNAX/VTAM link requires the following steps:

1. Start the lines, PUs, and LUs for the SNAX devices located throughout the HP NonStop network. Lines, PUs, and LUs must be activated through SCF in a particular order. Note that the PUs and LUs are in the starting state until activation of the IBM-defined PUs and LUs, when their status changes to Started.
2. At the IBM node, activate the IBM-defined PUs and LUs using the IBM VTAM VARY NET,ACT command.

---

## HP NonStop Environment Definitions Worksheets

Use the following worksheets to gather the information necessary to define your sending environment.

## IBM Environment Information

If your HP NonStop connection to another node is sending (to an IBM node through SNAX) or peer-to-peer (ICE), the IBM node is responsible for network management and user interconnection functions. Therefore, various definitions for the HP NonStop node must conform to values specified at the IBM node. It is critical to coordinate the initial values and any subsequent changes with the administrators of both nodes.

The IBM administrator completes this worksheet and passes it to the HP NonStop administrator, who uses the values to set corresponding HP NonStop attributes as appropriate.

---

### Line Definition, NCP

---

<b>CLOCKNG</b>	Must be EXT.
<b>DUPLEX</b>	HALF or FULL
<b>MAXPU</b>	Must be NO.
<b>NRZI</b>	_____
<b>SPEED</b>	_____
<b>SWITCHED</b>	Y or N (if N, omit)

---

### PU Definition, NCP

---

<b>ADDR</b>	_____
<b>MAXDATA</b>	_____
<b>MAXLU</b>	_____
<b>MAXOUT</b>	_____
<b>PUTYPE</b>	Must be 2. (For SNAX connections)

---

### LU Definition, NCP for SNAX Connections

---

<b>LOCADDR</b>	_____
(Must be in decimal format.)	
<b>LOCADDR</b>	_____
(Must be in decimal format.)	
<b>LOCADDR</b>	_____
(Must be in decimal format.)	
<b>LOCADDR</b>	_____
(Must be in decimal format.)	

---

**VTAM Channel-Attached Major Node Definition (for SNAXLINK only)**

---

**CUADDR** \_\_\_\_\_

(IBM control unit address. Corresponds to IBMCUADDR in the HP NonStop SCF PU definition control unit address. Complete this field only if the controller is SNAXLINK.)

---

**Network Map Definitions for the z/OS, VM, or VSE Nodes**

---

**LOCAL NODE** \_\_\_\_\_

(Name of the OS/390, VM, or VSE local node.)

**ADJACENT.NODE** \_\_\_\_\_

(Adjacent node name defined for the HP NonStop node.)

**APPLID** \_\_\_\_\_

(VTAM application identifier (APPLID) associated with the z/OS, VM, or VSE node.)

**PARSESS** \_\_\_\_\_

(Default class for Processes submitted to run on the z/OS, VM, or VSE node.)

---

**SNODE.LUs**

---

**LU name**

**LU name**

**LU name**

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_



## HP NonStop Environment Information (for Connectivity Between HP NonStop and IBM 370 Nodes)

Use this worksheet in conjunction with the *IBM Environment Information* worksheet to ensure connectivity between IBM and HP NonStop nodes.

After the IBM administrator has returned the completed *IBM Environment Information* worksheet, the HP NonStop administrator uses the values to set the corresponding HP NonStop attributes as appropriate.

### SYSGEN Line Definitions

<b>SNATS TYPE 58</b>	Required
SUBTYPE	0 1 2 (Circle one for receiving and sending connectivity.)
(This value is dependent on the controller.)	
<b>SMLDEV \$SSCP</b>	Required
<b>INTERRUPT</b>	(Circle one)
(This value is dependent on the controller.)	SNA^6203^INTERRUPT SNA^6204^INTERRUPT SNA^CSS^INTERRUPT SNA^3840^INTERRUPT BS^6203^INTERRUPT^XF
<b>RSIZE</b>	4096
<b>SECONDARY</b>	Required
<b>FULL HALF</b>	
(Corresponds to DUPLEX in the IBM NCP line definition.)	
<b>MAXPUS</b>	_____
(Corresponds to MAXPU in the IBM NCP line definition.)	
<b>SPEED</b>	_____
(Corresponds to SPEED in the IBM NCP line definition.)	
<b>SWITCHED</b>	Y or N (if N, omit)
(Corresponds to SWITCHED in the IBM NCP line definition.)	
<b>FRAMESIZE</b>	_____
(Corresponds to MAXDATA + 2 in the IBM NCP line definition.)	
<b>L2WINDOW</b>	_____
(Corresponds to MAXOUT in the IBM NCP PU definition.)	
<b>MAXLUS</b>	_____
(Corresponds to MAXLU in the IBM NCP PU definition.)	
<b>IBMCUADDR</b>	_____
(Corresponds to IBM control unit address. Complete this field only if the controller is SNAXLINK.)	

---

## SCF Entries Definitions for LU0

---

### PU Definitions

**ADDRESS** \_\_\_\_\_

[Expressed in hexadecimal (%hxx) or decimal format. Corresponds to ADDR (hex) in the IBM NCP PU definition.]

**RECSIZE** \_\_\_\_\_

(Corresponds to MAXDATA in the IBM NCP PU definition.)

**MAXLUS** \_\_\_\_\_

(Corresponds to MAXLU in the IBM NCP PU definition.)

**WINDOW** \_\_\_\_\_

(Corresponds to MAXOUT in the IBM NCP PU definition.)

**TYPE** (13,2) is required

### LU Definitions

**ADDRESS** \_\_\_\_\_

(Must be in decimal format. Corresponds to LOCADDR (decimal) in the IBM NCP LU definition.)

**ADDRESS** \_\_\_\_\_

(Must be in decimal format. Corresponds to LOCADDR (decimal) in the IBM NCP LU definition.)

**ADDRESS** \_\_\_\_\_

(Must be in decimal format. Corresponds to LOCADDR (decimal) in the IBM NCP LU definition.)

**ADDRESS** \_\_\_\_\_

(Must be in decimal format. Corresponds to LOCADDR (decimal) in the IBM NCP LU definition.)

**TYPE** (14,0) is required for *sending* connections.

**TYPE** (14,2) is required for *receiving* connections.

**RECSIZE** 4096

**PUNAME** \_\_\_\_\_

**PROTOCOL** SNALU is required.

**CHARACTERSET** ASCII is required.

---

**Connect:Direct HP NonStop Network Map Definitions**

---

**LOCAL.NODE** \_\_\_\_\_

(Corresponds to the ADJACENT.NODE parameter in the OS/390, VM, or VSE network map.)

**ADJACENT.NODE** \_\_\_\_\_

(Corresponds to the LOCAL.NODE parameter in the OS/390, VM, or VSE network map.)

**AMGR**

(Corresponds to the API Manager name)

**LU**

(Corresponds to the SNODE.LUS in the OS/390, VM, or VSE network map.)

**LU name**\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_**LU name**\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_**LU name**\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_



---

# Defining TCP/IP Connectivity

Connect:Direct connects to and transports data across a Transmission Control Protocol/Internet Protocol (TCP/IP) network. Implementation of this protocol provides TCP/IP connectivity between HP NonStop and UNIX, z/OS, VSE, OpenVMS, i5/OS, VM, Windows, and other HP NonStop systems.

This appendix describes:

- ❖ Requirements for TCP/IP Connectivity
- ❖ TCP/IP for Connect:Direct HP NonStop
- ❖ Support for Multiple HP NonStop TCP stacks
- ❖ Sample Network Definitions

---

## Requirements for TCP/IP Connectivity

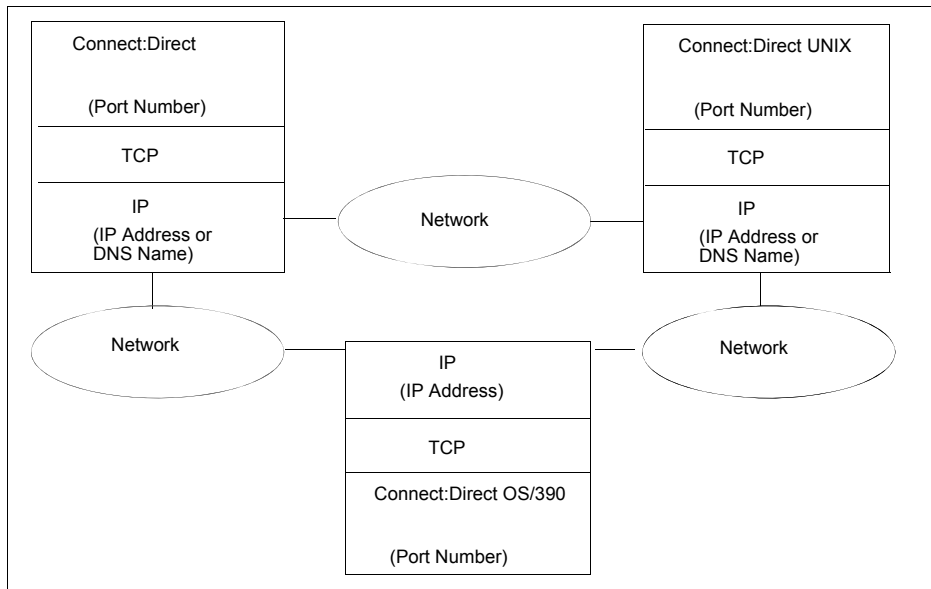
Transmission to an IBM OS/390, UNIX, VSE, OpenVMS, i5/OS, VM, Windows, or another HP NonStop system using TCP/IP protocol requires the HP NonStop TCP/IP product. The TLAM product requires a LAN-based CSMA/CD controller.

---

## TCP/IP for Connect:Direct HP NonStop

TCP/IP connections within a network are identified by a host name/IP address and well-known port number. The host name/IP address is a unique identifier for an application, like Connect:Direct. The well-known port number connects Connect:Direct to TCP. The host name/IP address and port number for adjacent nodes are defined in the network map.

The following figure shows connectivity options for a Connect:Direct TCP/IP connection, where Connect:Direct HP NonStop, OS/390, and UNIX are interconnected.



## LU in the Connect:Direct HP NonStop TCP/IP Environment

In the Connect:Direct TCP/IP environment, the session manager is the connection between the server and the adjacent node. As in the Connect:Direct SNA LU0 environment, you define LUs in the network map; however, in the TCP/IP environment, the name of the LU has no correlation to any defined device. Each LU, or session manager Process, is a separate connection to a node.

---

**Note:** The terms LU and session manager are used interchangeably in the Connect:Direct HP NonStop TCP/IP environment.

---

You can define LUs as either static or dynamic. Static LUs are user-controlled and are quiesced and resumed with the MODIFY command.

Dynamic LUs are started by Connect:Direct as needed and automatically stopped upon Process completion. You cannot issue the MODIFY command to start dynamic session managers. If you define dynamic LUs, you are not required to monitor whether the LUs are active before a connection can occur. You control the number of session managers defined to each node and the CPUs in which the session managers run through network map definitions.

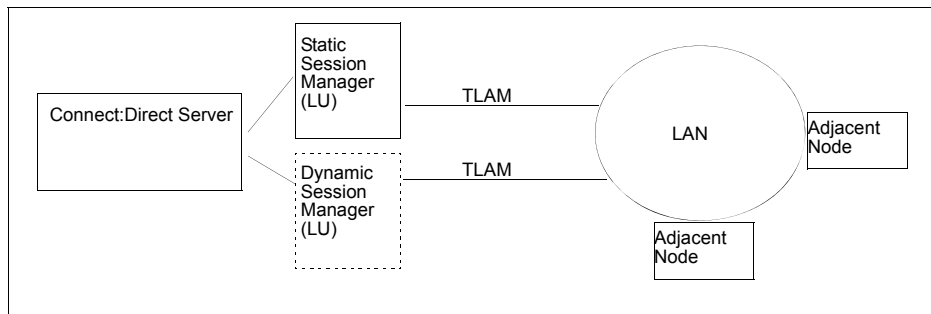
## Flow of Operation

At startup, the server reads the initialization parameters file and opens the specified TCP/IP Process. The Connect:Direct server retries a failed TCP/IP connection one time, upon initialization, if TCP/IP is in the license key. If the TCP/IP can not be opened, the connection is retried every three minutes until a connection is established.

The server monitors for connection requests on a single well-known port number that is known to the adjacent nodes. When the server (listener Process) receives a connection request or when you submit a Process, Connect:Direct attempts to route the request to a static LU. If no static LUs are available and the dynamic LUs relate to the specified adjacent node, Connect:Direct starts a session manager Process.

The session manager is then responsible for data transfer operations using the host name/IP address of the requester defined in the network map.

A sample configuration for a Connect:Direct TCP/IP connection follows:



## Support for Multiple HP NonStop TCP Stacks

Connect:Direct HP NonStop can use multiple, system-qualified TCP processes within a network of HP NonStop nodes to facilitate greater flexibility in load balancing.

### NDMINIT Initialization Parameters for Multiple HP NonStop TCP Stacks

To handle inbound connection requests (SNODE Processes), up to 36 additional TCP listen process/port pairs can be defined in the NDMINIT file using the following parameters:

Parameter	Description
TCPLISTENnn	Defines a TCP process and port number on which the application posts LISTEN for incoming connection requests. Up to 36 TCPLISTENnn entries can be numbered with suffix values ranging from 1 to 36. For example: TCPLISTEN1 \$ZTC3 1364
LOG-TCP-CONN-RQ	Enables logging of all inbound connection requests and outgoing attempts to the statistics file. Valid values are: Yes—enable logging No—disable logging

### TCPNAME Network Map Parameters

To handle outbound connection requests (PNODE Processes), the TCPNAME parameter can be defined in the LU and/or ADJ NODE records to control the TCP process used for initiating an outbound session.

The following parameter can be included when you add an ADJ NODE definition or when you add an LU definition.

Parameter	Description
TCPNAME (\system.\$xxxxx \$yyyyy \$zzzzz)	Defines any TCP processes running in the local HP NonStop network. Multiple Processes can be defined in the same command using the following syntax: TCPNAME (\system.\$xxxxx \$yyyyy \$zzzzz)

## Sample Network Definitions

When installing Connect:Direct HP NonStop for a TCP/IP connection, refer to the following sample network definitions.

### SCF Startup File for a Standard TCP/IP Connection

The following figure shows a sample Subsystem Communications Facility (SCF) startup file for a standard TCP/IP connection. Note that the values used in the sample definitions are not necessarily the values you will assign to attributes in your environment. Specify additional attributes as required by your environment.



You can configure other files for a TCP/IP connection. Refer to the HP NonStop documentation for instructions.

```
#set #inlineprefix @
clear all
param tcpip^process^name $ztc0
param tcpip^host^file $system.ztcpip.hosts
== start mlman
mlman /name $zlmg, cpu 1, nowait/ 0
scf /inline/
@ == initialize tlam ethernet ports
@ allow all errors
@ allow all warnings
@
@ == start config
@ assume line $tcp1
@
@ == stop all ports
@ stop port *
@ stop line $tcp1
@ delete port *
@
@ add port #ip, type ethernet, address %h800, dataforwardtime 0.01, dataforwardcount
3
@ add port #arp, type ethernet, address %h806
@
@ start line $tcp1, sel not started
@ start port (#ip, #arp)
@ exit
== initialize tcpip
tcpip /name $ztc0, cpu 1, nowait, pri 180/
scf /inline/
@ == initialize subnets
@ allow all errors
@ allow all warnings
@
@ assume process $ztc0
@ alter, hostname "cycr"
@ stop subnet *
@ stop route *
@ == add subnets
@ add subnet #sub01, type ethernet, devicename $tcp1, ipaddress 199.1.4.8
@ == alter subnet #sub01, subnetmask %hffffffc0
@ alter subnet #loop0, ipaddress 127.1
@ == add routes
@ add route #rt0a, destination 199.1.6.0, gateway 199.1.4.1
@ alter, tcpsendspace 12288
@ alter, tcprecvspace 12288
@ alter, udpsendspace 12288
@ alter, udprecvspace 12288
@ start subnet *
@ start route *
@ exit
== starts designated processes on the port
listener /name $lsn0, cpu 1, nowait, pri 162/
run $system.ztcpip.telnet /name $ztn0, cpu 1, nowait, pri 170/
```

## Sample Network Map Definitions

The following figure shows Connect:Direct network map definitions for TCP/IP connections with OS/390, UNIX, and another HP NonStop node. The PORTNUM and IPADDR parameters on the adjacent node definitions and the TYPE parameter on the LU definitions are pertinent to TCP/IP connectivity.

```
*          LOCAL NODE*
INSERT NETMAP LOCAL.NODE=CD.TAN.TCP
*
*          ADJACENT NODES*
INSERT NETMAP ADJACENT.NODE=CD.MVS.TCP, TYPE=NDM.MVS &
          PARSESS=1, PORTNUM=1364 IPADDR=102.6.44.32, APPLID=dummy
INSERT NETMAP ADJACENT.NODE=CD.UNIX.TCP, PARSESS=1, &
          TYPE=NDM.UNIX PORTNUM=1364 IPADDR=UNIXSYS1
INSERT NETMAP ADJACENT.NODE=CD.TAN1.TCP, PARSESS=1, &
          TYPE=NDM.NONSTOP, PORTNUM=1364 IPADDR=132.1.4.63

*          LUS FOR COPIES BETWEEN ADJACENT.NODES*
INSERT NETMAP LU=$TCP.#TCPLU01, TYPE=TCP.D
INSERT NETMAP LU=$TCP.#TCPLU02, TYPE=TCP.D
INSERT NETMAP LU=$TCP.#TCPLU03, TYPE=TCP.S
*
*          LUS ASSIGNED TO SPECIFIC NODES*
RELATE NETMAP ADJACENT.NODE=CD.MVS.TCP, LU=$TCP.#TCPLU01
RELATE NETMAP ADJACENT.NODE=CD.UNIX.TCP, LU=$TCP.#TCPLU02
RELATE NETMAP ADJACENT.NODE=CD.TAN1.TCP, LU=$TCP.#TCPLU03
```

---

# Defining ICE Connectivity

ICE software is an option for connectivity between a secondary HP NonStop node and a z/OS SNA environment. Connect:Direct supports two configurations of ICE:

- ❖ Intersystem Logon Propagation (ILP)
- ❖ Connection Manager (CM)

ICE establishes a session through a Connection Manager (CM) at each node. After a session is established, Connect:Direct transfers data using an LU0 connection through a Systems Network Logical Unit (SNALU) interface over an SDLC line.

If you choose to configure ICE without CM, you can use Intersystem Logon Propagation (ILP). ILP offers a simpler configuration, but CM is required in some circumstances. Consult your ICE software documentation to determine which configuration is best for your environment.

Connect:Direct can support both SDLC and Ethernet links with ICE.

---

**Note:** Connect:Direct does not support the ICE API that enables node type 2.1 connectivity.

---

This appendix provides sample network definitions as required for ICE connectivity between HP NonStop and z/OS nodes. Refer to the *ICE Administrator Manual* for complete configuration instructions for configuring the ICE process.

---

## HP NonStop Definitions

This section provides sample HP NonStop definitions for ICE connectivity over an SDLC line. The first sample uses Intersystem Logon Propagation; the second sample uses Connection Manager.

## Using Intersystem Logon Propagation

A sample input file (ADDICE) for configuring ICE with the Intersystem Logon Propagation (ILP) Option in a Connect:Direct HP NonStop environment follows. Commands are executed through the Node Operator Facility (NOF), an ICE utility.

```

== Configure a primary node
assume process $ICC

== Define a logical line
add line line1, tndm $ICE, type SECONDARY, protocol sdlc,          &
                                idblk 111

== Define a logical PU that is associated with the logical line
== defined above.
add pu PU1, address 1, line line1, IDNUM 1

== Define a Connection Manager that is associated with the logical
== PU defined above.
add mode NONSTOP5, COSNAME #BATCH, COMPROT 7080, FMPROF 4, TSPROF 4, &
    PRIPROT B3, SECPROT B3, PSERVIC 000000000000000000000000,      &
    SSNDPAC 7, SRCVPAC 4, RUSIZE 1024, adaptive no

== Define local APPLs
add appl appl1, OPENNAME #APPL1, protocol SNALU, llu D1IR41I1, mode &
    NONSTOP05
add appl appl2, OPENNAME #APPL2, protocol SNALU, llu D1IR41I2, mode &
    NONSTOP05

== Define the remote task between the Connection Manager and the
== APPLID at the remote node.
add rlu NMVSD08,pu pu1 uss no, mode NONSTOP

START LINE LINE1
START PU PU1
STATUS APPL *

```

A description of the relationship between elements in the configuration follows:

- ❖ \$ICC is the Process name associated with ICE and corresponds to the high-level qualifier of the LU as defined in the Connect:Direct HP NonStop network map.
- ❖ \$ICE is the HP NonStop line name. Define a different line for each line type that you intend to use (SDLC or Ethernet). In this sample, the line type is SDLC.
- ❖ PU1 is a logical PU name that associates the PU with the HP NonStop line name (\$ICE). Define one PU for each line type.
- ❖ You must define a mode entry to identify LOGMODE parameters used between Connect:Direct HP NonStop and Connect:Direct for z/OS. Add this mode name to the ADD APPL and ADD RLU statements; it is also the LOGMODE name for the ICE LU in the Connect:Direct HP NonStop network map.
- ❖ The APPL name APPL1 is a logical name. The OPENNAME #APPL1 corresponds to the sub device of the LU as defined in the Connect:Direct HP NonStop network map. The protocol is always SNALU. The local LU (LLU) is an independent LU in the VTAM NCP definitions for z/OS. In this sample, D1IR41I1 is the LLU.

- ❖ You must define a remote task between Connect:Direct and the z/OS node to copy files from HP NonStop to z/OS.

---

**Note:** This definition is not required for ILP; it is only applicable for Connection Manager.

---

- ❖ You must define a remote LU to correspond to the APPLID of the Connect:Direct for z/OS node.

## Using Connection Manager

A sample input file (ADDICE) for configuring ICE with the Connection Manager option in a Connect:Direct HP NonStop environment follows. Commands are executed through the Node Operator Facility (NOF), an ICE utility.

```

== Configure a primary node
assume process $ICC

== Define a logical line
add line line1, tndm $ICE, type SECONDARY, protocol sdlc,          &
                    idblk 111

== Define a logical PU that is associated with the logical line
== defined above.
add pu PU1, address 1, line line1, IDNUM 1

== Define a Connection Manager that is associated with the logical
== PU defined above.
add cm CMACB1, pu PU1
add mode NONSTOP05, COSNAME #BATCH, COMPROT 7080, FMPROF 4, TSPROF 4, &
    PRIPROT B3, SECPROT B3, PSERVIC 000000000000000000000000,      &
    RUSIZE 1024, adaptive no

== Define local APPLs
add appl appl1, OPENNAME #APPL1, protocol SNALU, llu D1IR41I1, mode &
    NONSTOP05
add appl appl2, OPENNAME #APPL2, protocol SNALU, llu D1IR41I2, mode &
    NONSTOP05

== Define the remote LU between ILP and the APPLID at the
== remote node.
add rtask NMVSD08,cm cmacb1

START LINE LINE1
START PU PU1
STATUS APPL *
```

A description of the relationship between elements in the configuration follows:

- ❖ \$ICC is the Process name associated with ICE and corresponds to the high-level qualifier of the LU as defined in the Connect:Direct HP NonStop network map.
- ❖ \$ICE is the HP NonStop line name. Define a different line for each line type that you intend to use (SDLC or Ethernet). In this example, the line type is SDLC.
- ❖ PU1 is a logical PU name that associates a CM to the HP NonStop line name (\$ICE). PU1 corresponds to the value specified in the definition of the remote CM for z/OS. Define one PU for each line type.
- ❖ The CM is a dedicated LU on the z/OS node that is used for session establishment. The CM name CMACB1 corresponds to the VTAM ACB name for the MVS CM.

- ❖ You must define a mode entry to identify LOGMODE parameters used between Connect:Direct HP NonStop and Connect:Direct for z/OS. Add this mode name to the ADD APPL statement and to the LU entry in the Connect:Direct HP NonStop network map.
- ❖ The APPL name APPL1 is a logical name. The OPENNAME #APPL1 corresponds to the sub device of the LU as defined in the Connect:Direct HP NonStop network map. The protocol is always SNALU. The local LU (LLU) is an independent LU in the VTAM NCP definitions for z/OS. In this example, D11R4111 is the LLU.
- ❖ You must define a remote task between Connect:Direct and the z/OS CM to copy files from HP NonStop to z/OS. NMVSD08 corresponds to the APPLID of the Connect:Direct for z/OS node.

## Sample Line Definition

You can define lines at the HP NonStop node using SYSGEN or Configuration Utility Program (COUP). A sample SYSGEN definition for the ENVOYACP/XF line named \$ICE follows. Refer to the HP NonStop SYSGEN documentation when defining the line.

```

C3604^SDLC      = SDLCXF
                  TYPE 11,                SUBTYPE 40,
                  INTERRUPT                BS^6203^INTERRUPT^XF,
                  RSIZE                    04105,
                  FRAMESIZE                2050,
                  REJ,                     TWS,
                  FULL #;

$ICE  SYNC0.2,  SYNC0.3  C3604^SDLC;  ENVOYACP/XF lines

```

A sample COUP definition for the line named \$ICE follows:

```

INFO $ICE,DETAIL
NAME $ICE
MACRO SDLCXF
CONTROLLERNAME SYNC0
COUP FLAGS ( COUPED, STARTED )
TYPE 11
SUBTYPE 40
RSIZE 04105
UNIT ( 02, 03 )
PROCESS IMAGE $SYSTEM.SYS03.ZZPIM000
IOBJECT $SYSTEM.SYS03.BSPROCO
IOLIBRARY
INTERRUPT BS^6203^INTERRUPT^XF
MAXLOCALAREA 2048
LOCALPOOLPAGES 60
CSMLDEV 0
PROGRAM
PROGRAM1
PROG9370
PROG9367
IOWORDS 20480
IOPAGES 20
XPAGES 255
FRAMESIZE 2050

```

*Continued*

```

RECRNRRETRY
SENDRNRRETRY
NRM
ADDRESSIZE 1
L1RETRY 3
L2RETRY 3
L2WINDOW 7
NOCONTCF
IDLERESPFR
BDCASTOFF
STATISTICSOFF
TWA
NOSWITCH
HALF
SWINCARRIER
ASCII
AUTOLOAD
RS232
PRIMARY
SUPR
TRNSOFFSET 0
TRNSLENGTH 0
THRESHOLD 500
XFERTIMER 0
T1TIMER 500
IDLETIMER 50
DSRTIMER 400
ADDRESS1 193
ADDRESS2 0
ADDRESS3 0
ADDRESS4 0
SPEED 96
RNRTIMER 0
DIALIN
NONETID
NOAUTOACCEPT
NRDYUNCTRL
MAXPUS 1
IBMSCNADDR 0
BURST 0
NOOPTION1
LINEBUFFERSIZE 20480
BUFFSIZE 20480
RETRIES 3
TIMEOUT 500
POLLINT 50
RNRRETRY
WINDOW 7
DRIVER
POLLCNT 0
PROTOCOL

```

## Sample Startup File for ICE

The following figure shows a sample GOICE file, the startup file for ICE. The CMNAME parameter specifies the dedicated LU name used for CM-to-CM communication during session establishment. In this example, the value for the CMNAME parameter is D1IR4114.

---

**Note:** If you are configuring ICE with the ILP option, do *not* use the CMNAME parameter.

---

The RUN statement names the ICE Process as \$ICC. The name must correspond to the Process name defined in the ADDICE file.

Refer to the ICE administration documentation for parameter descriptions.

```
?tacl macro
clear all
param backupcpu 1
param cinittimer 120
param cmname D1IR41I4                (Only used with CM)
param collector $0
param config icetcl
param cpname ICE1
param datapages 8
param dynamicrlu yes
param genesis $gen
param maxrcv 4096
param loglevel info
param netname SCINET
param password xxxxxxxxxxxxxxxxxxxx
param retrys1 5
param secuserid super.super
param startup %1%
param timer1 20
param timer2 300
param usstable default
run ice/name $ICC,nowait,CPU 0,pri 180/
```

## Connect:Direct HP NonStop Network Map Definitions

The following table shows a sample Connect:Direct HP NonStop network map definition of a z/OS adjacent node record configured for an ICE connection:

Definition	Value
Adjacent Node	DALLAS1
Node Type	NDM.MVS
MAXRETRY	7
APPLID	NMVSD08
LUList	\SYS.\$ICC.#APPL1 \SYS.\$ICC.#APPL2

The following table shows a sample Connect:Direct HP NonStop network map definition of an LU configured for an ICE connection:

Definitions	Values
LU	\SYS.\$ICC.#APPL1
LU Type	SNA.S
Timeout Value	3
Adjacent Node	DALLAS1



## z/OS Definitions

This section provides sample z/OS definitions for ICE connectivity over an SDLC line. Refer to z/OS and ICE documentation when defining the z/OS environment for ICE connectivity.

### Sample VTAM NCP Definition for an ICE Connection

A sample VTAM NCP definition for an ICE connection follows. The independent LUs, D1IR41I1 and D1IR41I2 are used for Connect:Direct transfers. D1IR41I4 is *only* used for sessions between the z/OS and HP NonStop Connection Managers. D1IR4199 is used for ILP sessions between Connect:Direct HP NonStop and Connect:Direct for z/OS.

```

D1IR4G  GROUP LNCTL=SDLC, *
          DUPLEX=FULL, *
          NRZI=NO, *
          PACING=7, *
          VPACING=7, *
          REPLYTO=1, *
          RETRIES=(7,4,5), *
          TYPE=NCP
*
D1IR4    LINE ADDRESS=(8,FULL), *
          ANS=CONTINUE, *
          CLOCKNG=EXT, *
          DUPLEX=FULL, *
          ISTATUS=ACTIVE, *
          ETRATIO=30, *
          MAXFU=2, *
          SERVLIM=10, *
          SRT=(,64), *
          SPEED=19200
          SERVICE ORDER=(D1IR41),MAXLIST=2
*
* * * * *
*
D1IR41  PU ADDR=01, *
          PUTYPE=2, *
          ANS=CONTINUE, *
          ISTATUS=ACTIVE, *
          PASSLIM=8, *
          DATMODE=FULL, *
          DISCNT=(NO), *
          MODETAB=DALLMTAB, *
          DLOGMOD=NONSTOP05, (4096K rusize) *
          SSCPFM=USSSCS, *
          RETRIES=(,1,4), *
          USSTAB=RSUSSTAB, *
          XID=YES, *
          MAXDATA=4129,HP NonStop gen words:2050 = 4100 bytes) *
          MAXOUT=7 (4100 + 29 = 4129)
*
* INDEPENDENT LUS
D1IR41I1 LU LOCADDR=0, ISTATUS=ACTIVE
D1IR41I2 LU LOCADDR=0, ISTATUS=ACTIVE
* for CM-CM communications only
D1IR41I4 LU LOCADDR=0, ISTATUS=ACTIVE, *
          DLOGMOD=CMMODE
* dependent LU for ILP only
D1IR4199 LU LOCADDR=2, ISTATUS=ACTIVE

```



## Connect:Direct for z/OS Network Map Definitions

The following table shows a sample Connect:Direct for z/OS network map definition of a HP NonStop adjacent node record configured for an ICE connection:

Definition	Value
Adjacent Node	NONSTOP.ICE
PARSESS	2,1
SNODE.LUS	D1IR41I1 D1IR41I2

## Sample HP NonStop Network Map Entry

Following is a sample HP NonStop network map entry.

```

=====
                S E L E C T   N E T W O R K   M A P
=====
Adjacent Node => QA.ZOS.V20100 <-- name of the z/OS Connect:Direct node
Node Type    => NDM.zOS
Maxretry     => 7
Applid       => M1CDD757 <-- dtf applid; matches the RLU entry above
LU List      => \CYCR.$ICC.#APPL2   \CYCR.$ICC.#APPL3
-----
LU           => \CYCR.$ICC.#APPL2 <--matches add appl stmt in ICE cnfg
LU Type     => SNA.S
Timeout Value => 3
Maxretry    => 5
Logmode     => NONSTOP05 <-- must match the add mode in ICE config
Adjacent Node => QA.ZOS.V20100
-----
LU           => \CYCR.$ICC.#APPL2 <--matches add appl stmt in ICE cnfg
LU Type     => SNA.S
Timeout Value => 3
Maxretry    => 5
Logmode     => NONSTOP05 <-- must match the add mode in ICE config
Adjacent Node => QA.ZOS.V20100
=====

```

## Sample z/OS Network Map Entry

Following is a z/OS network map entry sample:

```

ADJACENT.NODE = (( TAN2.BGK) - <-- name of the HP NonStop node
PARSESS       = (2 1) - <-- 1st parm=# of snode.lus, 2nd=def. class
SNODE.LUS     = (M1IR51I2 M1IR51I3) <-- matches llus entries in the HP NonStop ICE config

```

## Sample z/OS Resource Definitions

Following is an example of z/OS resource definitions:

```

1. LLU M1IR51I2 <- matches with resource in 'add APPL2' in ADDICE defs
NAME = M1IR51I2, TYPE = CDRSC
STATUS= ACTIV, DESIRED STATE= ACTIV
REAL NAME = ***NA***
MDLTAB=***NA*** ASLTAB=***NA***
ADJLIST = ***NA***
MODETAB=DALLMTAB USSTAB=***NA*** LOGTAB=***NA***
DLOGMOD=NONSTOP USS LANGTAB=***NA***
CAPABILITY-PLU ENABLED ,SLU ENABLED ,SESSION LIMIT NONE
CDRSC MAJOR NODE = M1CDSIND
ALSLIST = M1IRI1
DEVICE = ILU/CDRSC
I/O TRACE = OFF, BUFFER TRACE = OFF
ACTIVE SESSIONS = 0000000000, SESSION REQUESTS = 0000000000

2. LINE M1IRI
IST097I DISPLAY ACCEPTED
IST075I NAME = M1IRI, TYPE = LINE
IST486I STATUS= ACTIV, DESIRED STATE= ACTIV
IST087I TYPE = LEASED , CONTROL = SDLC
IST134I GROUP = G02SDLC, MAJOR NODE = NCP02G

3. PU M1IRI1
NAME = M1IRI1, TYPE = PU_T2.1
STATUS= ACTIV, DESIRED STATE= ACTIV
CP NAME = ICE1, CP NETID = CSDNET, DYNAMIC LU = NO
LINE NAME = M1IRI, LINE GROUP = G02SDLC, MAJNOD = NCP02G
I/O TRACE = OFF, BUFFER TRACE = OFF

4. DEPENDENT LU M1IRI198 - this must be subordinate to the z/OS pu,
                        but is otherwise not referenced in the
                        netmaps or the ICE config file

NAME = CSDNET.M1IRI198, TYPE = LOGICAL UNIT
STATUS= ACTIV, DESIRED STATE= ACTIV
MDLTAB=***NA*** ASLTAB=***NA***
MODETAB=DALLMTAB USSTAB=RSNAUSS LOGTAB=***NA***
DLOGMOD=NONSTOP5 USS LANGTAB=***NA***
CAPABILITY-PLU ENABLED ,SLU INHIBITED,SESSION LIMIT 00000001
LINE NAME = M1IRI, LINE GROUP = G02SDLC, MAJNOD = NCP02G
PHYSICAL UNIT = M1IRI1
DEVICE = LU
I/O TRACE = OFF, BUFFER TRACE = OFF
ACTIVE SESSIONS = 0000000000, SESSION REQUESTS = 0000000000

```

---

## Sample ICE Configurations

Following are sample ICE configurations.

### Sample STARTICE File

The following is an example of the startup macro STARTICE which invokes all ICE routines. Start it by typing STARTICE COLD from TACL.

```
?tacl routine
#OUTPUT THIS ROUTINE STARTS ICE. STOPS ANY CURRENT $GEN & $ICC, IF RUNNING
STOP $ICC
STOP $GEN
#FRAME
#PUSH :var1
#IF [#ARGUMENT/VALUE :var1/ KEYWORD/WORDLIST COLD COOL WARM/]
#IF [#ARGUMENT END]
#SET :var1 [#SHIFTSTRING [:var1]]
#OUTPUT Starting genesis
gogen [:var1]          <-- see GOGEN below
#OUTPUT Starting ice
goice [:var1]         <-- see GOICE below
#OUTPUT Starting nof
[#IF :var1 '=' "COLD" |then|
  run nof/in addice/   <-- run NOF process using ADDICE file below
]
#UNFRAME
```

### Sample GOGEN File

Following is the GOGEN file referenced in the previous example. It starts the program module GENESYS.

```
?tacl macro
clear all
param backupcpu 1
param collector $0
param config genctl
param datapages 64
param startup %1%
run genesis/name $GEN,nowait,term $trm0.#a,cpu 0,pri 180/
```

## Sample GOICE File

Following is the GOICE file referenced in the previous STARTICE example; it starts ICE.

```
?tacl macro
clear all
param backupcpu 1
param cinittimer 120
=====param cmname M1IR51I4 not used with ILP option
param collector $0
param config icectl
param cpname ICE1
param datapages 64
param dynamicrlu yes
param genesis $gen <-- name of the GENESYS process started above
param maxrcv 4115
param loglevel info
param netname csdnet
param password nnnnnnnnnnnnnnnnn - supplied by vendor
param retrys1 5
param secuserid super.super
param startup %1%
param timer1 20
param timer2 300
param usstable default
run ice/name $ICC,nowait,cpu 0,term $trm0.#a,pri 180/
```

## Sample ADDICE File

The ADDICE file contains the basic configuration. These definitions must correspond to various other definitions in the VTAM and Connect:Direct environments.

```

=== THIS IS THE ADDICE FILE FOR STARTING WITHOUT CONNECTION MANAGER

== Open the ICE and GENESIS processes

assume process $ICC - this is the name of the ICE process started above

== SDLC line to NCP with as a SECONDARY station
add line line1, tndm $ICE, type SECONDARY, protocol sdlc

== NCP is the primary
add pu pul, address 1, line line1

== ADD MODE - this must match the LOGMODE referenced in the lu entry
==           in the HP NonStop netmap
ADD MODE nonstop05, COSNAME #BATCH, COMPROT 7080, FMPROF 4, TSPROF 4, &
PRIPROT B3, SECPROT B3, PSERVIC 000000000000000000000000, &
RUSIZE 1024, adaptive no

== Add the RLU's - this must match the dtf applid referenced in the
==           adjacent node entry for the MVS node in the HP NonStop netmap

add RLU M1CDD757, pu pul, uss no, mode nonstop05
== Add the appls - the ICE process name and the OPENNAME (see add ==
appl, below) form the lu entry in the HP NonStop
==           netmap. EX: $ICC.#APPL2. The llu entry matches the
==           snode lu parm in the MVS netmap entry. The mode
==           matches the addmode above
add appl APPL2, OPENNAME #APPL2, protocol SNALU, llu M1IR51I2,mode nonstop05
add appl APPL3, OPENNAME #APPL3, protocol SNALU, llu M1IR51I3,mode nonstop05

START LINE LINE1
START PU PUI

```





## A

### **Adjacent Node**

An adjacent node is an entry in the Network Map that defines a Connect:Direct HP NonStop node with which the local Connect:Direct HP NonStop node can communicate. The adjacent node is also called a remote node.

### **AIMS**

The automated installation and management system (AIMS) is a menu-driven system that guides you through the installation procedure for Connect:Direct HP NonStop.

### **Application Programming Interface (API)**

The Application Programming Interface (API) is a Connect:Direct HP NonStop component that accepts commands and places them in an executable format.

### **API Manager**

An API manager is a network map entity, that handles communications sessions between Connect:Direct HP NonStop and external applications on a TCP/IP network. After the API manager has been set up, users of these other Sterling Commerce products can configure, control, and operate Connect:Direct HP NonStop from any host on a TCP/IP network.

### **AUTHFILE**

The authorization file contains records of user attribute defaults. Each record defines the features of Connect:Direct HP NonStop that you can access.

## B

### **Background Mode**

The background mode enables you to execute NDMCOM using a disk file containing Connect:Direct HP NonStop commands as input. All Connect:Direct HP NonStop commands, except the FC command, are used in this mode.

# C

## CB Function

The CB (Control Block) function is a group of statements that performs a specific task and often returns a value to the statement that calls it.

## C-string Control Block

The C-string control block (CB) is the data format that returns output generated by Connect:Direct HP NonStop Processes and commands to the API. A C-string control block consists of two or more fields.

## C-string Control Structure

The C-string control structure groups one or more related C-string control blocks.

## Checkpoint Restart

The checkpoint restart feature eliminates the need to retransmit an entire file in the event of a transmission failure. If a copy procedure is interrupted, Connect:Direct HP NonStop restarts that copy at the last checkpoint.

## Command Line Interface

The command line interface is a Connect:Direct HP NonStop interface that enables you to submit Connect:Direct HP NonStop Processes and commands from your native command line environment.

## Commands

Connect:Direct HP NonStop commands initiate and monitor activity within the Connect:Direct HP NonStop system.

## Connect:Direct HP NonStop Commands

Connect:Direct HP NonStop commands use a command structure common to the rest of the Connect:Direct family of products. The commands are issued three ways: in interactive mode directly from the command line, in background mode by issuing the Connect:Direct HP NonStop OBEY command, or through an API.

## Connect:Direct HP NonStop Spooler Option

The Connect:Direct HP NonStop spooler option is a Connect:Direct HP NonStop application that permits an installation to transfer output spooler jobs automatically from a Connect:Direct HP NonStop node to a disk file on an adjacent node.

## Connect:Direct/Plex

Connect:Direct/Plex is a Connect:Direct for z/OS system consisting of a Connect:Direct/Manager and one or more Connect:Direct/Servers in a TCP/IP environment. Connect:Direct HP NonStop can establish sessions with Connect:Direct/Plex.

## Cyclic Redundancy Checking (CRC)

CRC is a method used to validate data integrity during data transfers between Connect:Direct nodes across a TCP/IP network. CRC can be controlled using any of the following options:

- ❖ A global initialization parameter
- ❖ An adjacent node definition
- ❖ A Process statement parameter
- ❖ A SUBMIT command parameter

## D

### Domain Server

Connect:Direct HP NonStop can be configured to handle inbound connection requests from a TCP domain, that is, a range of IP addresses, using the ADJ NODE record type NDM.DOMAIN. This allows the application to recognize connection requests from IP addresses that are not explicitly configured in the network map, as long as they fall within one of the defined domains.

### Downstream Connection

See Receiving Connection.

### Dynamic LUs

Connect:Direct HP NonStop starts dynamic LUs as needed and automatically stops them upon Process completion. Dynamic LUs are options when using TCP/IP.

## E

### EMS Filters

The EMS filters provide a programmatic method for selecting events for processing.

### Environment Commands

These commands enable you to perform various Connect:Direct HP NonStop functions, such as displaying environment values and invoking TEDIT. Some environment commands allow you to set specific environment parameter values in NDMCOM. These values remain in effect only for the duration of the current session, unless they are changed by you or another user logs on to the same NDMCOM.

### ERR Control Block

The ERR control block is the first control block of an error control structure (ERRCS). The beginning and ending fields are: CB ! ERR ! and CBEND ! ERR !. The two other required fields in the ERR control block are: *N* (number) field and *T* (top message) field. *N* specifies the number of messages in the ERRCS; *T* specifies the number of the most important message.

### Error Control Structure (ERRCS)

The error control structure (ERRCS) is a particular C-string control structure designed to identify the messages occurring when executing Connect:Direct HP NonStop Processes and commands.

## Event Management Service (EMS)

Event management performs event-collection, logging, and distribution in the distributed systems management (DSM) environment.

# F

## FASTLOAD

This Connect:Direct HP NonStop function can reduce disk I/O overhead. It is used when the Connect:Direct HP NonStop node is the destination. With FASTLOAD, Connect:Direct HP NonStop passes data through SPI to FUP to load into a destination data file. The feature is particularly useful for key-sequenced files, but it is also supported for entry-sequenced and relative record files.

## Field

A field is two null-terminated strings—key and data. Two or more fields make up a C-string control block.

# I

## I/O Exit Support

This support provides exit points for user-written programs to serve as application interfaces for data transfers.

## Interactive Mode

This mode enables you to issue commands through NDMCOM and receive an immediate response.

# L

## Local Node

The local node is the Connect:Direct HP NonStop server.

# M

## Message Commands

The message commands allow you to display, add, delete, modify, and print Connect:Direct HP NonStop messages from the command interpreter (TACL).

## Message Control Blocks

Message control blocks are part of an ERRCS. These blocks are sequenced as they occur. The fields in a message control block are CB ! En !, FDBK ! fb !, RC ! rc !, MSGID ! msgid !, and OK ! od ! (optional keyword ! optional data !).

## N

### **NDMCOM**

NDMCOM is the Connect:Direct HP NonStop user interface.

### **NDMMON**

The monitor Process (NDMMON) ensures nonstop operation of Connect:Direct HP NonStop.

### **NDMSTDL**

The statistics deletion program (NDMSTDL) ensures sufficient space is available to write statistics records in the statistics files. It deletes records from STATFILE and STASTRCH based on user-specified deletion criteria and maximum percentage of file capacity.

### **NETEX Option**

NETEX is a connection option for Connect:Direct for z/OS.

### **Network Map**

The network map (netmap) is a file that identifies all valid Connect:Direct nodes in the network. One network map is associated with each Connect:Direct HP NonStop local node. The netmap has one entry for each of the other Connect:Direct nodes to which the local Connect:Direct HP NonStop node communicates. The netmap entries also contain the rules or protocol that the nodes adhere to when communicating.

### **Node**

A node is any site in a network from which information distribution is initiated.

## P

### **Primary Node**

The primary node (PNODE) is the Connect:Direct HP NonStop node on which the Process is submitted. The primary node is also referred to as the controlling node or initiating node, but is not necessarily interpreted as the sending node, because PNODE can be the receiver. In every Process, one PNODE and one SNODE are specified. The submitter of a Process is always the PNODE.

### **PNODE=SNODE Transmission**

This transmission enables you to create a Process to send data to another file on your node. In this type of transmission, your node is both the PNODE and the SNODE.

### **Primary Logical Unit**

The primary logical unit (PLU) is the logical unit that controls an LU to LU session. The PLU formats and sends an NLD request that begins a session.

## Process (Source File)

A Process is a series of statements that initiate Connect:Direct activity, such as copying files, running jobs, and so on.

## Process Statements

Process statements are instructions for transferring files, running operating system jobs, executing programs, or submitting other Connect:Direct HP NonStop Processes. You use Process statements to build a Connect:Direct HP NonStop Process.

# R

## Receiving Connection

The receiving connection is a connection between Connect:Direct HP NonStop and other nodes (i5/OS—TCP only) where the Connect:Direct HP NonStop node supports the primary functions of the data link and the HP NonStop LU functions as a primary LU (PLU).

## Remote Node

A remote node is an entry in the network map that defines a Connect:Direct node with which the local Connect:Direct HP NonStop node can communicate. The remote node is also called an adjacent node.

## Retry Interval

The retry interval is the interval at which retries are performed as a part of the checkpoint-restart feature.

# S

## SECFILE

The security file (SECFILE) relates the node name and user ID assigned to an incoming Connect:Direct HP NonStop operation to a HP NonStop user ID.

## Secondary Logical Unit

The secondary logical unit (SLU) is the logical unit that functions under the control of a PLU. The SLU accepts the incoming NLD request from the PLU.

## Secondary Node

The secondary node (SNODE) is the Connect:Direct HP NonStop node that interacts with the primary node (PNODE) during Process execution. SNODE is also referred to as the participating (non controlling) or partner node. Every Process has one PNODE and one SNODE.

## Secure Point of Entry

The secure point of entry enables Processes from other nodes to be written without the use of passwords.

**Sending Connection**

The sending connection is between HP NonStop and the IBM 370 nodes (z/OS, VM, VSE) where the IBM node supports the primary functions of the data link and the IBM LU functions as a primary LU (PLU).

**Server**

The server (NDMSRVR) is responsible for processing command requests, communicating with the session manager when work is placed in the transmission control queue, and accepting session establishment requests from remote nodes.

**Session Manager**

The session manager (NDMSMGR) is responsible for establishing communication sessions, performing standard session management functions, and executing Processes.

**SNA (Systems Network Architecture)**

A network architecture designed to provide compatibility among a wide variety of hardware and software products that enable you to build complex networks. It defines protocols, standards, and message formats to which different hardware and software products must conform.

**SNA Primary**

SNA primary defines the LU as a primary LU (PLU).

**SNA Secondary**

SNA secondary defines the LU as a secondary LU (SLU).

**SNAX Passthrough**

SNAX passthrough is a function of the SNAX line access software that permits interaction between a host application program and an SNA device connected to a HP NonStop system. The Connect:Direct HP NonStop system, which is not a Connect:Direct HP NonStop node, appears to the host as a cluster controller.

**SNODE**

The secondary node (SNODE) is the node participating in Process execution initiated by another node (the PNODE).

**Statistics File**

The statistics file holds Connect:Direct HP NonStop statistics records that document the history of a Process.

**Statistics Facility**

The Connect:Direct HP NonStop statistics facility records Connect:Direct HP NonStop activities.

**Static LUs**

Static LUs are user-controlled and are quiesced and resumed with the MODIFY command. Static LUs are options when using TCP/IP.

## T

### **Transmission Control Queue**

The Transmission Control Queue (TCQ) holds information about Connect:Direct HP NonStop Processes that are currently executing or scheduled to execute in the future.

### **TCP/IP Option**

TCP/IP is a connectivity option for Connect:Direct for z/OS, UNIX, OpenVMS, VSE, i5/OS, Stratus VOS, and Windows, and HP NonStop nodes.

### **Type File**

The type file contains records that define file attributes for new files.

## U

### **Upstream Connection**

See Sending Connection.



## Symbols

#defines for C 30

### A

Activating

    session manager trace bits 57  
    trace bits 57

ADDICE file, sample 142, 143

Adjacent node 68, 75, 77

    creating 68  
    defining in network map 66  
    examples 140  
    loading in network map 88  
    Type 69

Administrator commands, STOP ALL 106

AIMS (Automated Installation and Management System)

    description 13  
    installation steps 47  
    using to install CONNECT:Direct 54

AIMS Network Map Definition Worksheet 33, 43

ALLOC.RETRY.ADJ 44, 70

ALLOC.RETRY.INIT, initialization parameter 99

ALLOC.RETRY.LOC, initialization parameter 100

ALLOC.RETRY.MAX, initialization parameter 100

Allocation retry

    ALLOC-RETRY-LOC 58  
    parameters 57

ALLOC-RETRY-INT, defining at installation 57

ALLOC-RETRY-LOC, defining during installation 58

ALLOC-RETRY-MAX, setting at installation 57

Application Program Interface (API) 13

APPLID, entry field 69

AUTHFILE, initialization parameter 61, 100

Authority level field

    DEFAULT.AUTHORITY 64  
    UPDATE.LOGGING 65  
    UPDATE.STATISTICS 64

Authorization, setting for default user 62

Automatic startup of NDMMON and NDMSRVR 96

### B

Backup CPU, entry field 86

Building the API 29

### C

CD macro 29

Checkpoint-restart initialization parameter 100

CKITVL

    defining at installation 57  
    initialization parameter 100

CKPTFILE, initialization parameter 61, 100

CMI entries, sending connectivity 127

CMRLEVEL initialization parameter 58, 100

COLLECTOR, initialization parameter 59, 100

Commands

    environment 22  
    general 20  
    message 23  
    STOP ALL 106  
    user and administrator 21

Components of Connect:Direct HP NonStop 11

COMPROT entry field 79

Computing RU Sizing 79

Configuring network map 66

Connect:Direct HP NonStop  
    components 11

Connect:Direct HP NonStop (continued)  
 concepts 14  
 flow of operations 23

Connect:Direct Secure+ Option 15, 17

Connect:Direct Spooler option description 13

Connect:Direct user interface 12

Connect:Direct/Plex 15

Connection Manager definition sample 148

Connectivity  
 receiving switched line connections 112  
 receiving, leased 107

Connectivity options  
 ICE software 9, 141  
 sending, required definitions 121  
 TCP/IP 9

Connectivity, considerations for OS/400 nodes 115

Controllerdependent definitions 32

COS table entry 124

COUP entries, ICE software 144

CPU entry field 71, 73, 86

Creating Files 80

## D

Default user authorization  
 loading 87  
 setting 62

DEFAULT.AUTHORITY, authority level field 64

DEFINES for TAL 30

Defining  
 allocation error interval 57  
 allocation failure retry attempts 57  
 checkpoint interval 57  
 errors on which to perform allocation retry attempts 58  
 maximum transmission buffer size 56  
 running of statistics utility 56  
 server trace bits 56  
 session manager at startup 57  
 session manager processes 56  
 session retry interval 57

Distribution, subvolumes and files 28

Domain Nodes 15, 38

DYNAMIC DNS, entry field 70

Dynamic LUs definition 136

## E

EMS initialization parameter 59, 101

Enter LOCAL.NODE information 67

Entering ADJACENT.NODE information 68

Entering LOGMODE Information 78

Entering LU Information 71, 73

Environment commands 22

Environment menu 52

Example, STOP ALL command 106

Exit I/O, description 13

## F

Files  
 AIMS environment 52  
 creation 80

FMPROF entry field 79

FORCE parameter, STOP ALL command 106

Function declarations 30

FUP OUT File entry field 81

## G

GOICE file sample 145

## H

Host name/IP address for TCP/IP connectivity 135

HOSTNAME/IP ADDRESS entry field 69

HP NonStop configuration (CONFTEXT) file entries  
 receiving connectivity, leased lines 108  
 receiving connectivity, switched lines 112  
 sending connectivity 124

HP NonStop environment definitions  
 receiving connectivity 107  
 sending connectivity 124

HP NonStop Environment Definitions worksheets  
 (for Connectivity Between HP NonStop and iSeries Nodes), LU0 Connectivity 117  
 (for Connectivity Between HP NonStop Nodes), LU0 Connectivity 118

HP NonStop Environment Information worksheet, (for  
Connectivity Between HP NonStop and IBM  
Nodes) 42, 131

HP NonStop line definitions, sending connectivity 126

## I

I/O exit, description 13

IBM Environment Information worksheet 129

ICE software

- general 9, 141
- sample network definitions, HP NonStop 141
- sample network definitions, MVS 147

IMMEDIATE parameter, STOP ALL command 106

Initialization parameter

- ALLOC.RETRY.INIT 99
- ALLOC.RETRY.LOC 100
- ALLOC.RETRY.MAX 100
- AUTHFILE 61, 100
- CKITVL 100
- CKPTFILE 61, 100
- CMPRLEVEL 100
- COLLECTOR 59, 100
- EMS 59, 101
- INFOFILE 61, 101
- MEMLEVEL 101
- MSGFILE 61, 101
- NDMCDL 61, 101
- NDMNTXK 60, 101
- NDMNTXO 60, 101
- NDMSMGR 60, 101
- NDMSTDL 60, 102
- NETFILE 61, 102
- NTXAPPLID 102
- NTXBLKSIZE 102
- NTXOFFERS 102
- NTXOUT 60, 102
- NTXTRACE 102
- NTXWINDOW 102
- overriding with TACL PARAM commands 105
- overriding with UPDATE PARM command 97
- PORTNUM 102
- PRINTER 60, 102
- PRTYDEF 102
- QUIESCE 102
- RUNTASKMSGID 102
- SECFILE 61, 102
- SENDNULLRECS 103
- SENDOPENFILE 103
- setting 54

Initialization parameter (continued)

- SMNAME 103
- SMOUT 59, 103
- SMTRACE 103
- SRVTRACE 103
- STATCRITERIA 104
- STATFILE 61, 104
- STATMIDNITE 104
- STATPERCENT 104
- STATS 59, 104
- STATSRCH 61, 104
- STUTIL 60, 104
- TCPNAME 104
- TCQ 104
- TCQFILE 61, 104
- TCQXFILE 61, 104
- TYPEFILE 61, 104
- updating 97
- WINDOWSIZE 105
- WTRETRIES 105
- XLFILE 61, 105
- ZLIBDFZLVL 58
- ZLIBDFZMEM 58
- ZLIBDFZWIN 58

Initialization parameter file

- entry field 86
- file name 52

Installation

- steps 47
- validating for CONNECT:Direct 90

## K

Keyboard function keys 50

## L

Leased line connections 107

Line definitions

- receiving connectivity, HP NonStop environment 107
- receiving connectivity, leased lines 108
- receiving connectivity, switched lines 112
- sending connectivity 124
- sending connectivity, HP NonStop environment 124
- sending connectivity, MVS, VM, and VSE  
environments 122

Line, PU, and LU Definitions Worksheet 33

List of

- environment commands 22
- user and administrator commands 21

Loading  
   network map definitions 88  
   the default LOGMODE records 89  
   the Default User Authorization 87  
   the Network Map 88

Local node  
   creating 67  
   defining in network map 66  
   examples 140  
   loading in network map 88

LOCAL.NODE, entering 67

LOGCPUTIME, Include CPU use with session statistics 59

LOGMODE entries  
   defining CONNECT:Direct 78  
   for ICE connectivity 148  
   loading default CONNECT:Direct 89  
   VTAM 123

LOGMODE Obey File  
   entry field 90  
   field 52

LOGMODE, entry field 71, 78

LU  
   defining in network map 66  
   entry field 71, 75  
   loading in network map 88  
   sending connectivity, HP NonStop environment 127  
   sending connectivity, MVS, VM, and VSE environments 123

LU definitions  
   receiving connectivity, leased lines 110  
   receiving connectivity, switched lines 114

LU MAXRETRY entry field 72

LU network map definitions, generating 71, 73

LU TIMEOUT, entry field 72

LU TYPE entry field 71

## M

Macros, TACLNDM 29

Manual startup of NDMMON and NDMSRVR 95

MEMLEVEL initialization parameter 58, 101

Message commands 23

Modifying initialization parameters 105

MSGFILE initialization parameter 61, 101

MVS, VM, and VSE environment definitions, sending connectivity 122

## N

NCP  
   and ICE 147  
   line definition, sample 122  
   LU definition sample 123  
   PU definition sample 123

NDM400.LIBRARY entry field 69

NDMA macro 29

NDMAIMS subvolume 30

NDMAPI subvolume 29

NDMCDL initialization parameter 61, 101

NDMCOM, description 12

NDMCOM Object Name entry field 87, 89, 90

NDMCOM OUT Name entry field 87

NDMFUPIN File  
   entry field 81  
   file name 52

NDMINSTL subvolume 28

NDMMON  
   automatic startup 96  
   manual startup 95  
   Object Name 86

NDMMON Process Name entry field 86

NDMMON, description 12

NDMNTXK initialization parameter 60, 101

NDMNTXO initialization parameter 60, 101

NDMOBJ subvolume 28

NDMRUN macro 29

NDMS macro 29

NDMSAMP subvolume 30

NDMSMGR description 13

NDMSMGR initialization parameter 60, 101

NDMSPL subvolume 31

NDMSRVR  
   automatic startup 96  
   description 12  
   manual startup 95  
   starting 86

NDMSTART macro 29

NDMSTDL, description 13

NDMSTDL initialization parameter 60, 102

NDMSTOP macro 29

NDMXLATE Object File entry field 85

NDMXLATE Out File entry field 85

NDMXLIN entry field 85

NETEX  
   initialization parameters 101  
   timeouts 72

NETEX.HOSTID entry field 43, 69

NETFILE initialization parameter 61, 102

Network  
   definitions, samples, ICE software 9, 141  
   definitions, samples, receiving  
     connectivity 9, 107, 110, 112, 114  
   definitions, samples, sending connectivity 125, 127  
   definitions, samples, TCP/IP 9, 135, 138  
   definitions, samples, sending connectivity 122

Network map  
   and TCP/IP connectivity 140  
   configuring 66  
   Connect:Direct for z/OS and ICE 149  
   Connect:Direct HP NonStop and ICE 146  
   general 14  
   loading 88  
   Obey File entry field 89

NTXAPPLID  
   defined during installation 56  
   initialization parameter 102

NTXBLKSIZE  
   defining during installation 56  
   initialization parameter 102

NTXOFFERS  
   defining in installation 55  
   initialization parameter 102

NTXOUT  
   defined during installation 60  
   initialization parameter 102

NTXTRACE  
   defining at installation 57  
   initialization parameter 102

NTXWINDOW  
   defining during installation 56  
   initialization parameter 102

## O

OUT File Name entry field 89, 90

Overriding initialization parameters 105

## P

Parameters  
   FORCE, STOP ALL command 106  
   IMMEDIATE, STOP ALL command 106  
   STEP, STOP ALL command 106

PARSESS entry field 69

Password entry field 87

PNODESNODE facility description 26

PORT NUMBER  
   defining in installation 55  
   entry field 70

Port number for TCP/IP connectivity 135

PORTNUM initialization parameter 102

Printer field 52

PRINTER initialization parameter 60, 102

PRIPROT entry field 79

Process, language definition 14

PRTYDEF  
   defining priority during installation 55  
   initialization parameter 102

PSERVIC entry field 79

PSNDPAC entry field 79

PU definitions  
   receiving connectivity, leased lines 110  
   receiving connectivity, switched lines 114  
   sending connectivity, HP NonStop environment 127  
   sending connectivity, MVS, VM, and VSE  
     environments 123

## Q

QUIESCE  
   defining during installation 57  
   initialization parameter 102

## R

Receiving connectivity  
   considerations for OS/400 nodes 115  
   leased 107

Receiving connectivity (continued)  
switched line connections 112

Relate nodes, network map 74, 76

Relating ADJACENT.NODES with LUs 74, 76

#### RUNTASKMSGID

defining during installation 56  
initialization parameter 102

RUSIZE entry field 78

## S

#### SCF entries

receiving connectivity, leased lines 110  
receiving connectivity, switched lines 114  
sending connectivity 127

SCF startup file, standard TCP/IP connection 138

SDLC lines, leased 107

SECFILE initialization parameter 61, 102

SECPROT entry field 79

Security user, setting 62

Security, loading default user authorization 87

Sending connectivity, required definitions 121

SENDNULLRECS, initialization parameter 58, 103

#### SENDOPENFILE

initialization parameter 103  
initialization parameter 59

#### Server (NDMSRVR)

automatic startup 96  
manual startup 95  
starting 86

Server (NDMSRVR) description 12

Server Object Name entry field 86

SERVER Out File entry field 86

Server Process Name entry field 86, 87, 88, 90

Session manager (NDMSMGR), description 13

Session Redirection 15, 40

Setting default user authorization 62

Setting Initialization Parameters 54

Setting the AIMS Environment 52

#### SMNAME

defining during installation 56  
initialization parameter 103

SMOUT initialization parameter 59, 103

#### SMTRACE

defining during installation 57  
initialization parameter 103

#### SNAX

peripheral definitions, receiving connectivity 108  
peripheral definitions, sending connectivity 125  
required attributes for sending connectivity 125

SNAX/VTAM link 128

SNAX/XF, installation verification 45

SNAXLINK, VTAM channel-attached major node  
definition 123

Software requirements, Connect:Direct HP NonStop 26

SRCVPAC entry field 79

#### SRVRTRACE

defining during installation 56  
initialization parameter 103

SSNDPAC entry field 79

Starting Connect:Direct through AIMS 82

Starting lines, PUs, and LUs 128

#### Startup

automatic of NDMMON and NDMSRVR 96  
manual of NDMMON and NDMSRVR 95

#### STATCRITERIA

defining during installation 56  
initialization parameter 104

STATFILE, initialization parameter 61, 104

Static LUs definition 136

Statistics deletion program 13

#### STATMIDNITE

defining during installation 56  
initialization parameter 104

#### STATPERCENT

defining during installation 56  
initialization parameter 104

STATS initialization parameter 59, 104

STATSRCH initialization parameter 61, 104

STEP parameter STOP ALL command 106

#### STOP ALL command

examples 106  
FORCE 106  
format 106  
general description 106

STOP ALL command (continued)  
 IMMEDIATE 106  
 STEP 106

STUTIL initialization parameter 60, 104

STUTIL subvolume 28

Summary of  
 installation 25  
 preinstallation 25

Switched line connections 112

SYSGEN entries  
 ICE software 144  
 receiving connectivity, leased lines 108  
 receiving connectivity, switched lines 112  
 sending connectivity 124

## T

TACLNDM macros 29

TAL (Transaction Application Language) 30

TCP PROCESS, defining value 55

TCP/IP connectivity  
 and the network map 140  
 connectivity options 136  
 flow of operation 136  
 general 9  
 LUs 136  
 overview of the CONNECT:Direct  
 implementation 135  
 requirements 135  
 session managers 136

TCPNAME  
 entry fields 44, 72  
 initialization parameter 104

TCQ  
 defining during installation 56  
 initialization parameter 104

TCQFILE initialization parameter 61, 104

TCQXFILE initialization parameter 61, 104

TSPROF entry field 79

TYPE entry field 79

TYPEFILE initialization parameter 61, 104

## U

UPDATE.LOGGING, authority level field 65

UPDATE.STATISTICS, authority level field 64

USE entry field 72

User and administrator commands 21

User authorization, setting 62

User Definitions Obey File  
 entry field 87  
 file name 52

User interface 12

USS table entry 124

## V

Validating installation  
 for Connect:Direct 90  
 of SNAX/XF 45

Verifying installation of SNAX/XF 45

VTAM  
 channel-attached major node definition 123  
 COS table entry 124  
 ICE definitions 148  
 LOGMODE table entry 123  
 USS table entries 124

## W

WINDOWSIZE initialization parameter 58, 105

Worksheets  
 AIMS Network Map Definition Worksheet 33, 43  
 HP NonStop Environment Definitions for Connectivity  
 Between HP NonStop and iSeries Nodes 117  
 HP NonStop Environment Definitions for Connectivity  
 Between HP NonStop Nodes 118  
 HP NonStop Environment Information, for  
 Connectivity Between HP NonStop and IBM  
 Nodes 131  
 HP NonStop Environment Information for Connectivity  
 Between HP NonStop and IBM Nodes 42  
 IBM Environment Information 129  
 Line, PU, and LU Definitions Worksheet 33

WTRETRIES  
 defining during installation 57  
 initialization parameter 105

## X

XLFIL  
 entry field 85  
 initialization parameter 61, 105

