Infoprint Manager for Windows NT and Windows 2000

Configuring PSF Direct for an iSeries System

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Note
Before using this information and the product it supports, be sure to read the general information in "Notices" on page 75.

Second Edition (June 2001)

This publication is one of a set of publications that replaces *Infoprint Manager for Windows NT and Windows 2000: Configuring PSF Direct for Infoprint Manager*. The set includes:
- *Infoprint Manager for Windows NT and Windows 2000: Configuring PSF Direct for the 37xx Communications Controller*
- *Infoprint Manager for Windows NT and Windows 2000: Configuring PSF Direct for the 3172 Communications Controller*
- *Infoprint Manager for Windows NT and Windows 2000: Configuring PSF Direct for the 3174 Communications Controller*
- *Infoprint Manager for Windows NT and Windows 2000: Configuring PSF Direct for an iSeries System*

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Chapter 1. Overview of PSF Direct and Communication Server for Windows NT®

This chapter contains an overview of the components you need to configure Print Services Facility™ Direct (PSF Direct) on Systems Network Architecture (SNA) networks. It contains the following subtopics:

- "What is PSF Direct?"
- "What is IBM SecureWay Communications Server for Windows NT?" on page 2
- "What are the Available Network Connections?" on page 2

What is PSF Direct?

PSF Direct provides a direct connection between a host system and a printer defined to IBM® Infoprint® Manager for Windows NT and Windows® 2000. The host system can be an OS/390®, VSE, VM, or Operating System/400® (OS/400®) system. PSF Direct gives you control of key print processes from your host system console. An Infoprint physical printer appears to be directly attached to your host system. Jobs print without delay because they are not spooled by the Windows NT workstation. Because the host system controls the print process, it returns job-completion and error messages to the host system.

PSF Direct uses Communication Server LU 6.2 protocols to communicate between the host system and the Windows NT system. Then PSF Direct uses one of several protocols to communicate between the Windows NT system and the printer:

- Transmission Control Protocol/Internet Protocol (TCP/IP)
- Channel
- Parallel/Serial

These protocols provide you with access to TCP/IP, channel, or parallel/serial printers that otherwise you might not be able to attach from the host system.

To use PSF Direct, you need the IBM SecureWay® Communications Server product to communicate between the host system and NT. You create printer definitions on the host system so that print jobs can be directed to the NT printer. Then, you define the printer to the Infoprint server on NT.

After you install PSF Direct, you send the job to the printer, using normal print-submission processes. Because PSF Direct is a direct pipeline to the printer, you need to end the PSF Direct session before you can use the printer to print from another host system or from IBM Infoprint Manager for Windows NT.

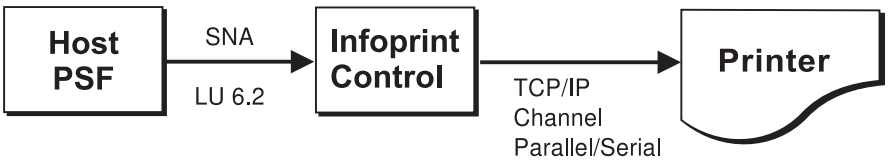

Figure 1. Printing with PSF Direct

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What is IBM SecureWay Communications Server for Windows NT?

You need the IBM SecureWay Communications Server for Windows NT to configure and to use PSF Direct. IBM SecureWay Communications Server is an implementation of SNA for the NT operating system running on the NT workstation. It enables an NT workstation to communicate with other nodes in an SNA network.

PSF Direct requires IBM SecureWay Communications Server for Windows NT system software Version 6, Release 01, with maintenance that includes the following authorized program analysis report (APAR) fixes:

- APAR JR13453
- APAR JR14098
- APAR JR13599

Note that the second APAR (JR13599) is necessary only if you will be creating more than one Communications Server profile for dependent LUs.

Infoprint Manager for Windows NT allows you to create a PSF Direct host receiver whether or not you have completed the IBM SecureWay Communications Server node configuration. Therefore, it does not matter whether you install Infoprint Manager or Communications Server first.

To install IBM SecureWay Communications Server from the CD-ROM:

1. Select the **Install Products** icon that appears on the main window.
2. Choose a **Server** install.
3. From the Communications Server Installation window, select only the **Communications Server for Windows NT** option to use the PSF Direct function.

Once you have completed the installation, create shortcuts for both the SNA Node Configuration interface and the Communications Server Node Operations interface, so that you can easily invoke them from your desktop. (The default path for the SNA Node Configuration interface is *C*:\IBMCS\pcscfg.exe. The default path for the Communications Server Node Operations interface is *C*:\IBMCS\pcsnops.exe. In both paths, *C* is the drive where you installed IBM SecureWay Communications Server for Windows NT.)

What are the Available Network Connections?

This document includes detailed examples and guidelines for several common SNA configurations. The diagrams in this section illustrate the network configurations, with references to more detailed information.

Note: These diagrams, and the other illustrations in this book, show token-ring configurations. Similar Ethernet configurations are also possible.

- Local 37*xx* configuration (Figure 2). This configuration is described in *Infoprint Manager for Windows NT and Windows 2000: Configuring PSF Direct for the 37xx Communications Controller*.

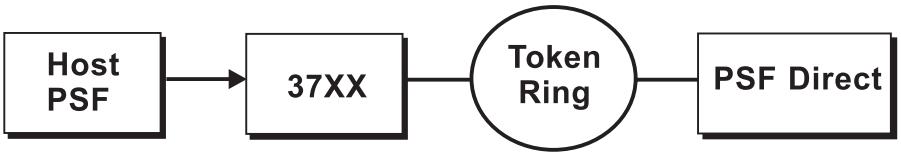

Figure 2. Local 37xx Configuration: Simplified View

- Remote 37*xx* configuration (Figure 3). This configuration is described in *Infoprint Manager for Windows NT and Windows 2000: Configuring PSF Direct for the 37xx Communications Controller*.

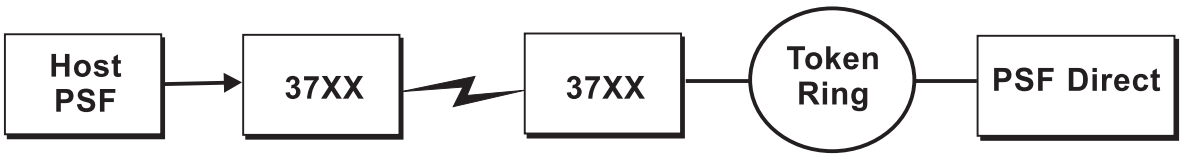

Figure 3. Remote 37xx Configuration: Simplified View

- Local 3172 configuration (Figure 4). This configuration is described in *Infoprint Manager for Windows NT and Windows 2000: Configuring PSF Direct for the 3172 Communications Controller*.

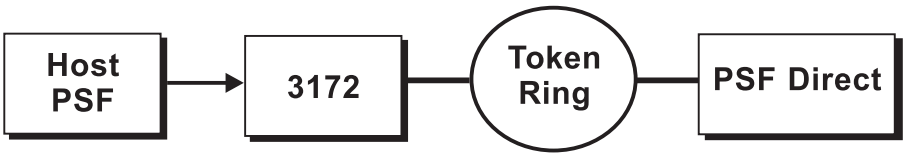

Figure 4. Local 3172 Configuration: Simplified View

- Local 3174 configuration (Figure 5). This configuration is described in *Infoprint Manager for Windows NT and Windows 2000: Configuring PSF Direct for the 3174 Communications Controller*.

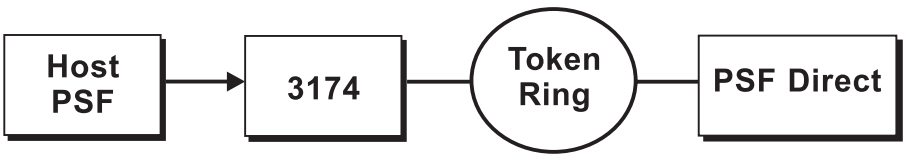

Figure 5. Local 3174 Configuration: Simplified View

- Remote 3174 configuration (Figure 6). This configuration is described in *Infoprint Manager for Windows NT and Windows 2000: Configuring PSF Direct for the 3174 Communications Controller*.

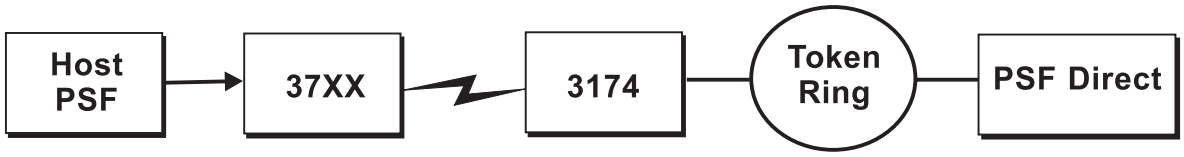

Figure 6. Remote 3174 Configuration: Simplified View

- Local or remote iSeries™ configuration (Figure 7). These configurations are described in "Chapter 4. Local or Remote iSeries Configuration" on page 15.

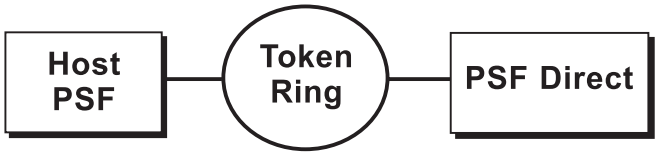

Figure 7. Local or Remote iSeries Configuration: Simplified View

Chapter 2. Understanding PSF Direct Configuration Requirements

An SNA network provides powerful communication capabilities to applications without requiring that the applications be aware of the equipment and transmission facilities that comprise the network. So, an SNA application like PSF Direct can communicate using an SDLC telecommunications link between two continents or a token-ring LAN in a single room.

To configure an SNA application, one normally need only identify the communication partner and the guidelines for exchanging data.

To configure an SNA network, you must describe the internal components of the network and details of their operation.

Considering two views of an SNA network, an application view and a network internals view, aids in understanding PSF Direct configuration requirements. An overview of the key configuration parameter interrelationships when defining logical unit (LU) names follows.

Application View of an SNA Network

An SNA network provides two access points for communication and a logical connection between the two access points. In SNA terminology, the access points are **logical units** (LUs). The connection between them is a **session**. A **mode** describes a session's characteristics, or guidelines for exchanging data.

The application view displayed in Figure 8 illustrates the interface that SNA provides to applications, such as the host PSF program and the PSF Direct component of Infoprint Manager. These applications are isolated from details of the internal components of the SNA network.

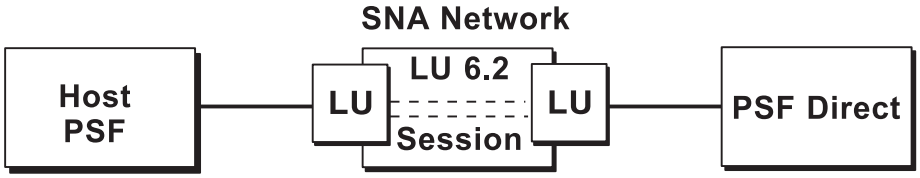

Figure 8. SNA Network: Application View

As the application view suggests, only a few values are required to configure the host PSF program and PSF Direct so they can communicate. Figure 9 on page 6 displays the values used by both applications. Note that each configuration parameter refers to a logical unit or mode provided by the SNA network.

Note: On an iSeries system, rather than configuring the host PSF program directly, you create a description for the Advanced Program-to-Program Communications (APPC) controller and an APPC device description for each printer. The device descriptions reference the description of the controller, which manages communication between PSF for iSeries and PSF Direct.

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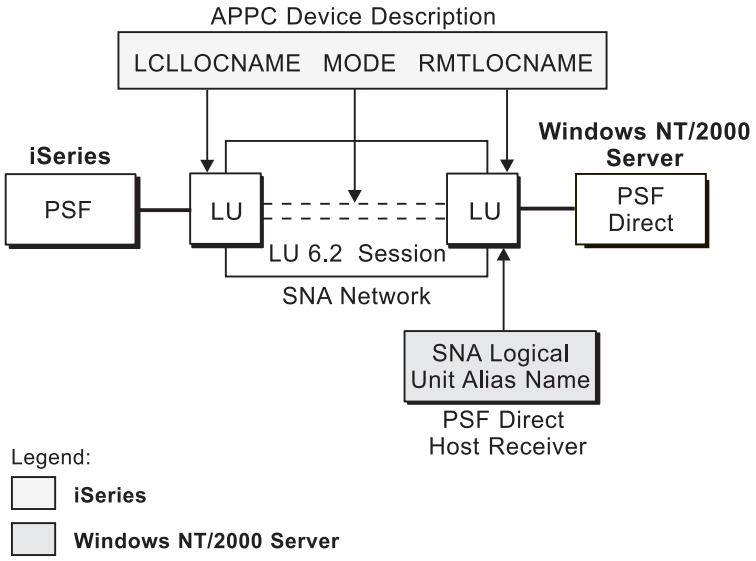

Figure 9. Application View with Configuration Parameters

APPC device description parameters:

LCLLOCNAME
Specifies the name of the logical unit that the host PSF program uses.

RMTLOCNAME
Specifies the name of the logical unit that PSF Direct uses.

MODE
Specifies the session characteristics for communication between the two logical units.

Individual modes, or mode entries, are grouped into a table that contains several modes. **MODE** identifies a mode entry. You identify the mode table through the SNA network definitions for the logical unit that PSF Direct uses.

PSF Direct host receiver parameters:

Local LU alias
Specifies the local ID that points to the logical unit that PSF Direct uses on the Windows NT server. For an independent LU, you define this parameter on the **Basic** tab of the Define a Local LU 6.2 notebook. For a dependent LU, it is the same as the LU name.

Because there may be several PSF Direct host receivers on an NT workstation and several NT workstations in an SNA network, each PSF Direct host receiver must have a unique logical unit name.

Network Internals View of an SNA Network

While the application view illustrates the relationship of an SNA network to the applications that use it, the network internals view aids in understanding the components of an SNA network and how they must be configured.

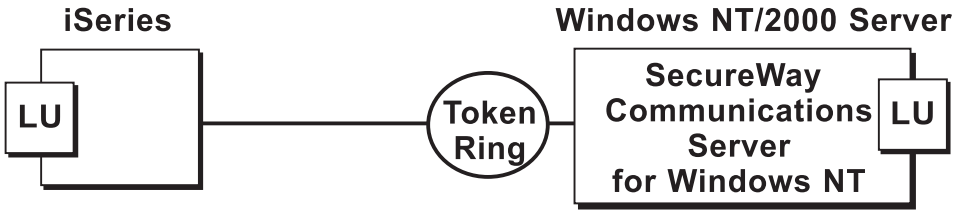

Figure 10. SNA Network: Network Internals View for an iSeries Configuration

The network internals views illustrate that many components comprise an SNA network. Most of the components have detailed configuration requirements.

First, however, it is important to understand that several network components have configuration parameters whose values are related to configuration parameters for other network components. You must configure these interrelated parameters consistently to make end-to-end communication possible.

"Key Configuration Parameter Interrelationships" on page 8 contains several figures. They illustrate some of the key interrelationships among configuration parameters for SNA network components.

Key Configuration Parameter Interrelationships

Figure 11 illustrates the interrelationships required when defining logical unit (LU) names.

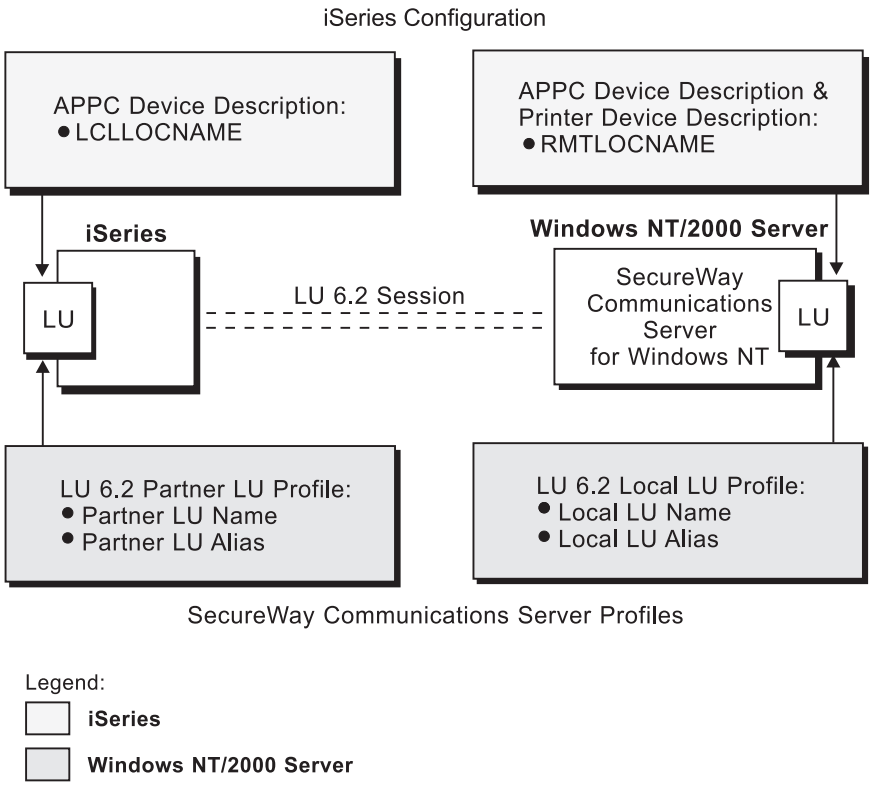

Figure 11. Logical Unit Names

Figure 12 illustrates the interrelationships required when defining the local address of the logical unit provided by SecureWay Communications Server for NT.

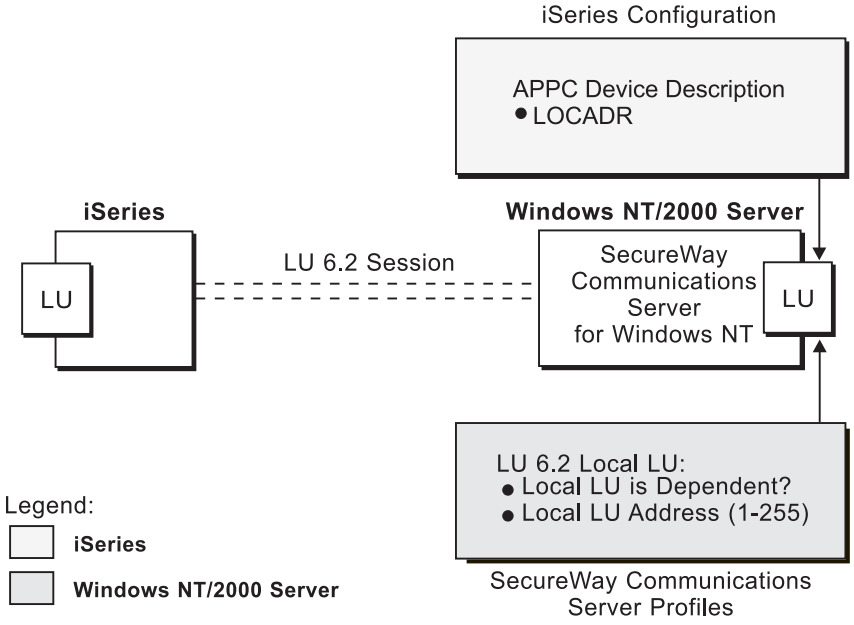

Figure 12. Local Address of Logical Unit

Figure 13 illustrates the interrelationships required when defining session characteristics.

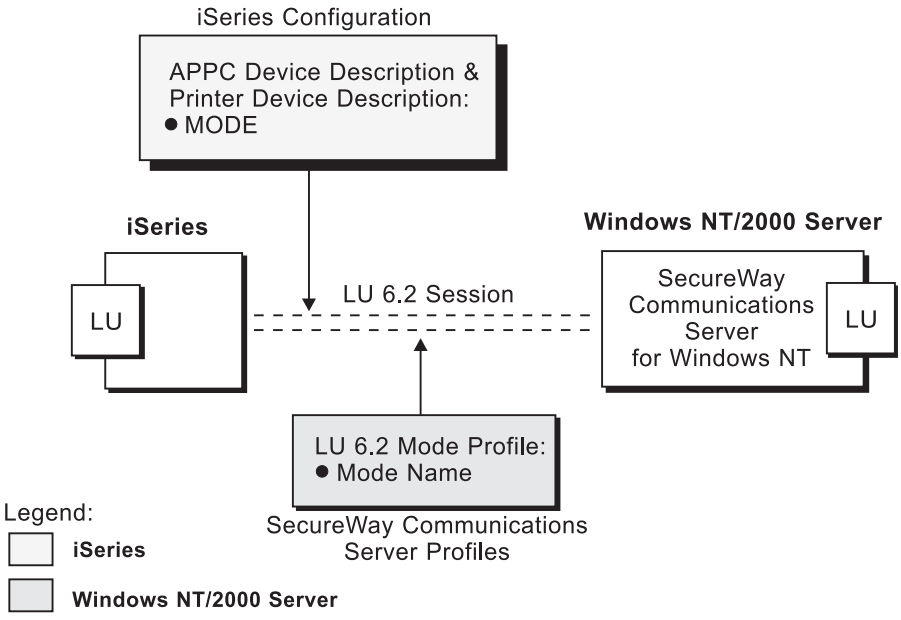

Figure 13. Session Characteristics

Figure 14 illustrates the interrelationships required when defining the names of the physical unit (PU) and control point (CP) provided by SecureWay Communications Server for NT.

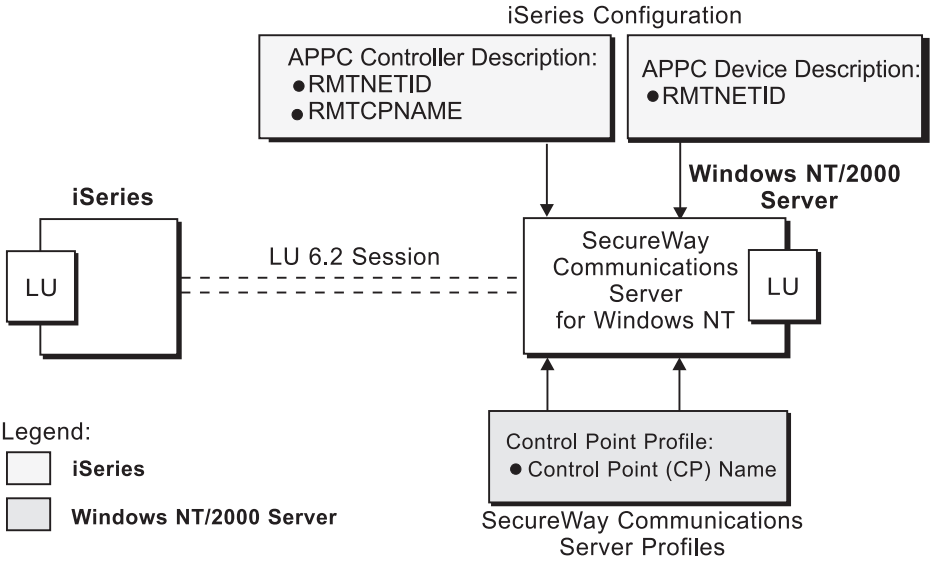

Figure 14. Physical Unit and Control Point Names

Figure 15 on page 11 illustrates the interrelationships required when defining the network addresses used in either the local or the remote iSeries configuration.

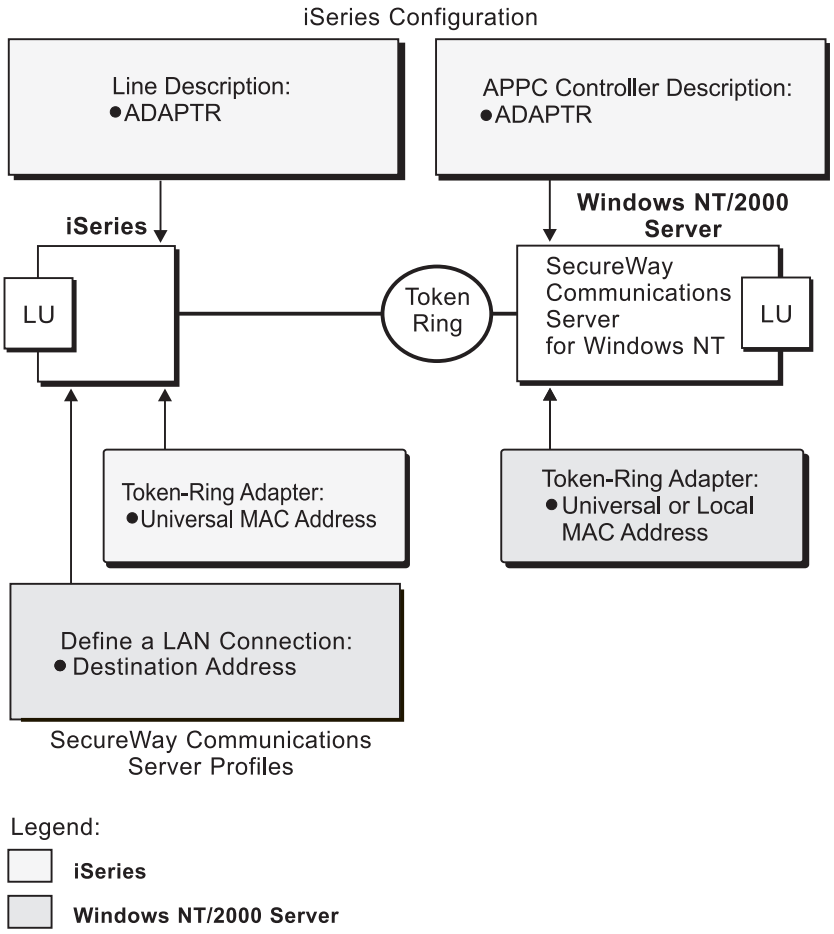

Figure 15. Network Addresses for Local or Remote iSeries Configuration

Chapter 3. Preconfiguration Tasks

Before configuration, perform the following tasks:

- "Defining Devices for IBM SecureWay Communications Server and Infoprint Windows NT"
- "Defining a Local MAC Address for a Windows NT Server"
- "Deciding Whether to Define a Dependent or an Independent LU" on page 14
- "Configuring an LU 6.2 Partner LU on Your Infoprint Windows NT Server" on page 14

Defining Devices for IBM SecureWay Communications Server and Infoprint Windows NT

You must define devices for both Communications Server and Infoprint Manager for Windows NT and Windows 2000, so that the token-ring or Ethernet card can carry the SNA data from the PSF host program. Usually, a device must be made available once. It then remains available, even after Windows NT shuts down and restarts. For each configuration example, you accomplish this task through device configuration, the second of the IBM SecureWay Communications Server for NT configuration profiles in each example.

Defining a Local MAC Address for a Windows NT Server

A token-ring or Ethernet address, often called a **medium access control (MAC) address**, has 12 hexadecimal digits, for example, `10005AC8B0EA`. Each device in a network must have a unique address. To facilitate unique addressing, every manufacturer assigns a distinct address called a **universal MAC address** to each network adapter. By default, an adapter in a Windows NT server uses the address that the manufacturer assigned when the adapter was made. However, Windows NT systems allow you to define an **alternate network address**, also called a **local MAC address**.

Generally, the first four digits of alternate network addresses must be `4000`.

To assign an alternate network address to an adapter in a Windows NT server, you must refer to the operating system online help. Different levels of the operating systems can vary.

For example, if you want to assign an alternate network address to a token-ring adapter on a Microsoft® Windows NT Version 4.00.1381 system, use the following procedure:

1. Specify the **My Computer-->Control Panel-->Network** path.
2. Select the **Adapters** tab.
3. Highlight the token-ring adapter and click the **Properties...** button.
4. From the IBM Auto 16/4 Token-Ring Adapter Card Setup pop-up, specify the local MAC address in the **Network Address** field.
5. Shut down and reboot your Infoprint Windows NT server so the new address can take effect.

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Deciding Whether to Define a Dependent or an Independent LU

You will usually add an LU 6.2 Local LU profile for each logical unit used by PSF Direct, whether the logical unit is dependent or independent. Whenever possible, you should define an independent LU, because they are easier to manage. With a dependent LU, you must assign a session ID and track its network addressable unit (NAU) address.

A dependent LU requires you to perform the following tasks from the Communications Server SNA Node Configuration window:

1. Click the plus sign (**+**) next to **Host Resources** to access **Host Connections**.
2. Highlight **Host Connections** and select the **Create** option.
3. Fill in all the values in the Define a LAN Connection notebook, then specify **OK**.
4. At the `Do you wish to create and assign new LUs to this connection?` pop-up dialog, specify **YES**.
5. Fill in the Host LU Definition window, specifying an **LU name** value.

An independent LU requires you to perform the following tasks from the Communications Server SNA Node Configuration window:

1. Select and define **Peer Connections**, while leaving **Host Resources** empty.
2. Select the **Local LU 6.2 LUs** option under the **CPI-C and APPC** heading.
3. Specify the values on the **Basic** tab of the Define a Local LU 6.2 notebook, leaving the **Dependent LU** box unchecked.
4. Specify the values on the **Advanced** tab of the Define a Local LU 6.2 notebook.

Configuring an LU 6.2 Partner LU on Your Infoprint Windows NT Server

You must configure an LU 6.2 Partner LU profile for each logical unit used by a host PSF program. Some IBM SecureWay Communications Server for NT documentation indicates that an LU 6.2 Partner LU profile is not required if the local LU is an independent logical unit. However, because the logical unit used by the host PSF program does not support parallel sessions, IBM SecureWay Communications Server for NT requires an LU 6.2 profile in all PSF Direct configurations.

Chapter 4. Local or Remote iSeries Configuration

Figure 16 shows a local or remote iSeries configuration.

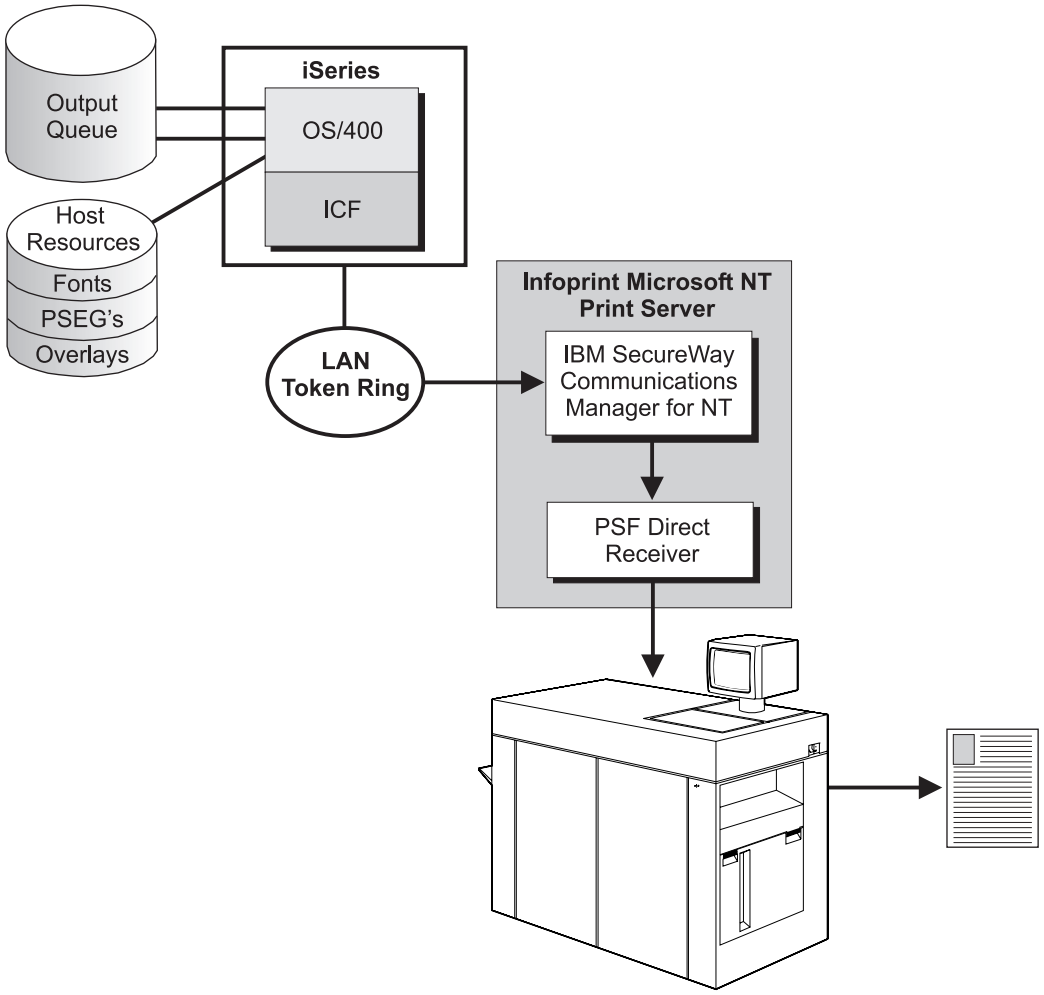

Figure 16. Local or Remote iSeries Configuration

This chapter describes how to create a local or remote iSeries configuration. It contains guidelines and examples for the following tasks:

- "iSeries Configuration" on page 16
  - "Creating an OS/400 Line Description" on page 16
  - "Creating an APPC Controller Description" on page 19
  - "Creating APPC Device Descriptions" on page 21
  - "Creating Printer Device Descriptions" on page 23
- "Specifying Communications Server for NT Configuration Profiles" on page 26
  - "Accessing the Communications Server for NT Profiles" on page 26
  - "iSeries Node Setup" on page 28
  - "iSeries Device Configuration" on page 32
  - "Enabling SNA API Clients for iSeries" on page 37

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– "iSeries Peer Connections Configuration" on page 39
– "Partner LU 6.2 Configuration for iSeries" on page 44
– "Local LU 6.2 Configuration for iSeries" on page 47
– "Mode Configuration for iSeries" on page 50
– "Transaction Program Configuration for iSeries" on page 53
– "LU 6.2 Security Configuration for iSeries" on page 56

Note: Before performing this configuration, review "Chapter 3. Preconfiguration Tasks" on page 13.

At the end of the chapter, there are two configuration work sheets. The first work sheet (Table 2 on page 59) is filled out with the values from the examples. The second work sheet (Table 3 on page 60) is blank for your own values.

iSeries Configuration

This section provides guidelines and examples for the following tasks:

- "Creating an OS/400 Line Description"
- "Creating an APPC Controller Description" on page 19
- "Creating APPC Device Descriptions" on page 21
- "Creating Printer Device Descriptions" on page 23

To learn more about the OS/400 operating system configuration that enables your system to work with Print Services Facility (PSF) Direct, access these web pages:

- "iSeries Information Center" (http://publib.boulder.ibm.com/pubs/html/as400/infocenter.htm)
- "iSeries Online Library" (http://publib.boulder.ibm.com/pubs/html/as400/onlinelib.htm)

OS/400 Printer Device Programming, SC41–5713, provides a great deal of general information on this topic. *AS/400e™ CL Reference*, SC41–5722, describes the commands that you use to create this configuration.

Creating an OS/400 Line Description

To create a dedicated line for your iSeries system, enter the following command at your OS/400 system command prompt:

```
CRTLINTRN LIND(line_name) RSRCNAME(resource_name) MAXFRAME(maximum_frame_size)
```

where:

LIND(*line_name*)
Specifies a name of your choice for the line description that you are creating. This example uses `TRLANAS44`.

RSRCNAME(*resource_name*)
Specifies the resource name that describes the automatic call unit port. To determine this value, you can use the `WRKHDWRSC TYPE(*CMN)` command. This command returns the resource name of the input/output adapter (IOA) and the port number on the IOA. Append the port number to the resource name of the IOA. For example, if the IOA resource name is `CMN1` and the port number is `0`, the automatic call unit port resource name is `CMN10`.

MAXFRAME(*maximum_frame_size***)**
Specifies the maximum number of bytes that this line can transmit or receive. This example uses `16388`.

Note: You specify the maximum frame size here, in the APPC controller description, and in the **Maximum PIU Size** field on the **Advanced** tab of the Define a LAN Device notebook (Figure 29 on page 34). If these values do not agree, the smallest value is used.

Enter the following command to display the line description:

```
DSPLIND LIND(line_name)
```

The line description is similar to Figure 17 on page 18. Note the local adapter address (**ADAPTR** parameter). By default, this value is the universal MAC address of the token-ring adapter or other network interface card (NIC) in the iSeries system. You must use this value in the **Destination address** field of the **Basic** tab of the Define a LAN Connection notebook (Figure 35 on page 40).

```
5769SS1 V4R4M0 990521
Line description . . . . . :   LIND         TRLANAS44
Option . . . . . :   OPTION       *ALL
Category of line . . . . . :                 *TRLAN
Resource name. . . . . :   RSRCNAME     CMN10
Online at IPL. . . . . :   ONLINE       *YES
Vary on wait . . . . . :   VRYWAIT      *NOWAIT
Network controller . . . . . :   NETCTL
Maximum controllers. . . . . :   MAXCTL       40
Line speed . . . . . :   LINESPEED    4M
Duplex . . . . . :   DUPLEX       *HALF
Maximum frame size . . . . . :   MAXFRAME     16388
LEC frame size . . . . . :   LECFRAME
Activate LAN manager . . . . . :   ACTLANMGR    *YES
TRLAN manager logging level. . . . :   TRNLOGLVL    *OFF
Current logging level. . . . . :                 *OFF
TRLAN manager mode . . . . . :   TRNMGRMODE   *OBSERVING
Log configuration changes. . . . . :   LOGCFGCHG    *LOG
Token-ring inform of beacon. . . . :   TRNINFBCN    *YES
Local adapter address. . . . . :   ADPTADR      08005A0D5E42
Exchange identifier. . . . . :   EXCHID       056E0102
Early token release. . . . . :   ELYTKNRLS    *NO
Error threshold level. . . . . :   THRESHOLD    *OFF
Message queue. . . . . :   MSGQ         *SYSVAL
Current message queue. . . . . :   QSYSOPR
Library. . . . . :   QSYS
      -------------Active Switched Controllers--------------
TRBLDAS41 TRBLDAS45 TRBLDAS51 TRBLDALT TRVMLAB TRBLDAS42 TRBLDAS37
--Source Service Access Points--     --Source Service Access Points--
SSAP    Maximum Frame   Type         SSAP    Maximum Frame   Type
04      *MAXFRAME       *SNA         AA      *MAXFRAME       *NONSNA
12      *MAXFRAME       *NONSNA      C8      *MAXFRAME       *HPR
Link speed . . . . . :   LINKSPEED    4M
Cost/connect time. . . . . :   COSTCNN      0
Cost/byte. . . . . :   COSTBYTE     0
Security for line. . . . . :   SECURITY     *NONSECURE
Propagation delay. . . . . :   PRPDLY       *MIN
User-defined 1 . . . . . :   USRDEF1      128
User-defined 2 . . . . . :   USRDEF2      128
User-defined 3 . . . . . :   USRDEF3      128
Autocreate controller. . . . . :   AUTOCRTCTL   *NO
Recovery limits. . . . . :   CMNRCYLMT
Count limit. . . . . :                   2
Time interval . . . . . :                5
Functional address . . . . . :   FCNADR       *NONE
Line description . . . . . :   LIND         TRLANAS44
Option . . . . . :   OPTION       *ALL
Category of line . . . . . :                 *TRLAN
```

Figure 17. OS/400 Line Description Example

Creating an APPC Controller Description

To create an APPC controller description for your iSeries PSF Direct configuration, enter the following command at your OS/400 system command prompt:

```
CRTCTLAPPC CTLD(controller_name) LINKTYPE(*LAN) SWTLINLST(line_name)
   MAXFRAME(maximum_frame_size) RMTNETID(nt_id)
   RMTCPNAME(nt_cp_name) EXCHID(block_id_xid) ADPTADR(pc_nic_address0)
   APPN(*NO)
```

where:

CTLD(*controller_name***)**
Specifies the name of the APPC controller description. This example uses `NTTEST`.

LINKTYPE(*LAN)
Specifies the type of line to which this controller is attached. ***LAN** indicates that it is attached to a local area network.

SWTLINLST(*line_name***)**
Specifies the name of the switched line to which this controller is attached. Specify the name of the line description. This example uses `TRLANAS44`.

MAXFRAME(*maximum_frame_size***)**
Specifies the maximum number of bytes that this line can transmit or receive. This example uses `16393`.

Note: You specify the maximum frame size here, in the line description, and in the **Maximum PIU Size** field on the **Advanced** tab of the Define a LAN Device notebook (Figure 29 on page 34). If these values do not agree, the smallest value is used.

RMTNETID(*nt_id***)**
Specifies the name of the remote network in which the adjacent control point resides. If the control point is on an iSeries system, this is the local network ID displayed by the **DSPNETA** command on that server. This example uses `USIBMBQ`.

You must use the same name in the APPC device description and in the first part of the **Fully qualified Control Point (CP) name** field on the **Basic** tab of the Define the Node notebook (Figure 23 on page 29).

RMTCPNAME(*nt_cp_name***)**
Specifies the name of the remote control point. If the control point is on an iSeries system, you can use the **DSPNETA** command on that server to display the control point name. This example uses `NT2`.

You must use this name in the second part of the **Fully qualified Control Point (CP) name** field on the **Basic** tab of the Define the Node notebook (Figure 23 on page 29). You should also use it, although this is not required, in the **CP alias** field of the same tab.

EXCHID(*block_id_xid***)**
Specifies the exchange identifier of this controller. The exchange identifier consists of a 3-digit hexadecimal block identifier, which should be `05D`, followed by a 5-digit hexadecimal controller identifier. The value must be unique within the network. This example uses `05DC021C`; `05D00051` is usually available.

Note: If you are migrating from an AIX® operating system, **Local Node ID** matches the **XID Node ID** parameter.

You must use this value in the **Local Node ID** field of the **Basic** tab of the Define the Node notebook (Figure 23 on page 29).

ADPTADR(*pc_nic_address0***)**
Specifies the MAC address of the NIC in the Infoprint Manager server. This example uses `400059550067`.

APPN(*NO)
Specifies whether the local system uses Advanced Peer-to-Peer Networking® (APPN®) functions when communicating with this controller. To improve connectivity, IBM recommends that you do not use APPN in this configuration. Specify ***NO**.

Note: If you want to use APPN, refer to *APPN Support*, SC41–5407.

This command creates output similar to Figure 18.

```
5769SS1 V4R4M0 990521
Controller description . . . . . :   CTLD         NTTEST
Option . . . . . :   OPTION       *ALL
Category of controller . . . . . :                *APPC
Link type. . . . . :   LINKTYPE     *LAN
Online at IPL. . . . . :   ONLINE       *YES
Active switched line . . . . . :                  TRLANAS44
Character code . . . . . :   CODE         *EBCDIC
Maximum frame size . . . . . :   MAXFRAME     16393
Current maximum frame size . . . . :              3808
Remote network identifier. . . . . :   RMTNETID     USIBMBQ
Remote control point . . . . . :   RMTCPNAME    NT2
Exchange identifier. . . . . :   EXCHID       05DC021C
Initial connection . . . . . :   INLCNN       *DIAL
Dial initiation. . . . . :   DIALINIT     *LINKTYPE
Switched disconnect. . . . . :   SWTDSC       *YES
Data link role . . . . . :   ROLE         *NEG
LAN remote adapter address . . . . :   ADPTADR      400059550067
LAN DSAP . . . . . :   DSAP         04
LAN SSAP . . . . . :   SSAP         04
Autocreate device. . . . . :   AUTOCRTDEV   *ALL
System job . . . . . :                    QCMNARB03
Message queue. . . . . :   MSGQ         *SYSVAL
Current message queue. . . . . :   QSYSOPR
Library. . . . . :   QSYS
Text . . . . . :   TEXT         *BLANK
Switched line list . . . . . :   SWTLINLST    TRLANAS44
```

Figure 18. APPC Controller Description Example (Part 1 of 2)

```
    --------------------Switched Lines----------------------
  Attached devices . . . . . :   DEV
    -------------------Attached Devices---------------------
| APPN-capable . . . . . :   APPN         *NO
| APPN CP session support. . . . . :   CPSSN        *NO
  APPN/HPR capable . . . . . :   HPR
  Path switching . . . . . :   HPRPTHSWT    *NO
  Branch extender role . . . . . :   BEXROLE      *NETNODE
| Remote APPN node type. . . . . :   NODETYPE
| APPN transmission group number . . :   TMSGRPNBR
| APPN minimum switched status . . . :   MINSWTSTS
  Autodelete device. . . . . :   AUTODLTDEV   1440
  User-defined 1 . . . . . :   USRDFN1      *LIND
  User-defined 2 . . . . . :   USRDFN2      *LIND
  User-defined 3 . . . . . :   USRDFN3      *LIND
  Model controller description . . . :   MDLCTL       *NO
  Control owner. . . . . :   CTLOWN       *USER
  Disconnect timer . . . . . :   DSCTMR
  Minimum connect timer. . . . . :               170
  Disconnection delay timer. . . . . :               30
  LAN frame retry. . . . . :   LANFRMRTY    10
  LAN connection retry . . . . . :   LANCNNRTY    10
    ------------Display Controller Description-------------
  Controller description . . . . . :   CTLD         NTTEST
  Option . . . . . :   OPTION       *ALL
  Category of controller . . . . . :               *APPC
  LAN response timer . . . . . :   LANRSPTMR    30
  LAN connection timer . . . . . :   LANCNNTMR    70
  LAN acknowledgement timer. . . . . :   LANACKTMR    1
  LAN inactivity timer . . . . . :   LANINACTMR   100
  LAN acknowledgement frequency. . . :   LANACKFRQ    7
  LAN max outstanding frames . . . . :   LANMAXOUT    7
  LAN access priority. . . . . :   LANACCPTY    0
  LAN window step. . . . . :   LANWDWSTP    *NONE
  Recovery limits. . . . . :   CMNRCYLMT
  Count limit. . . . . :               2
  Time interval. . . . . :               5
```

Figure 18. APPC Controller Description Example (Part 2 of 2)

Creating APPC Device Descriptions

You must create an APPC device description for each printer in your iSeries PSF Direct configuration. To do this, enter the following command at your OS/400 system command prompt:

```
CRTDEVAPPC DEVD(prtr_devd) RMTLOCNAME(pc_network_name.pc_luname)
   LCLLOCNAME(local_location_name) RMTNETID(nt_id) CTL(controller_name)
   MODE(QSPWTR) LOCADR(00) APPN(*NO) SNGSSN(*YES)
```

where:

DEVD(*prtr_devd***)**
Specifies the name of the APPC device description. This example uses NTTESTP1.

RMTLOCNAME(*pc_network_name.pc_luname***)**
Specifies the remote location name of the APPC device. This example uses USIBMBQ.AS4TEST.

Notes:

1. **RMTLOCNAME** and **LCLOCNAME** must not be the same.

2. The combination of **RMTLOCNAME** and **LCLOCNAME** must be unique for each device description attached to the same controller.

You must use the same remote location in the printer device description. You must use the *pc_luname* value in the **Local LU name** field of the **Basic** tab of the Define a Local LU 6.2 notebook (Figure 43 on page 48). You should also use the *pc_luname* value, although this is not required, in the **Local LU alias** field of the same tab.

LCLLOCNAME(*local_location_name***)**
Specifies the name by which the local system is known to the APPC device. Specify the local system name returned by the **DSPNETA** command. This example uses `BLDAS44`.

Notes:

1. **RMTLOCNAME** and **LCLOCNAME** must not be the same.
2. The combination of **RMTLOCNAME** and **LCLOCNAME** must be unique for each device description attached to the same controller.

You must use this value in the second part of **Partner LU name** field of the **Basic** tab of the Define a Partner LU 6.2 notebook (Figure 40 on page 45). You should also use it, although this is not required, in the **Partner LU alias** field of the same tab.

RMTNETID(*nt_id***)**
Specifies the same remote network ID that you specified for the APPC controller. This example uses `USIBMBQ`.

You must use this value in the first part of the **Fully qualified Control Point (CP) name** field of the **Basic** tab of the Define the Node notebook (Figure 23 on page 29).

CTL(*controller_name***)**
Specifies the name of the APPC controller description. This example uses `NTTEST`.

MODE(QSPWTR)
Specifies the mode that defines the sessions on this device. Specify **QSPWTR**.

This value must match the **MODE** value in the printer device description, but you do not need to specify it there because, for the printer device description, **QSPWTR** is the default. You must use this value in the **Mode name** field of the **Basic** tab of the Define a Mode notebook (Figure 46 on page 51).

LOCADR(00)
Specifies the NAU address of the local LU as a 2-digit hexadecimal value. For an independent LU, this value must be `00` (the default).

APPN(*NO)
Specifies whether APPN is used. Specify ***NO**.

SNGSSN(*YES)
Specifies whether this device description uses single sessions between the local and remote locations. ***YES** indicates that it does, and allows the default number of 10 single-session conversations.

This command creates output similiar to Figure 19 on page 23.

```
5769SS1 V4R4M0 990521
Device description . . . . . :   DEVD         NTTESTP1
Remote location. . . . . :   RMTLOCNAME   AS4TEST
Name or address. . . . . :                 USIBMBQ.AS4TEST
Local location . . . . . :   LCLLOCNAME   BLDAS44
Online at IPL. . . . . :   ONLINE       *YES
Controller . . . . . :   CTL          NTTEST
Mode . . . . . :   MODE         QSPWTR
Message queue. . . . . :   MSGQ         *CTLD
Local address. . . . . :   LOCADR       00
APPN capable . . . . . :   APPN         *NO
Single session capable . . . . . :   SNGSSN       *YES
Number of conversations. . . . . :                 10
Text . . . . . :   TEXT         *BLANK
```

Figure 19. APPC Device Description Example

Creating Printer Device Descriptions

You must create a printer device description for each printer in your iSeries PSF Direct configuration. To do this, enter the following command at your OS/400 system command prompt:

```
CRTDEVPRT DEVD(prtr_devd) DEVCLS(*RMT) TYPE(*IPDS) MODEL(0) AFP(*YES)
   AFPATTACH(*APPC) FONT(font_id) FORMFEED(form_feed)
   RMTLOCNAME(pc_network_name.pc_luname)
```

where:

DEVD(*prtr_devd***)**
Specifies the name of the printer device description. This example uses NTTESTP1.

DEVCLS(*RMT)
Specifies the device class of this printer. ***RMT** indicates that the printer is connected to a remote work station controller.

TYPE(*IPDS)
Specifies the device type of this printer. ***IPDS** indicates that this is an Intelligent Printer Data Stream™ (IPDS™) printer.

MODEL(0)
Specifies the model number of this printer. For all IPDS printers, no matter what the actual model number is, specify 0.

AFP(*YES)
Specifies whether the printer is capable of Advanced Function Presentation™ (AFP™) functions. For most IPDS printers, specify ***YES**.

AFPATTACH(*APPC)
Specifies the type of attachment used for AFP printers. ***APPC** indicates that this printer is attached to a synchronous data link control (SDLC) or token-ring network using APPC.

FONT(*font_id***)**
Specifies the font identifier associated with this printer. This example uses 011 (Courier). This parameter is used only when a print job specifies **FONT(*DEVD)**.

FORMFEED(*form_feed***)**
Specifies how forms are fed to this printer. Specify one of the following values:

***AUTOCUT**
Cut sheets from an automatic feeder.

***CONT**
Continuous forms from the tractor feed attachment.

***CONT2**
Continuous forms from the secondary tractor feed attachment.

***CUT** Cut sheets fed manually.

This example uses `*AUTOCUT`.

RMTLOCNAME(*pc_network_name***.***pc_luname***)**
Specifies the remote location name of the printer device. This example uses `USIBMBQ.AS4TEST`.

You must use the same remote location in the APPC device description. You must use the *pc_luname* value in the **Local LU name** field of the **Basic** tab of the Define a Local LU 6.2 notebook (Figure 43 on page 48). You should also use the *pc_luname* value, although this is not required, in the **Local LU alias** field of the same tab.

This command creates output similiar to Figure 20 on page 25.

```
  5769SS1 V4R4M0 990521
| Device description . . . . . :   DEVD         NTTESTP1
  Option . . . . . :   OPTION       *ALL
  Category of device . . . . . :                 *PRT
  Automatically created. . . . . :               NO
  Device class . . . . . :   DEVCLS       *RMT
  Device type. . . . . :   TYPE         *IPDS
  Device model . . . . . :   MODEL        0
  Advanced function printing . . . . :   AFP          *YES
  AFP attachment . . . . . :   AFPATTACH    *APPC
  Online at IPL. . . . . :   ONLINE       *NO
  Font . . . . . :
  Font identifier  . . . . . :               011
  Point size . . . . . :                     *NONE
  Form feed. . . . . :   FORMFEED     *AUTOCUT
  Separator drawer . . . . . :   SEPDRAWER    *FILE
  Separator program. . . . . :   SEPPGM       *NONE
  Library. . . . . :
  Printer error message. . . . . :   PRTERRMSG    *INQ
| Message queue. . . . . :   MSGQ         *CTLD
  Library. . . . . :                         *LIBL
  Current message queue. . . . . :           QSYSOPR
  Library. . . . . :   QSYS
  Image configuration. . . . . :   IMGCFG       *NONE
  Maximum pending requests . . . . . :   MAXPNDRQS    6
  Print while converting . . . . . :   PRTCVT       *YES
  Form definition. . . . . :   FORMDF       F1C10110
  Library .  . . . . . :                     *LIBL
  Character identifier . . . . . :   CHRID        *SYSVAL
  Remote location. . . . . :   RMTLOCNAME   AS4TEST
  Name or address. . . . . :                 USIBMBQ.AS4TEST
  Local location . . . . . :   LCLLOCNAME   *NETATR
  Mode . . . . . :   MODE         QSPWTR
  User-defined object. . . . . :   USRDFNOBJ    *NONE
  Object type. . . . . :                     *NONE
  Data transform program . . . . . :   USRDTATFM    *NONE
  User-defined driver program. . . . :   USRDRVPGM    *NONE
  Dependent location name. . . . . :   DEPLOCNAME   *NONE
  Allocated to . . . . . :
  Job name . . . . . :   NTTEST
  User . . . . . :   QSPLJOB
  Number . . . . . :                         055699
| Text . . . . . :   TEXT         *BLANK
  User-defined options . . . . . :   USRDFNOPT
```

Figure 20. Printer Device Description Example

Specifying Communications Server for NT Configuration Profiles

This section contains instructions and guidelines for configuring the Communications Server for NT profiles. It includes the following tasks:

- "Accessing the Communications Server for NT Profiles"
- "iSeries Node Setup" on page 28
- "iSeries Device Configuration" on page 32
- "Enabling SNA API Clients for iSeries" on page 37
- "iSeries Peer Connections Configuration" on page 39
- "Partner LU 6.2 Configuration for iSeries" on page 44
- "Local LU 6.2 Configuration for iSeries" on page 47
- "Mode Configuration for iSeries" on page 50
- "Transaction Program Configuration for iSeries" on page 53
- "LU 6.2 Security Configuration for iSeries" on page 56

Accessing the Communications Server for NT Profiles

Use the following procedure to access the IBM SecureWay Communications Server for NT applications that are described in "What is IBM SecureWay Communications Server for Windows NT?" on page 2.

Note that this procedure assumes that you have dragged the icons for **SNA Node Configuration** and **SNA Node Operations** to your desktop after they were created at installation.

1. From your NT desktop view, double-click the **SNA Node Configuration** icon that resides on your desktop:

2. At the Welcome to Communications Server Configuration! pop-up window, select the **New** button for a new configuration) and click the **Next>** button.

   Communications Server creates an *xxx*.acg file (where *xxx* represents the file name you select in this window. This *xxx*.acg file resides in the *C*:\IBMCS\private directory, where *C* is the drive where you installed IBM SecureWay Communications Server for NT. For users migrating from PSF Direct on OS/2®, this *xxx*.acg file is the equivalent of the OS/2 Communications Manager Communications Server *xxx*.ndf file.

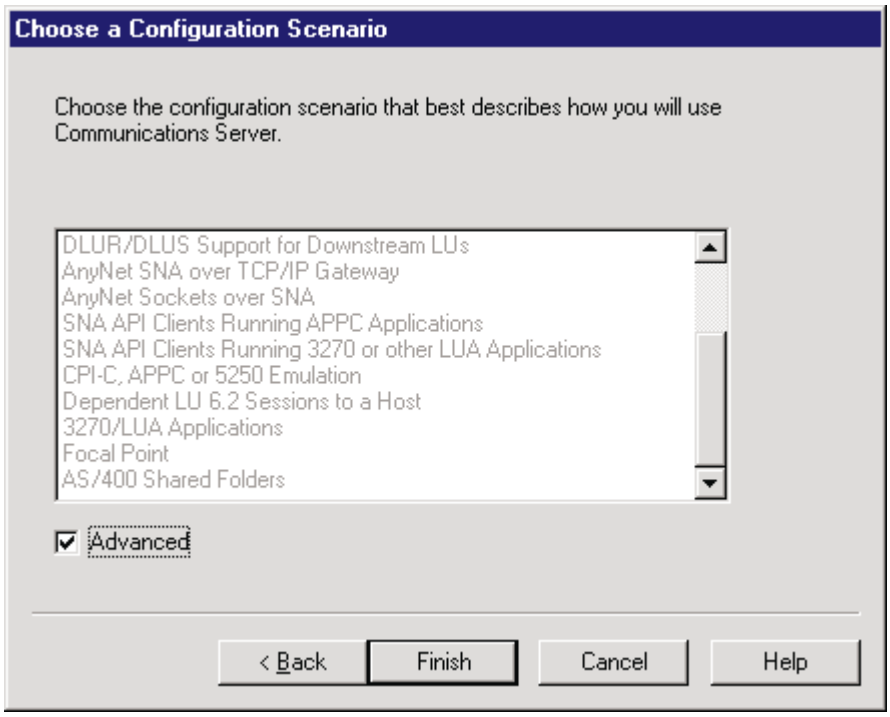

Figure 21. Choose a Configuration Scenario Window

3. In the Choose a Configuration Scenario window (Figure 21), check the **Advanced** box, which causes the display to turn gray. Click the **Finish** button.
4. From the Communications Server SNA Node Configuration window (Figure 22 on page 28), you are ready to begin configuring your system for PSF Direct.

iSeries Node Setup

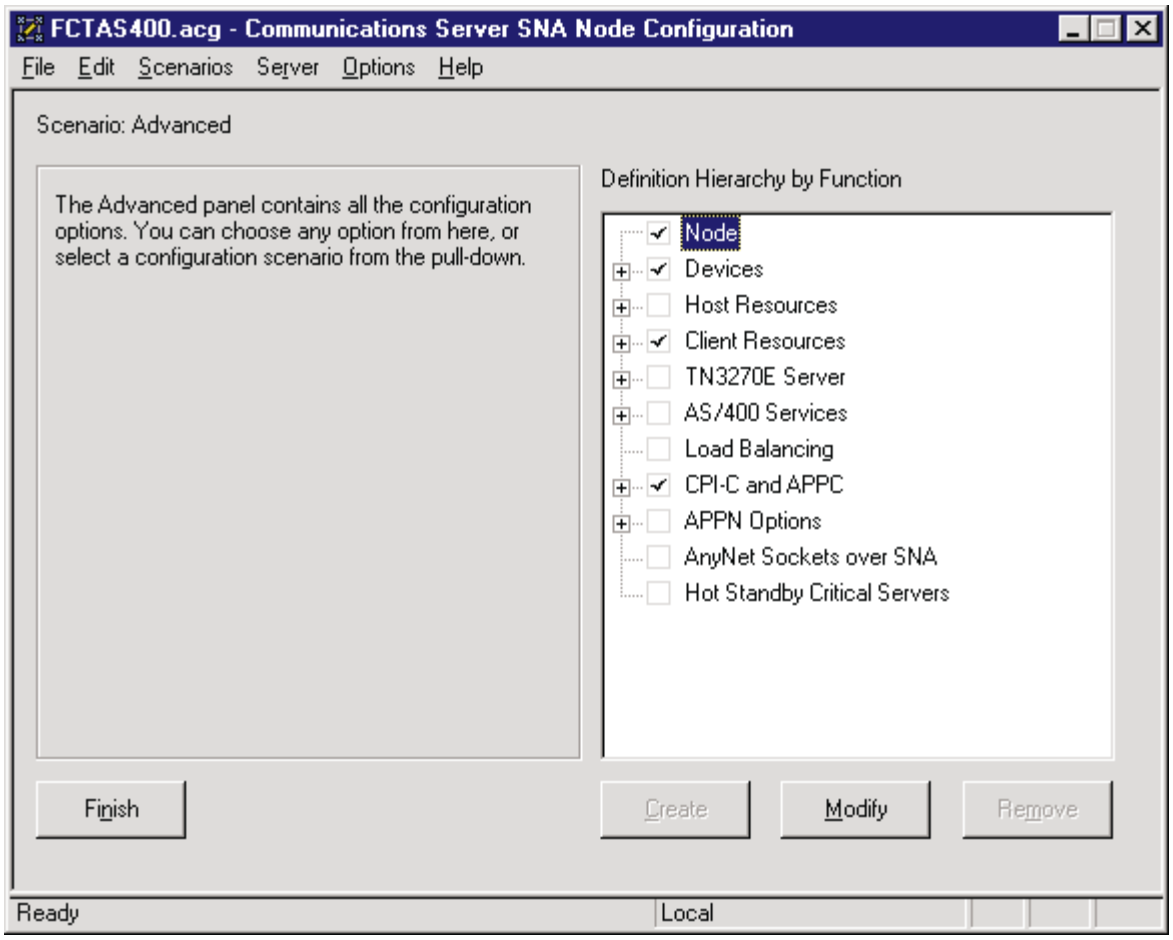

Figure 22. Communications Server SNA Node Configuration Window: Node

In the Communications Server SNA Node Configuration window (Figure 22), right-click the **Node** box and select the **Create** option. The Define the Node notebook opens at the **Basic** tab.

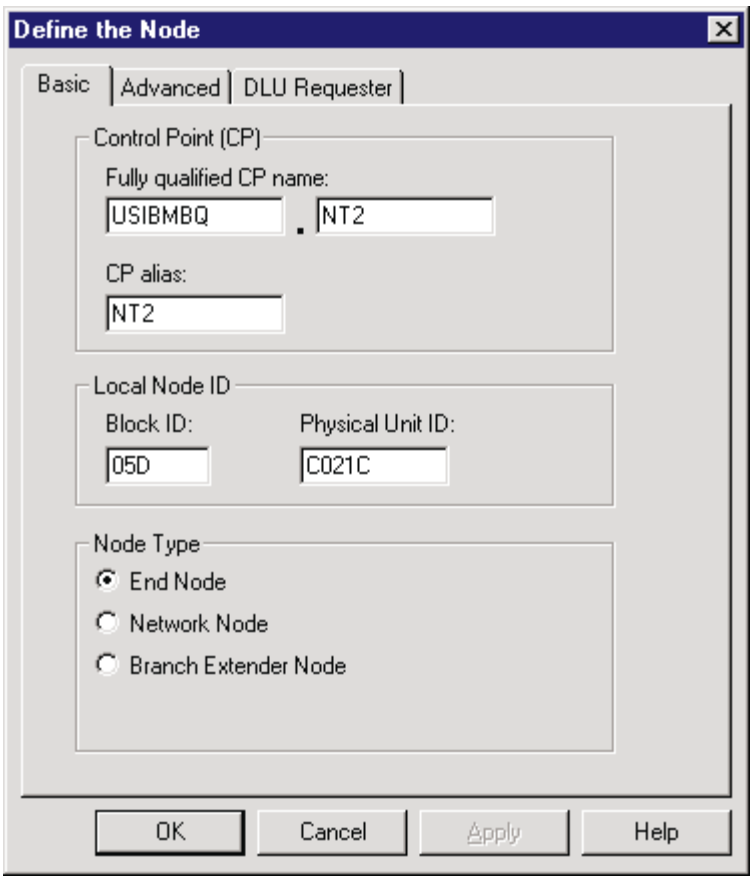

Figure 23. Define the Node Notebook: Basic Tab

On the **Basic** tab (Figure 23), specify values for the following parameters:

Fully qualified Control Point (CP) name
Specifies the name of the component that manages the resources of that node. Enter the **RMTNETID** value from the APPC controller description (Figure 18 on page 20) in the first part of this field and the **RMTCPNAME** value from the APPC controller description in the second part.

CP alias
Specifies an alternate name for the CP. Local applications can use this name, instead of the **Fully qualified Control Point (CP) name**, to refer to the local CP. Although you can use any meaningful value, IBM recommends that you enter the second part of the **Fully qualified Control Point (CP) name** field, which is also the **RMTCPNAME** value from the APPC controller description (Figure 18 on page 20).

Local Node ID
Specifies both the **Block ID** and the **Physical Unit ID**. The **Block ID** is a 3-digit hexadecimal string that identifies the product type in an SNA network. The **Physical Unit ID** is a 5-digit hexadecimal string that identifies a physical unit (PU).

The OS/400 operating system uses this identifier to establish a link with this workstation when attached to a network. The value must be unique within the network. Enter the **EXCHID** value from the APPC controller description (Figure 18 on page 20).

If you are migrating from an AIX operating system, **Local Node ID** matches the **XID Node ID** parameter.

Node Type
Specifies the type of node. Take the default value, **End node**.

If you are migrating from an AIX operating system, **Node Type** matches the **Control Point Type** parameter.

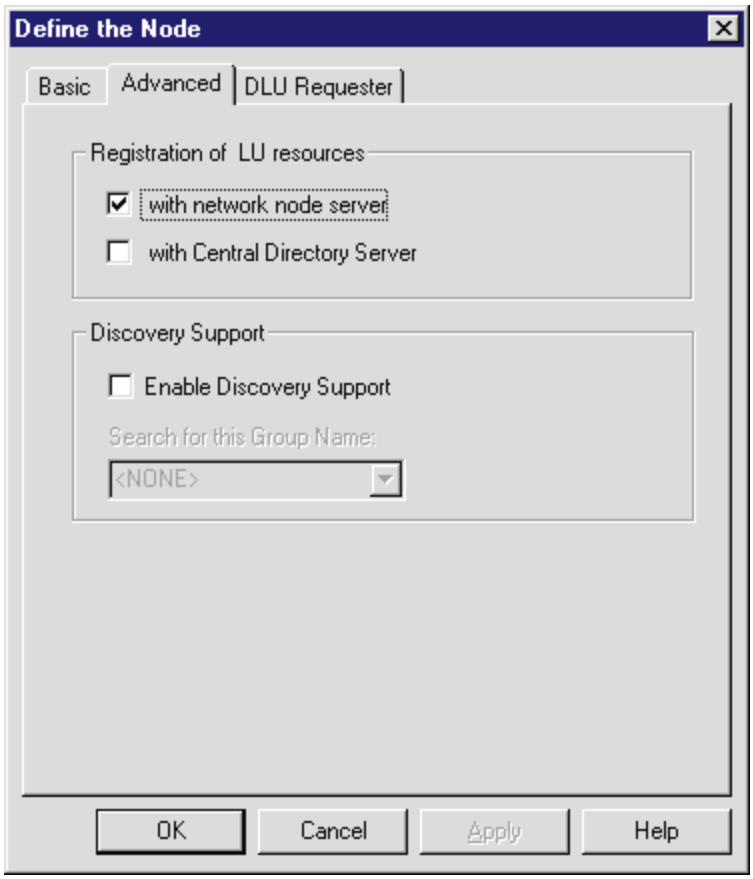

Figure 24. Define the Node Notebook: Advanced Tab

On the **Advanced** tab (Figure 24), specify values for the following parameters:

Registration of LU resources
Specifies that directory information about the local logical units (LUs) 6.2 is sent to the server. As the example shows, check both the **Network node server** and the **Central Directory Server**.

Discovery Support
Specifies a LAN address resolution protocol that can be used to find another node that matches given search values. Adjust the search parameter to search for nodes that provide SNA boundary function or iSeries systems. Select the check box to enable discovery support.

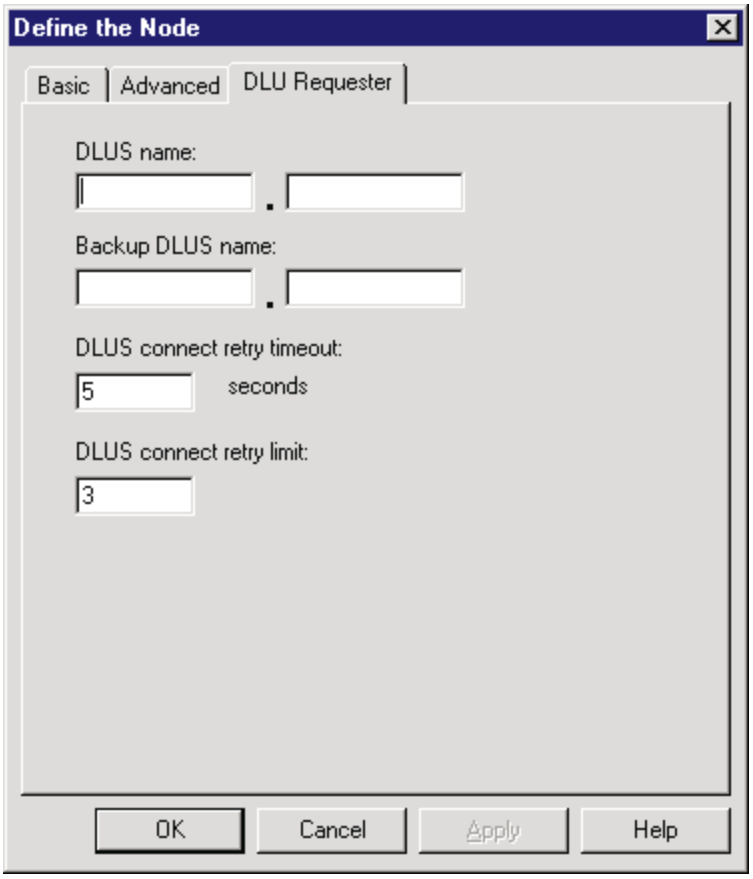

Figure 25. Define the Node Notebook: DLU Requester Tab

On the **DLU Requester** tab (Figure 25), accept the default values for the following parameters:

DLUS connect retry timeout
Specifies the time between attempts to reconnect a dependent logical unit server (DLUS). This parameter is based on the **DLUS connect retry limit** parameter. Take the default of 5.

DLUS connect retry limit
Specifies the maximum number of attempts to reconnect a DLUS without receiving an acknowledgment in the time set by the **DLUS connect retry timeout** parameter. Take the default of 3.

Click **OK** to save these configuration settings.

iSeries Device Configuration

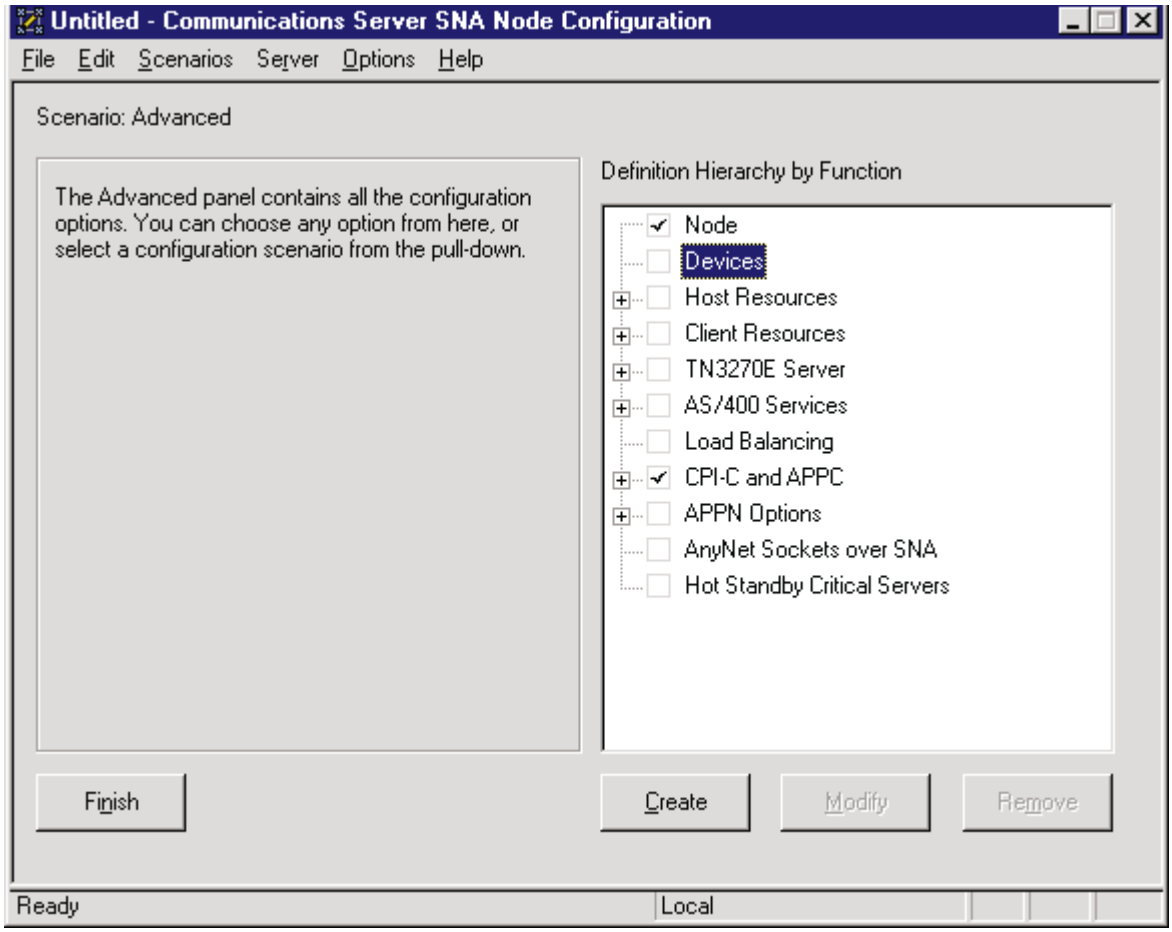

Figure 26. Communications Server SNA Node Configuration Window: Devices

In the Communications Server SNA Node Configuration window (Figure 26), right-click the **Devices** box and select the **Create** option. The Device Type pop-up notebook (Figure 27) opens.

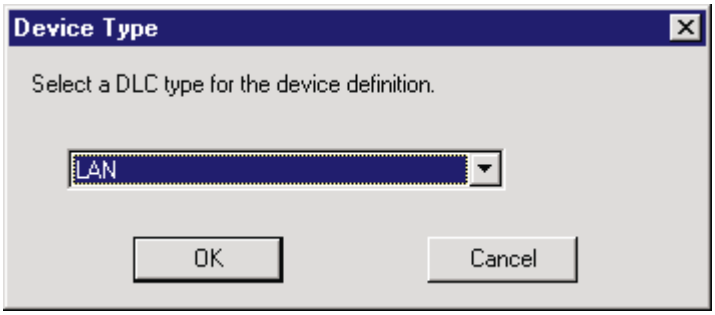

Figure 27. Device Type Window

Select **LAN** as your data link control (DLC) type. A DLC is a set of rules that nodes on a data link (such as an SDLC link or a token ring) use to accomplish an orderly exchange of information.

Click **OK** to save this configuration setting.

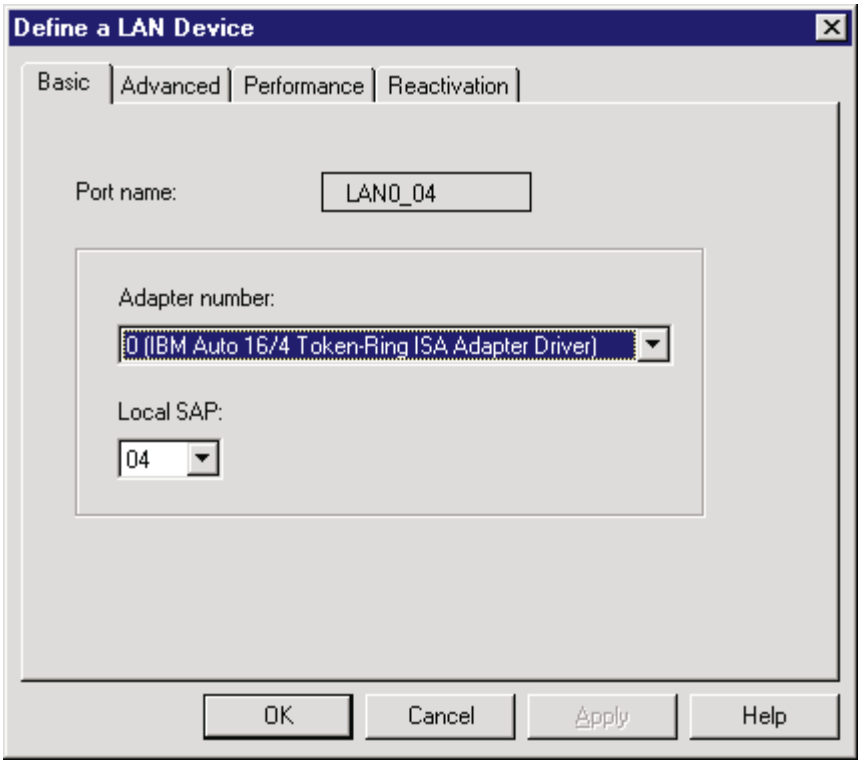

Figure 28. Define a LAN Device Notebook: Basic Tab

On the **Basic** tab of the Define a LAN Device notebook (Figure 28), supply the following values:

Port name
Specifies the port name of the physical connection to the link hardware. This value consists of the word **LAN**, the adapter number, and the local SAP number, with an underscore between the adapter number and the local SAP number. Accept the value that is displayed.

Adapter number
Specifies a value from 0 to 7 that uniquely identifies this adapter. You may have both token-ring and Ethernet adapters defined at your installation. Ensure that you select the right adapter.

Local SAP
Specifies the local service access point (SAP) number of the local port as a value from 04 through FC. Note that this number must be a multiple of four. Take the default of `04`.

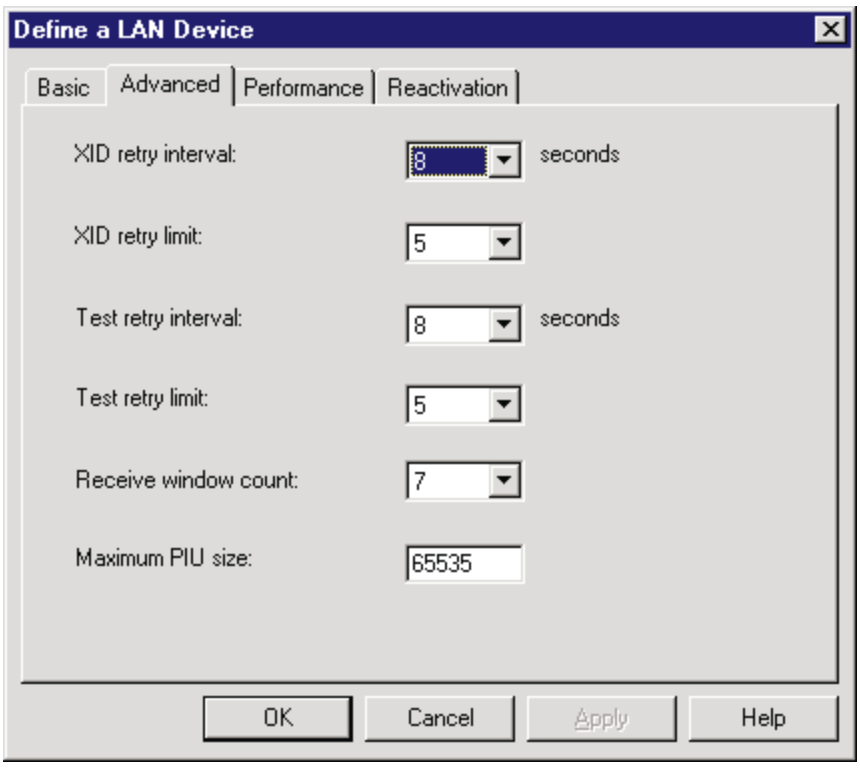

Figure 29. Define a LAN Device Notebook: Advanced Tab

On the **Advanced** tab (Figure 29), supply the following values:

XID retry interval
Specifies the time the link station waits for a reply to a previous **XID** command before resending that command. Specify 8. If the link station is a calling link station, this value causes it to try to establish a link connection with the communication controller every 8 seconds, until a link connection can be established.

If you are migrating from an AIX operating system to a Windows NT operating system, this parameter replaces the **Response Timeout** parameter from the **Token-Ring SNA DLC** profile.

XID retry limit
Specifies the maximum number of times an **XID** command will be retransmitted before Communications Server for NT presumes that the link is broken and stops retrying. Specify 5. The previous parameter defines the interval between the attempts.

If you are migrating from an AIX operating system to a Windows NT operating system, this parameter replaces the **XID Retransmit count** parameter from the **Token-Ring SNA DLC** profile.

Test retry interval
Specifies the time between attempts to find the adjacent link station on the LAN. This parameter is needed to establish communication with the network and does not necessarily relate to the PSF host system. The number of times an **XID** is sent is based on the configured **XID retry limit**.

Test retry limit
Specifies the number of times Communications Server attempts to find the adjacent link station on the LAN. Specify a value from 3 to 30.

Receive window count

Defines the size of the link-level window and specifies the maximum number of frames to receive before sending a link-level acknowledgement. The default **Receive window count** value is 8. You must adjust this default to produce acceptable throughput.

Maximum PIU size

Specifies a value between 99 and 65535 bytes that represents the maximum number of bytes in the data buffer that SNA sessions use for this link. If the value of the **Maximum PIU size** exceeds the frame size supported by your local device driver, the value will be reduced to match the frame size.

In this example, the screen shows a value of 65535, but the value of the **MAXFRAME** operand is 16388 in Figure 17 on page 18 and 16393 in Figure 18 on page 20. The smallest value, 16388, is used.

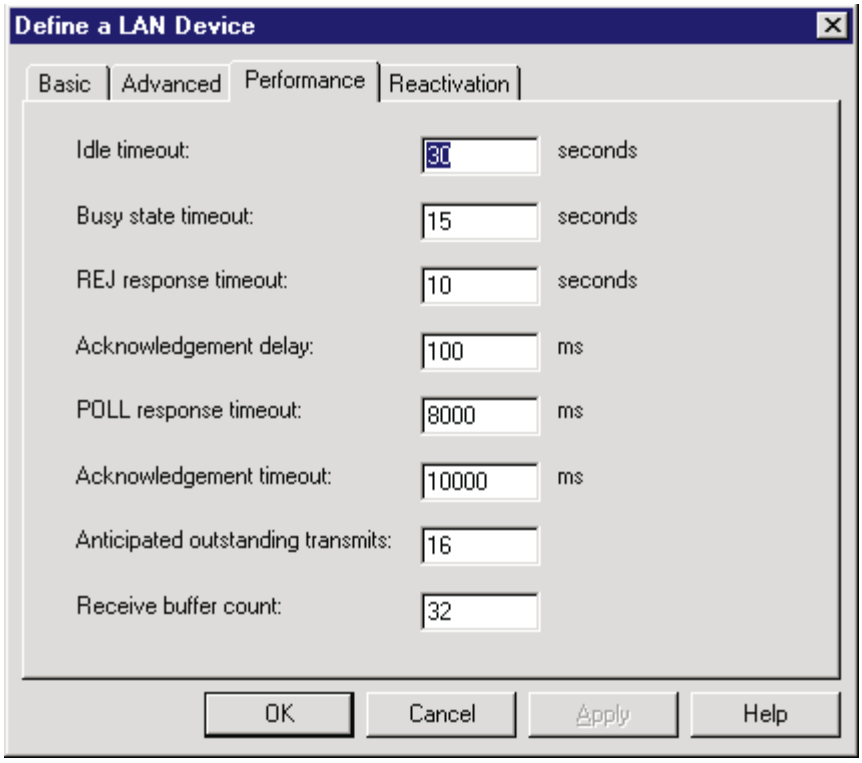

Figure 30. Define a LAN Device Notebook: Performance Tab

On the **Performance** tab (Figure 30), accept the default values.

If you are migrating from an AIX operating system to a Windows NT operating system, see Table 1 on page 36 for a map of the parameters on the **Performance** tab to the corresponding AIX values.

Table 1. Windows NT and AIX Parameters for LAN Device Performance

Windows NT Parameter	AIX Parameter
Idle timeout	Inactivity time-out
Busy state timeout	n/a
Acknowledgement delay	n/a
Acknowledgement timeout	Acknowledgement timeout
POLL response timeout	n/a
Anticipated outstanding transmits	Transmit window count
Receive buffer count	n/a

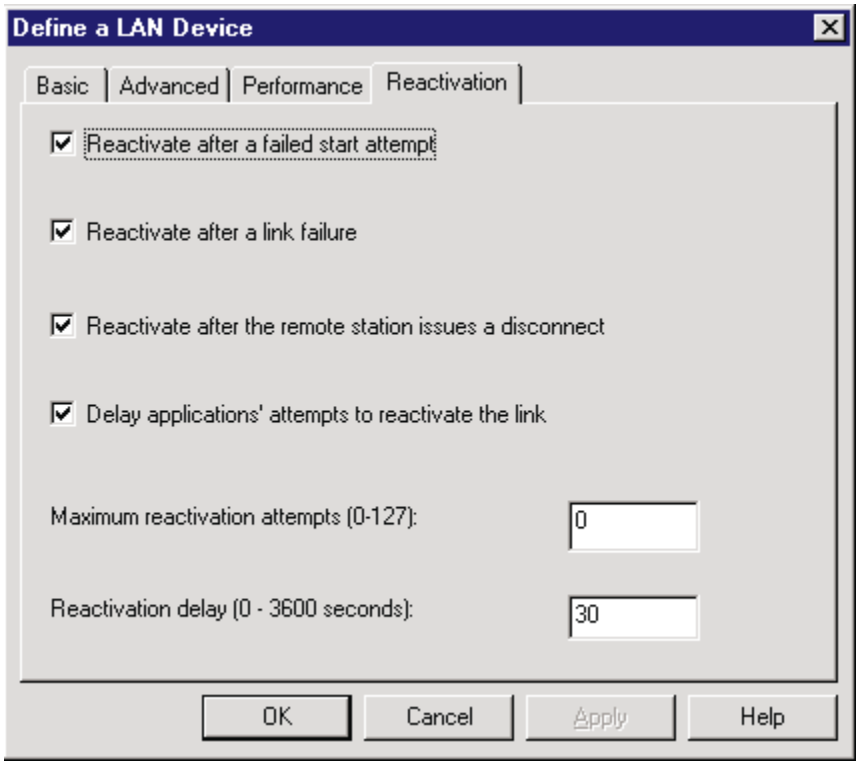

Figure 31. Define a LAN Device Notebook: Reactivation Tab

On the **Reactivation** tab (Figure 31), accept the default values.

Click **OK** to save these configuration settings.

Enabling SNA API Clients for iSeries

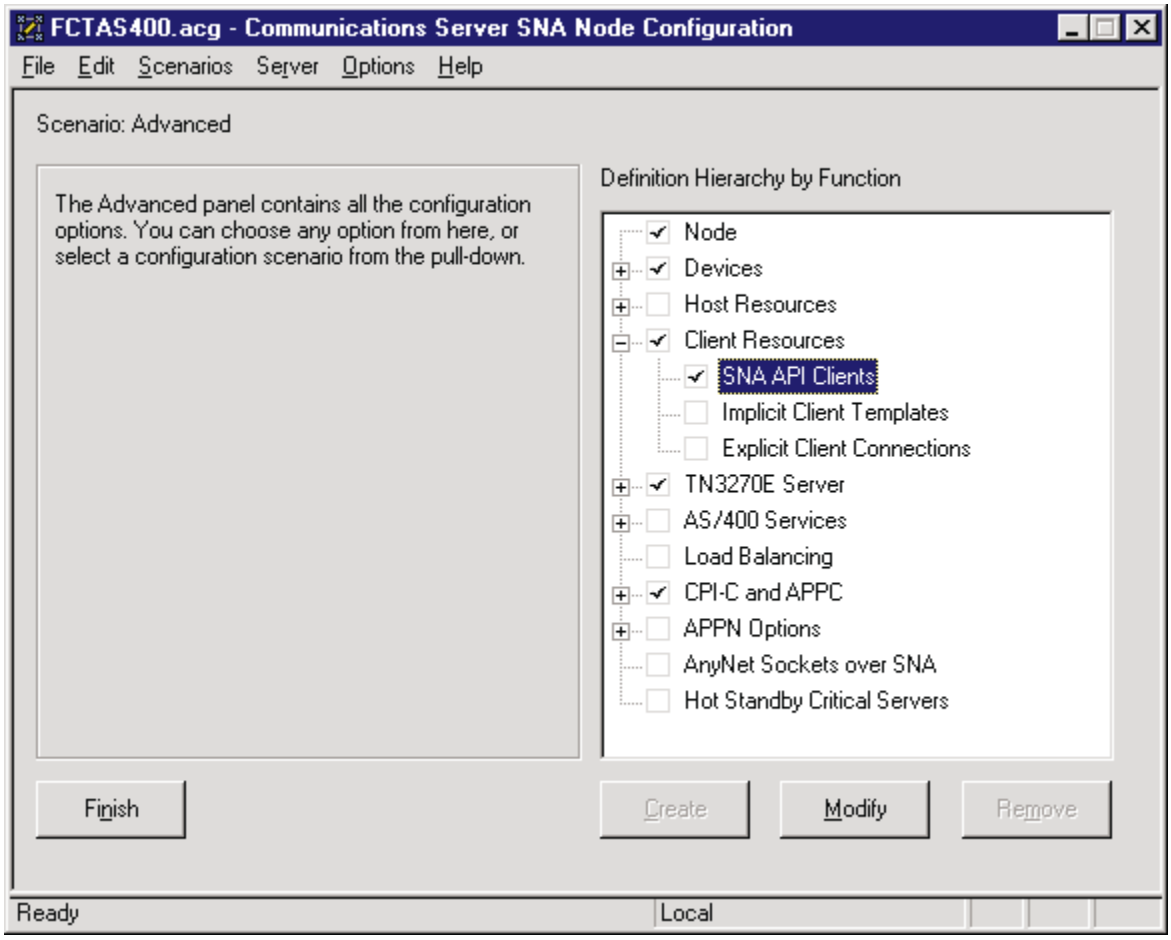

Figure 32. Communications Server SNA Node Configuration Window: SNA API Clients

In the Communications Server SNA Node Configuration window (Figure 32), right-click the **Client Resources** box, then the **SNA API Clients** box. The SNA Clients window opens.

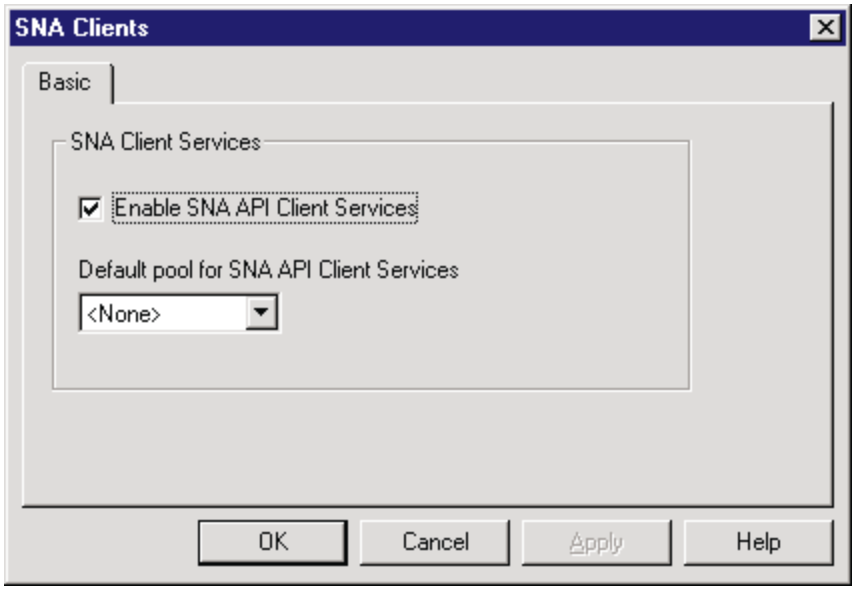

Figure 33. SNA Clients Window

In the SNA Clients window (Figure 33), check the **Enable SNA API Client Services** box.

Click **OK** to save these specifications to the *xxx*.acg file.

iSeries Peer Connections Configuration

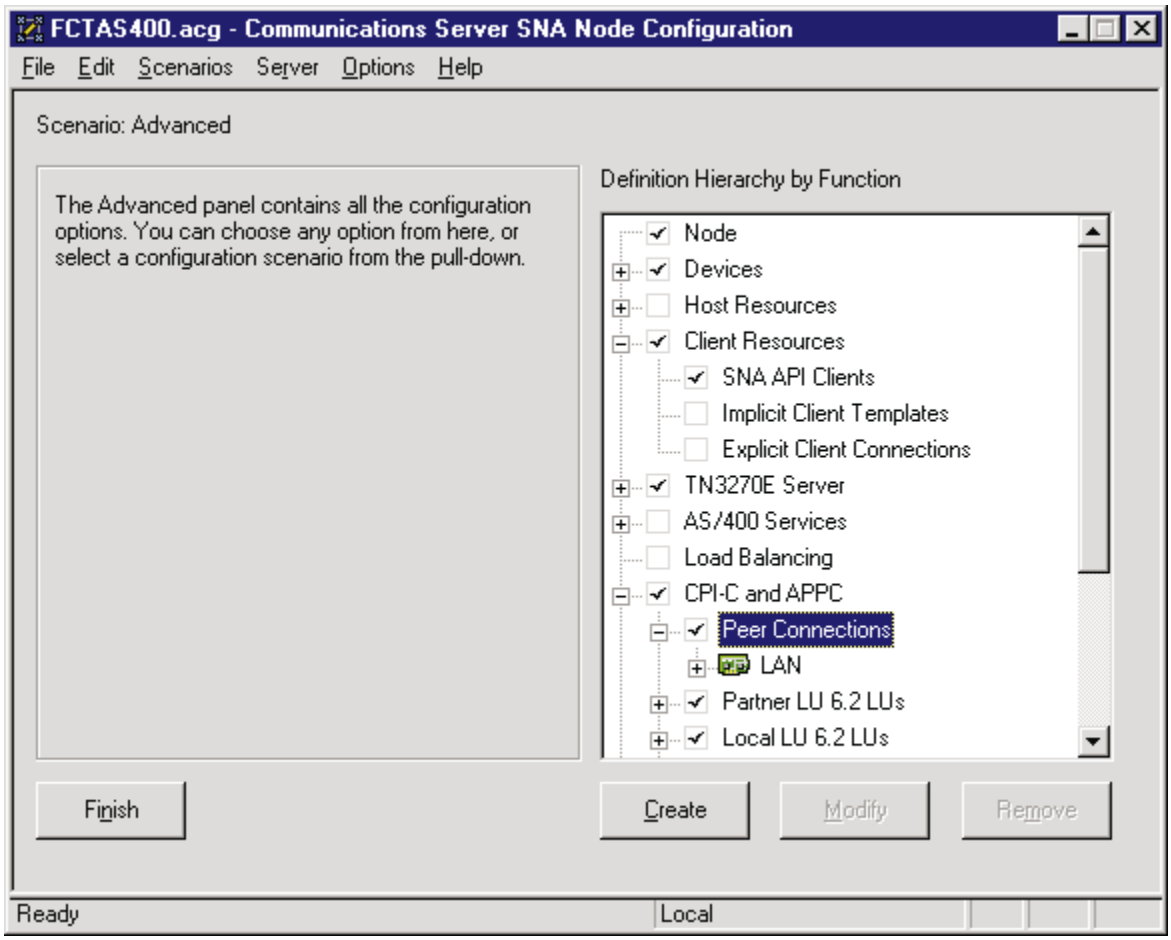

Figure 34. Communications Server SNA Node Configuration Window: Peer Connections

In the Communications Server SNA Node Configuration window (Figure 34), right-click the **CPI-C and APPC** box, then the **Peer Connections** box. Select the **Create** option. The Define a LAN Connection notebook opens at the **Basic** tab.

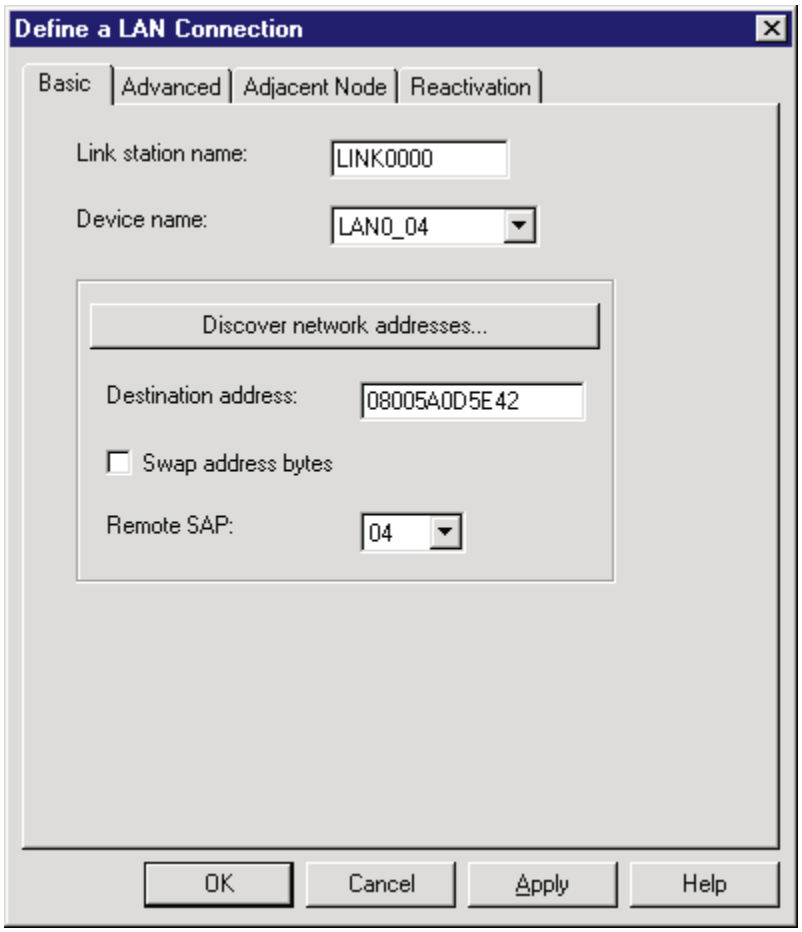

Figure 35. Define a LAN Connection Notebook: Basic Tab

On the **Basic** tab (Figure 35), supply the following values:

Link station name
Specifies a 1- to 8-byte character string that is used to identify a connection. The contents of this field will vary, depending on the number of links at your installation.

Device name
Specifies the name of the port associated with this link station. This value must match the **Port name** value specified on the **Basic** tab of the Define a LAN Device notebook (Figure 28 on page 33).

Destination address
Specifies a 12-character hexadecimal string that specifies the address to activate a connection to the destination. This value must be specified so the NT system can search for and call the PSF host program. Enter the **ADAPTR** value from the APPC line description (Figure 17 on page 18).

Swap address bytes
Check this field to bit-swap the address in the **Destination address** field. You may need to select this check box if the next link in the network is an Ethernet link. If not, you can use the default (unchecked).

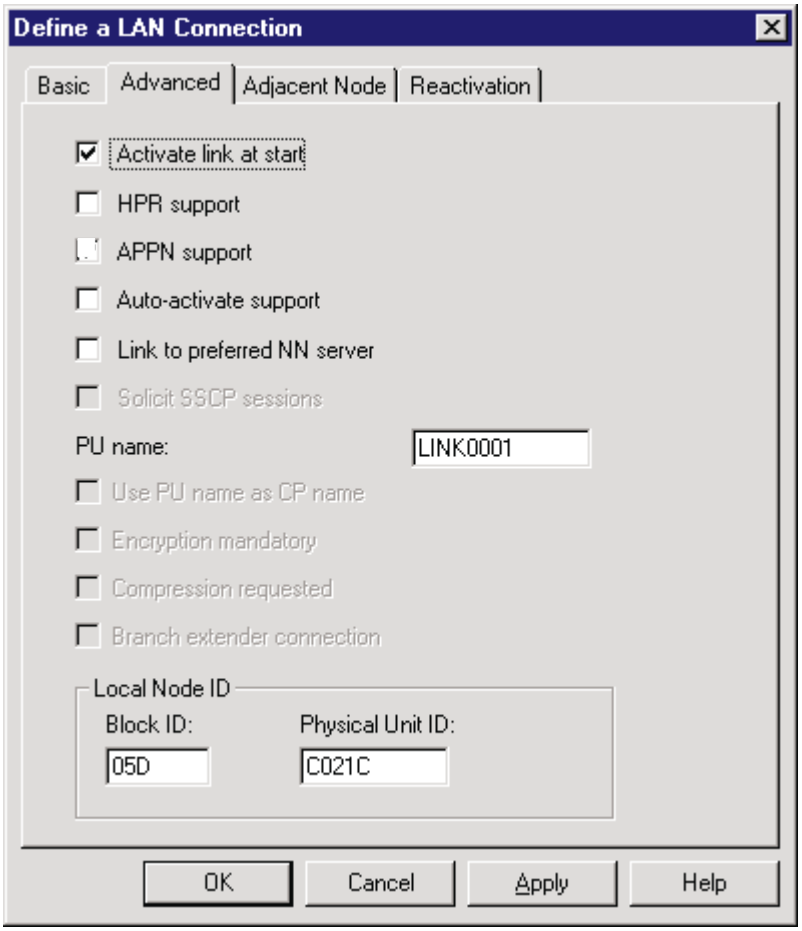

Figure 36. Define a LAN Connection Notebook: Advanced Tab

On the **Advanced** tab (Figure 36), supply the following values:

Activate link at start
Specifies that you will use the link reactivation values specified in the port (device) link reactivation definition. Ensure that you select this check box.

APPN support
Specifies whether this connection uses the APPN protocol. Do not select this check box.

PU name
Specifies the physical unit (PU) name. This is the name of the component that manages and monitors the resources (such as attached links and adjacent link station) associated with a node. The default PU name is automatically created. You can change this definition.

Block ID
Identifies the product type in an SNA network.

Physical Unit ID
Identifies the physical unit (PU) or component that manages and monitors the resources (such as attached links and adjacent link stations) associated with a node.

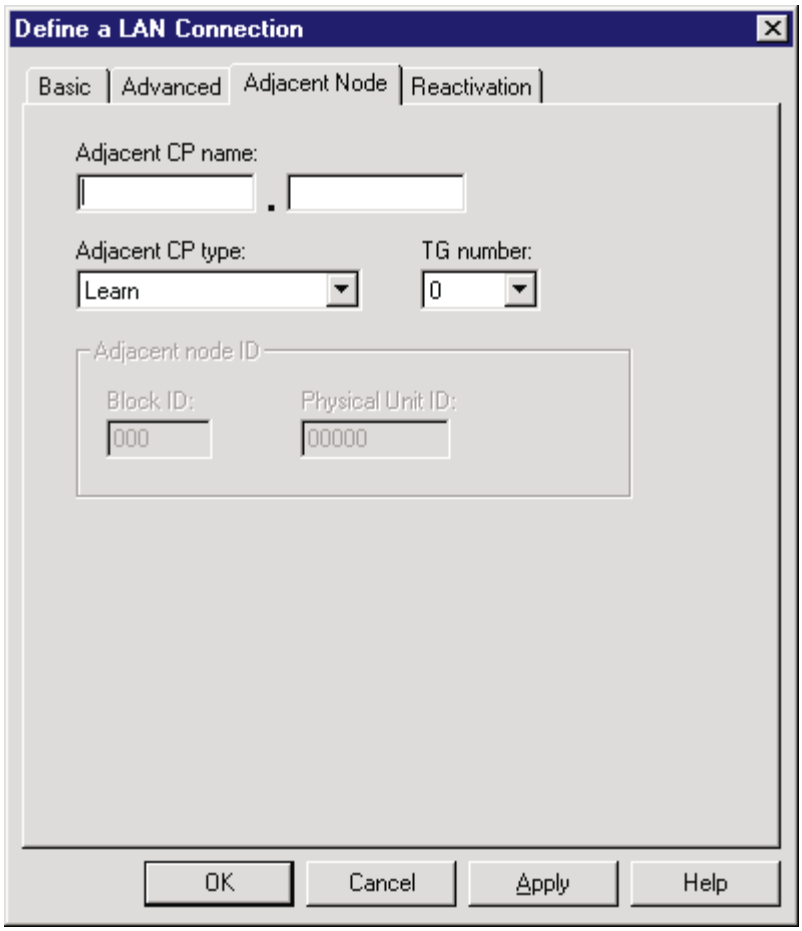

Figure 37. Define a LAN Connection Notebook: Adjacent Node Tab

On the **Adjacent Node** tab (Figure 37), accept the default values.

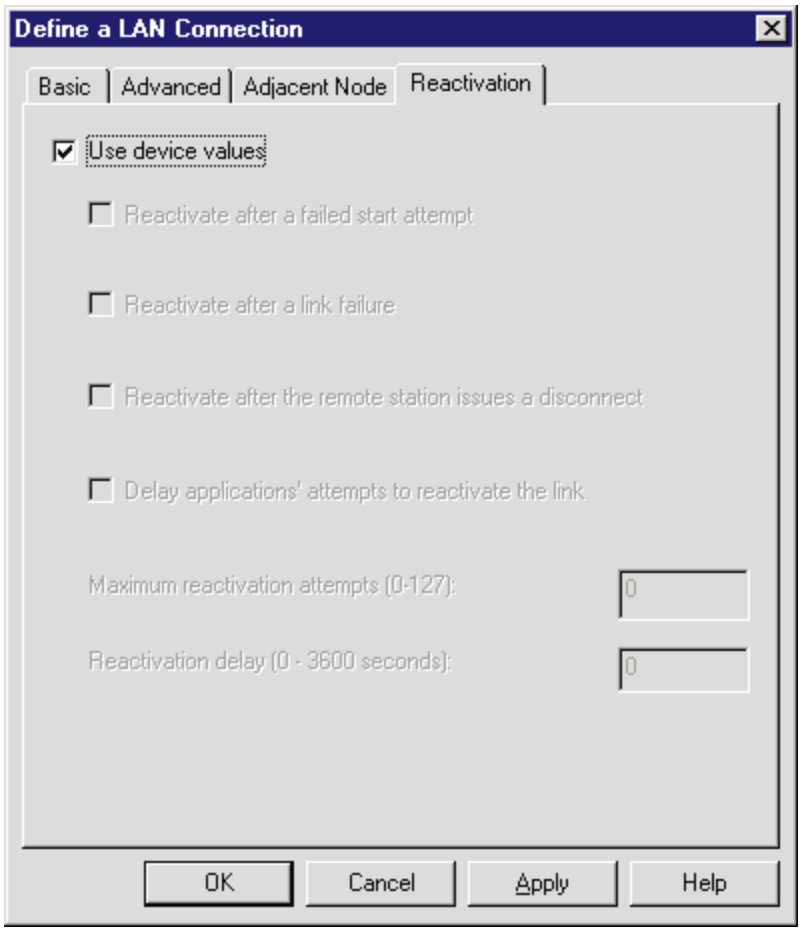

Figure 38. Define a LAN Connection Notebook: Reactivation Tab

On the **Reactivation** tab (Figure 38), accept the default values.

Note that after you select **OK**, a pop-up window appears asking:

```
Do you want to automatically route all APPC sessions over this connection?
```

You must reply `yes` before the configuration is accepted.

Partner LU 6.2 Configuration for iSeries

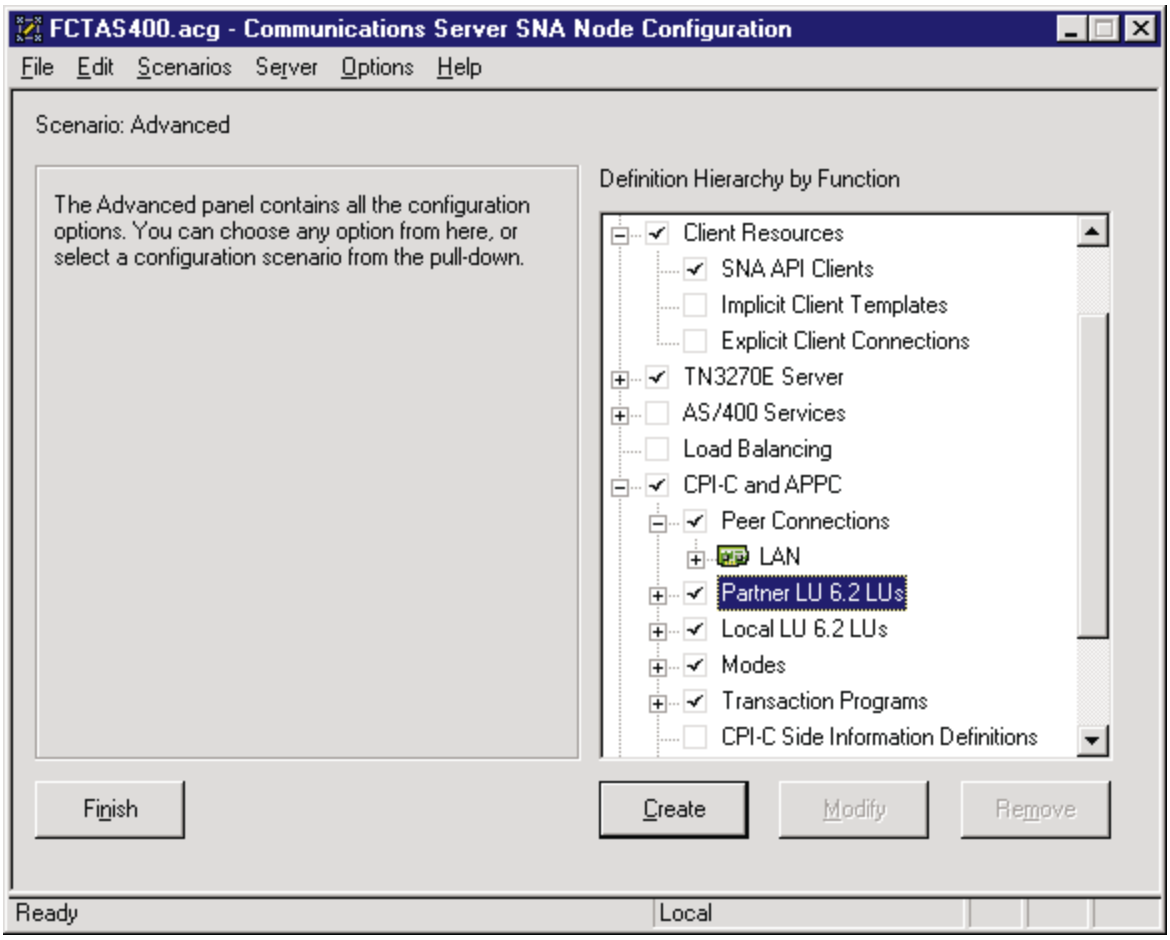

Figure 39. Communications Server SNA Node Configuration Window: Partner LU 6.2 LUs

In the Communications Server SNA Node Configuration window (Figure 39), right-click the **CPI-C and APPC** box, then the **Partner LU 6.2 LUs** box. Select the **Create** option. The Define a Partner LU 6.2 notebook opens at the **Basic** tab.

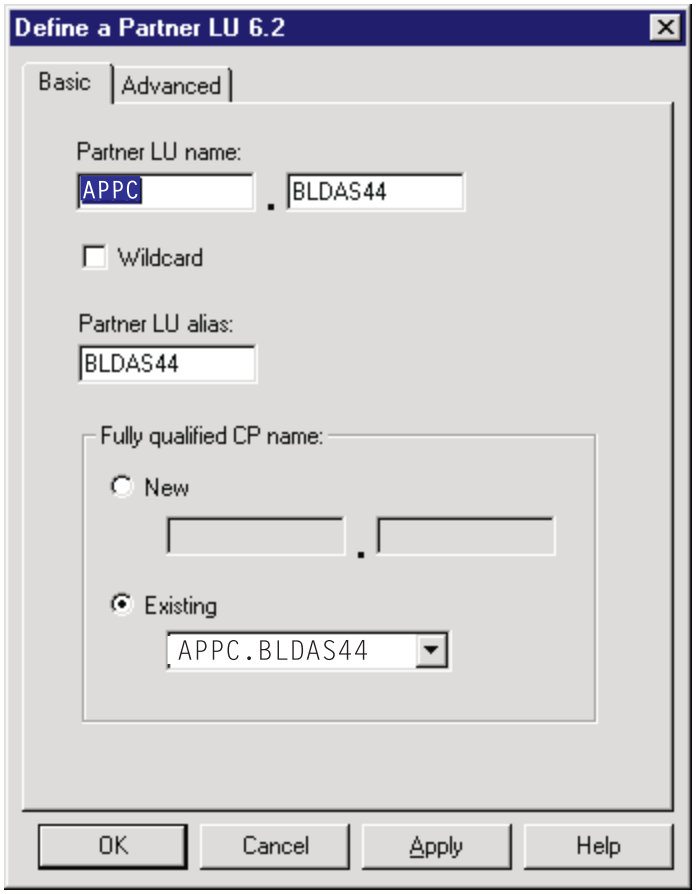

Figure 40. Define a Partner LU 6.2 Notebook: Basic Tab

On the **Basic** tab (Figure 40), supply the following values:

Partner LU name
Specifies the network identifier of the network in which the host PSF program resides (followed by a period), and the logical unit name used by the host PSF program. In the first part of this field, enter the iSeries network name from the local network ID in the iSeries network attributes. In the second part, enter the **LCLLOCNAME** value from the APPC device description (Figure 19 on page 23). Do not check the **Wildcard** check box.

Partner LU alias
Specifies the alternate name for the partner LU. Local applications can use this name, instead of the fully qualified LU name, to refer to the partner LU. This is the PSF Direct receiver to be used when the OS/400 operating system activates its real LU. While you can choose any meaningful value, IBM recommends specifying the second qualifier of the **Partner LU name**, which is also the **LCLLOCNAME** value from the APPC device description (Figure 19 on page 23).

Fully qualified CP name
Select: **New** to enter the fully qualified CP name of the partner LU's owning control point. Communications Server for NT requires this field. Infoprint Manager uses this field as the target for any alerts sent by the PSF Direct program.

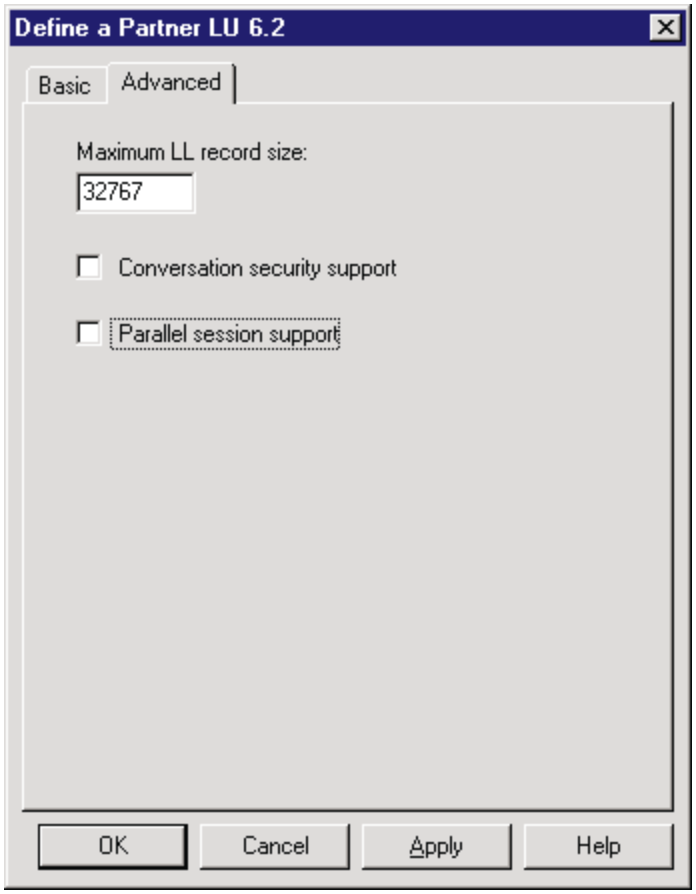

Figure 41. Define a Partner LU 6.2 Notebook: Advanced Tab

On the **Advanced** tab (Figure 41), supply the following values:

Maximum LL record size
Specifies a value between 0 and 32767 as the maximum size of the logical record in the data stream for basic conversations. Specify the default (32767), because the PSF host program and the PSF Direct host receiver should both be able to handle the full range.

Conversation security support
Specifies that the partner logical unit (LU) is authorized to validate the user identifiers for the local LUs. Select the check box to specify conversation security support if you have matching support on the host PSF program. If not, leave this box unchecked.

Parallel session support
Specifies whether the partner LU supports two or more currently active sessions between the same two LUs by using different pairs of network addresses or session identifiers. Because neither PSF Direct nor the PSF host programs support two sessions with the same partner LU, do not select this check box.

Click **OK** to save these specifications to the *xxx*.acg file.

Local LU 6.2 Configuration for iSeries

Dependent or Independent LU?
This procedure configures an *independent* LU. You cannot use it to configure a *dependent* LU. If you require dependent LUs, see "Deciding Whether to Define a Dependent or an Independent LU" on page 14.

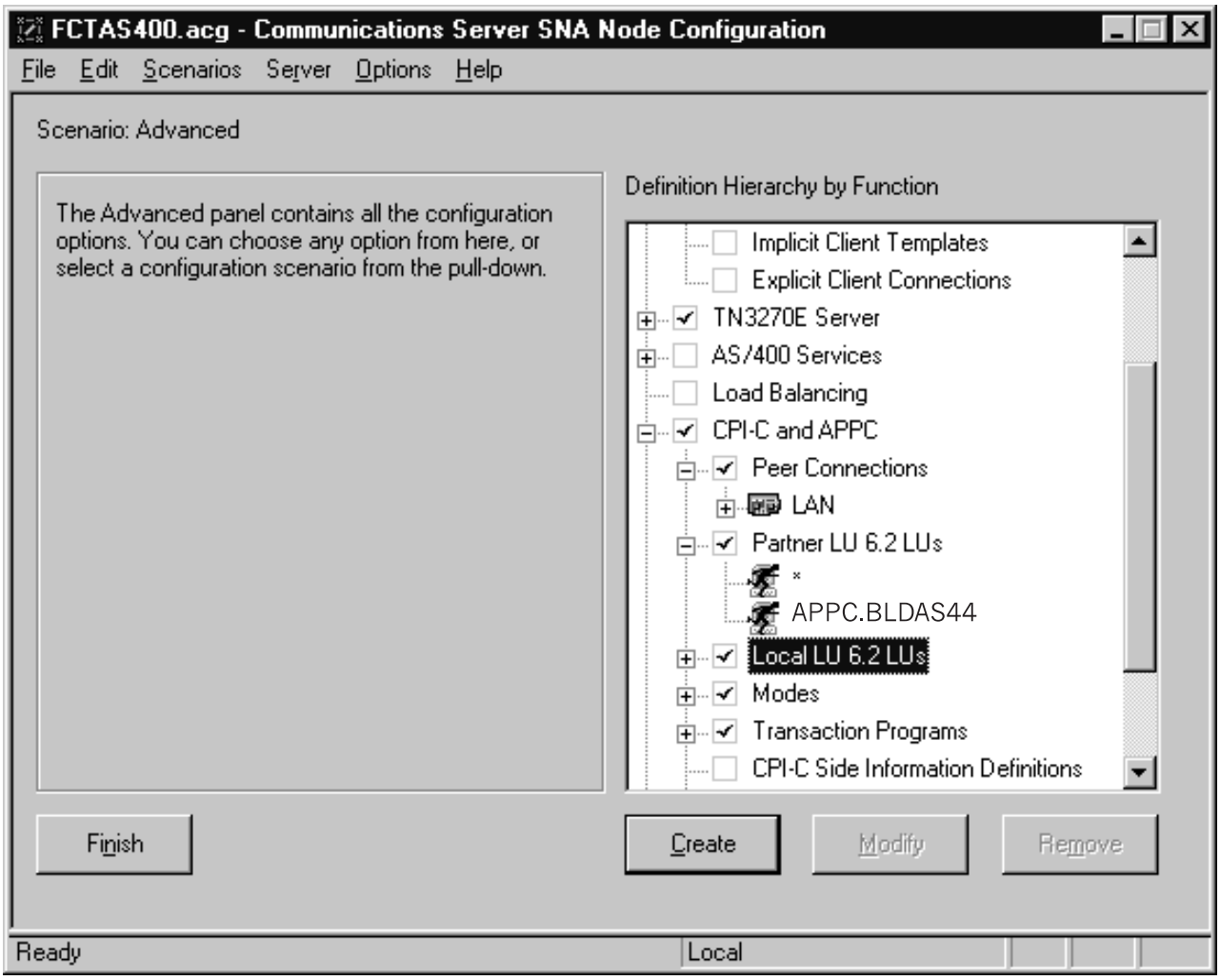

Figure 42. Communications Server SNA Node Configuration Window: Local LU 6.2 LUs

In the Communications Server SNA Node Configuration window (Figure 42), right-click the **CPI-C and APPC** box, then the **Local LU 6.2 LUs** box. Select the **Create** option. The Define a Local LU 6.2 notebook opens at the **Basic** tab.

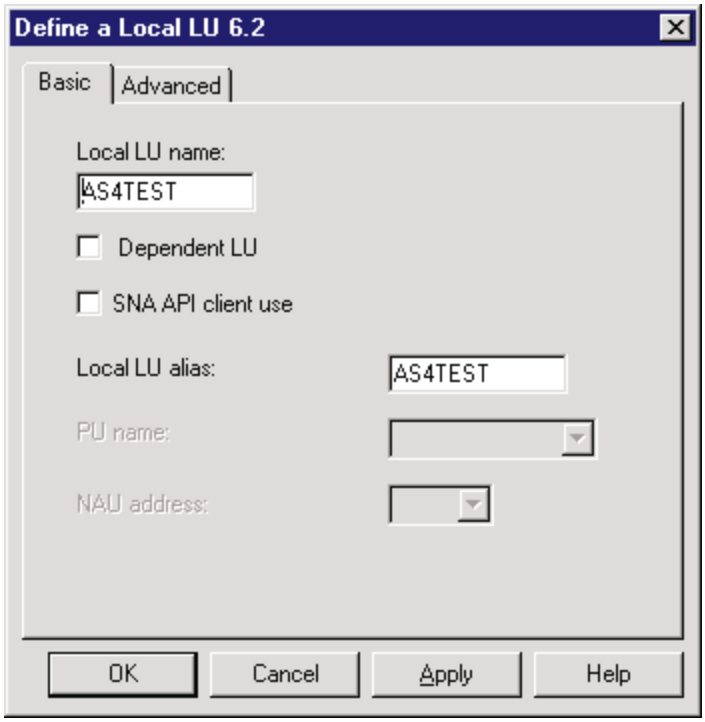

Figure 43. Define a Local LU 6.2 Notebook: Basic Tab

On the **Basic** tab (Figure 43), supply the following values:

Local LU name
Specifies a 1- to 8-byte character string that identifies your workstation and gives transaction programs access to the network. This name must match the partner LU that has been defined at the host PSF program and the **RMTLOCNAME** parameter in the APPC device description (Figure 19 on page 23) and printer device description (Figure 20 on page 25).

Local LU alias
Specifies the name for the local LU that is used by Infoprint Manager when configuring the PSF Direct host receiver. This value is usually the same as the local LU name.

Dependent LU
Specifies whether this LU requires assistance from a system services control point (SSCP) in order to initiate an LU-LU session. When this check box is selected, the LU must be specified as dependent on the host PSF program. Because this procedure is for an independent LU, do not check the box.

SNA API client use
Because this LU will be used by a server-based transaction program (TP), do not check this box.

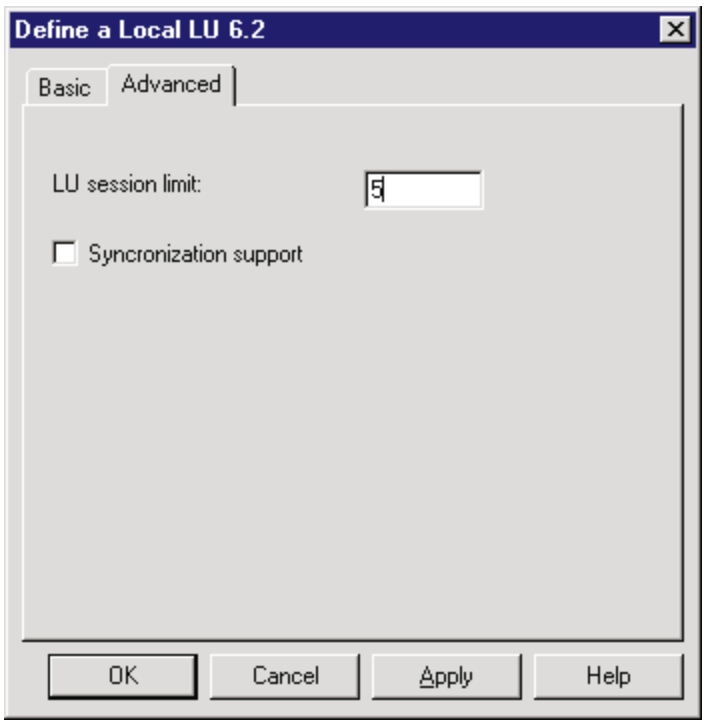

Figure 44. Define a Local LU 6.2 Notebook: Advanced Tab

On the **Advanced** tab (Figure 44), supply the following values:

LU session limit
Specifies the maximum number of sessions that the LU supports as a value between 0 and 65535. Specify 5.

Note: The application program supports only one LU session at a time, but the SNA session can support more.

Synchronization support
Select this check box if another application is supplying synchronization point management (DB/2, for example). In this instance, do not select it.

Click **OK** to save these specifications to the *xxx*.acg file.

Mode Configuration for iSeries

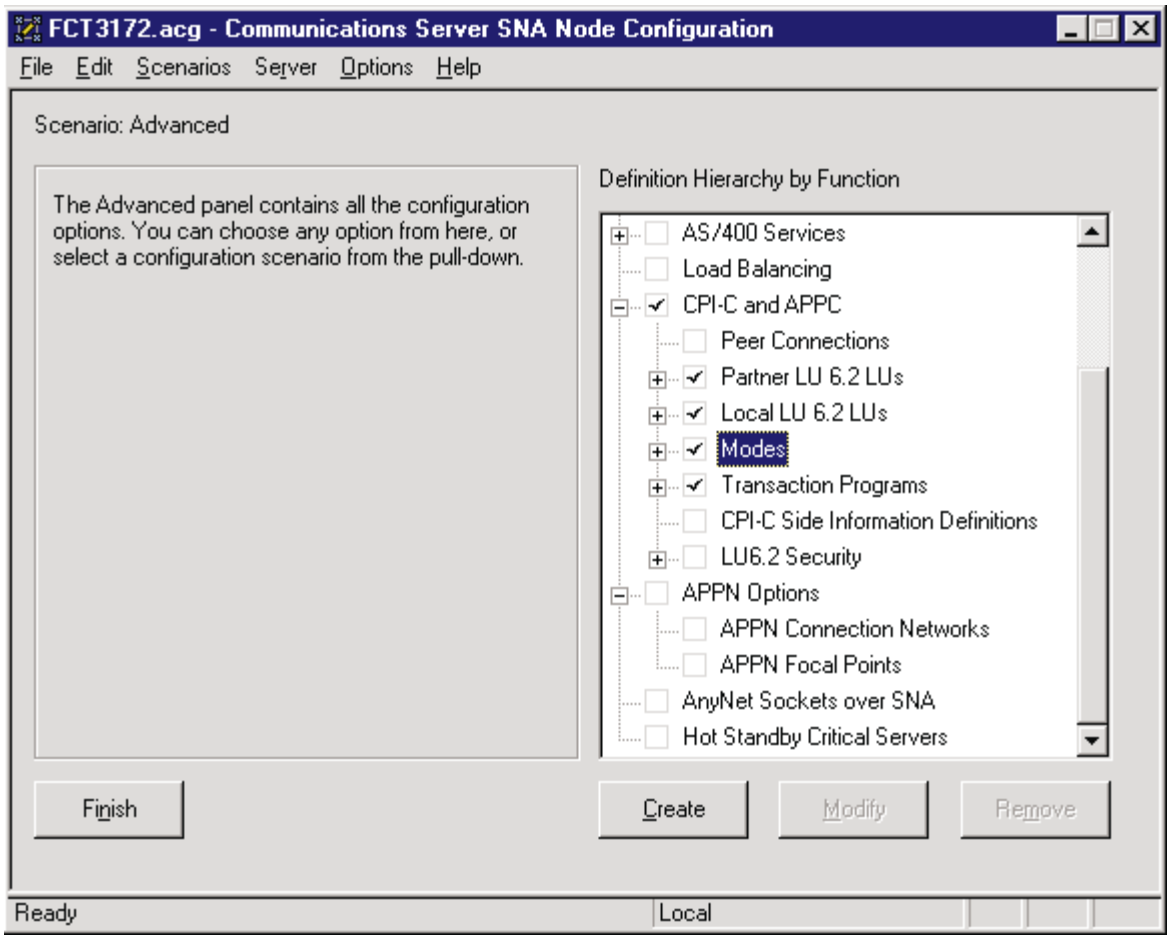

Figure 45. Communications Server SNA Node Configuration Window: Modes

In the Communications Server SNA Node Configuration window (Figure 45), right-click the **CPI-C and APPC** box, then the **Modes** box. Select the **Create** option. The Define a Mode notebook opens at the **Basic** tab.

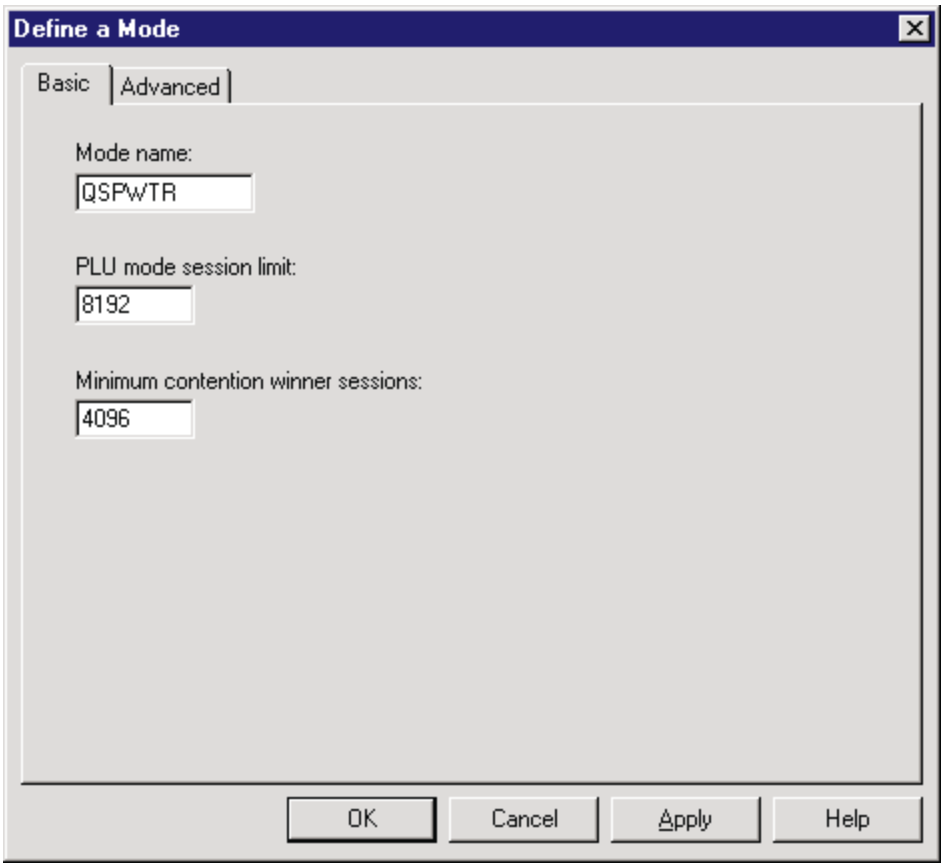

Figure 46. Define a Mode Notebook: Basic Tab

On the **Basic** tab (Figure 46), supply the following values:

Mode name
Specifies the characteristics for the session that will be allocated for the conversation. The initiator uses this value. It defines the modes available for Transaction Programs that do not use IBM SecureWay Communications Server for NT-supplied modes. This value must match the **MODE** parameter in the APPC device description (Figure 19 on page 23) and printer device description (Figure 20 on page 25).

PLU mode session limit
Specifies a value between 0 and 32767 as the primary logical unit (PLU) mode session limit, or maximum number of concurrently active LU-LU sessions that a particular LU can support. Take the default.

Minimum contention winner sessions
Specifies a value between 0 and 32767 as the minimum number of sessions that a local LU using this mode can activate to win a contention with a partner. Take the default.

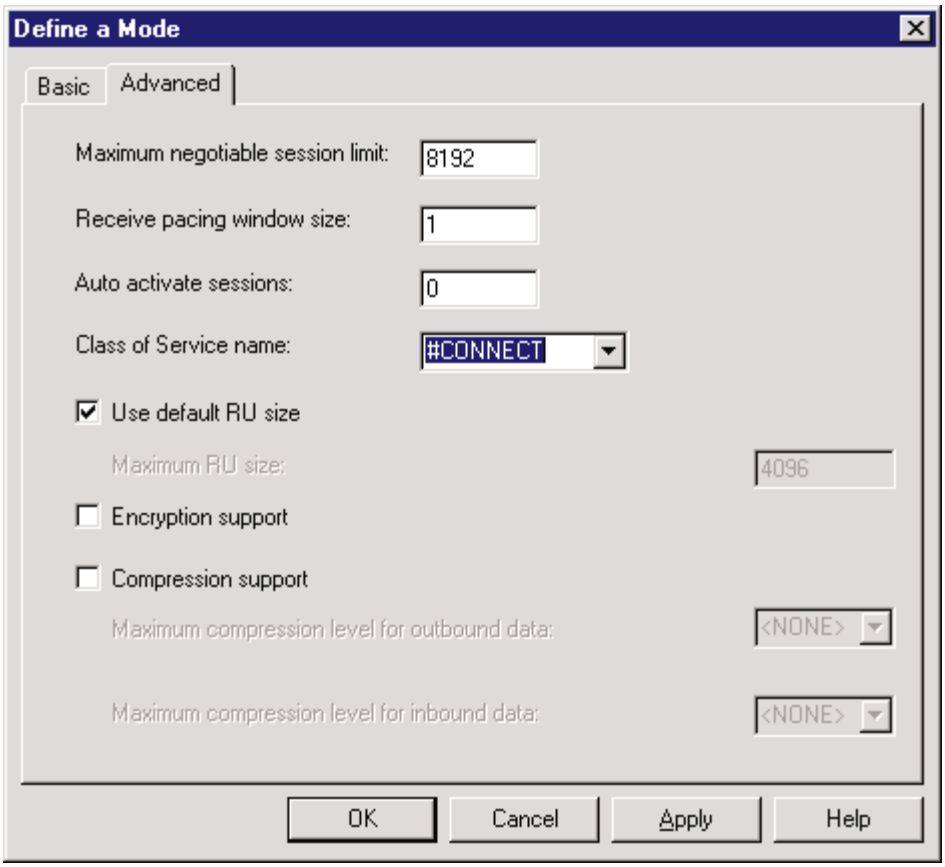

Figure 47. Define a Mode Notebook: Advanced Tab

On the **Advanced** tab (Figure 47), supply the following values:

Maximum negotiable session limit
Specifies a value between 0 and 32767 as the maximum number of sessions allowed in this mode between any local logical unit (LU) and partner LU. Take the default.

Receive pacing window size
Specifies the secondary receive pacing count. Enter 1. This parameter influences performance and can be adjusted as desired.

Auto activate sessions
Specifies a value between 0 and 32767 as the number of parallel LU 6.2 sessions to automatically start when an initial session starts using this mode. Specify `0` so that no parallel sessions can start automatically for this application.

Class of Service name
Specifies the name of a set of transport network characteristics. Select the default: **#CONNECT** .

Use default RU size
Instructs the node to use the default maximum size for the request/response unit (RU) sent and received on the sessions. Do not select the check box.

Maximum RU size
Set this value to `1024`, if it does not automatically specify that value when you remove the check from the **Use default RU size** parameter above.

Click **OK** to save these specifications to the *xxx*.acg file.

Transaction Program Configuration for iSeries

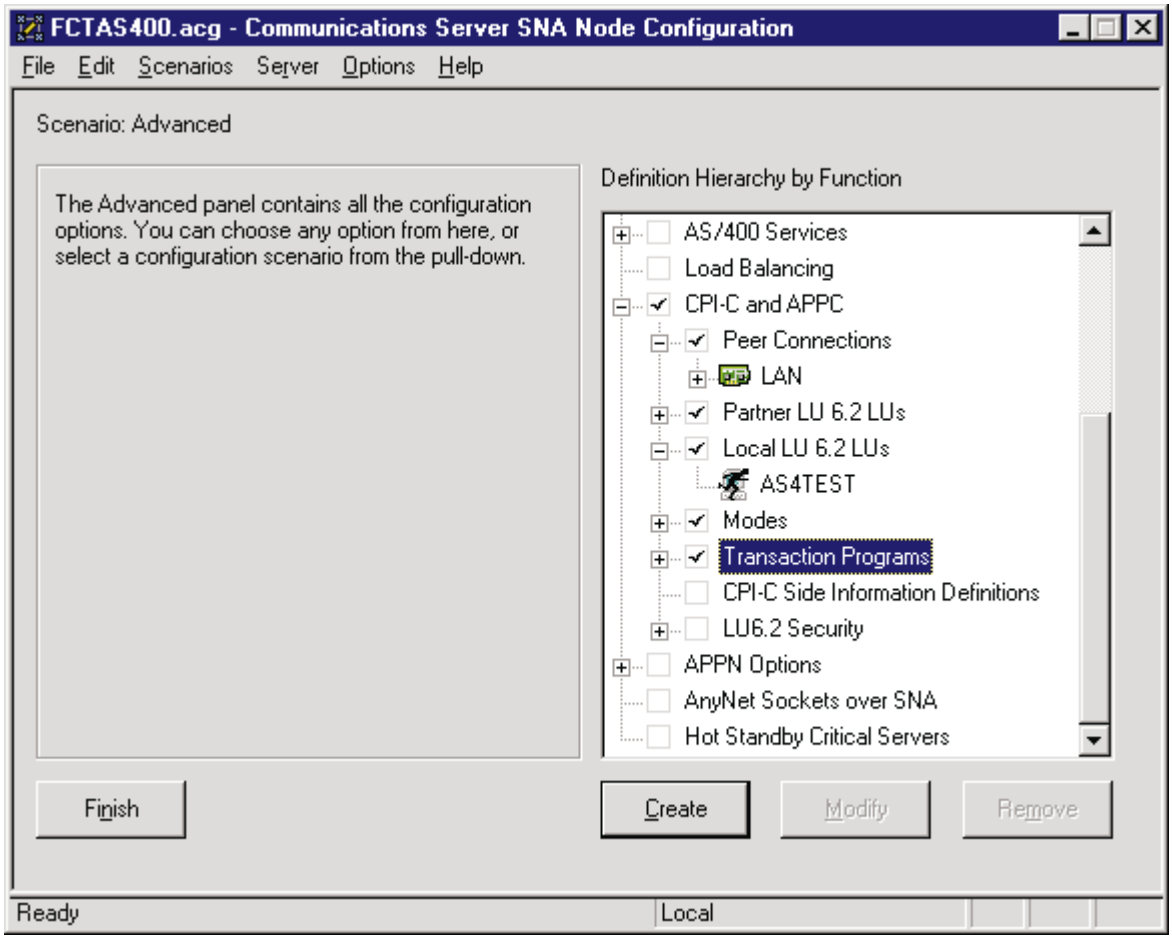

Figure 48. Communications Server SNA Node Configuration Window: Transaction Programs

In the Communications Server SNA Node Configuration window (Figure 48), right-click the **CPI-C and APPC** box, then the **Transaction Programs** box. Select the **Create** option. The Define a Transaction Program notebook opens at the **Basic** tab.

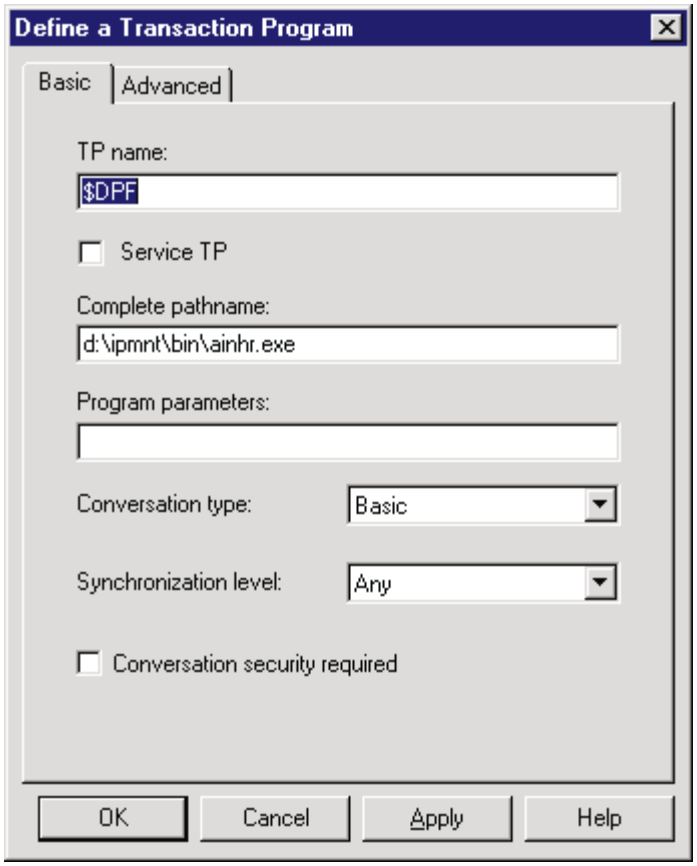

Figure 49. Define a Transaction Program Notebook: Basic Tab

On the **Basic** tab (Figure 49), supply the following values:

TP name
Specifies a 1- to 64-byte character string for the program that uses the advanced program-to-program communications (APPC) system to communicate with a partner application program at the partner node. Enter **$DPF**.

If you are migrating from an AIX operating system to a Windows NT operating system, note that this value changes from a binary `30F0F0F0` to a non-binary **$DPF**. Ensure that the **Service TP** check box is unchecked because it indicates a non-binary value.

Complete pathname
Specifies a 1- to 255-byte character string that describes the location of the program to run. The location can include the drive, the directory, the subdirectory, and the file name. In this example, `d:\ipmnt\bin\ainhr.exe` specifies the location where Infoprint Manager for NT is installed on your system.

Conversation type
Specifies the conversation type allowed to start the transaction programs (TPs) that use an LU 6.2 session. Select **Basic**.

Synchronization level
Specifies the level allowed on allocation requests that start the local and remote transaction programs (TPs). Select **Any**.

Conversation security required
Allows controlled access to system resources through security parameters. If this check box is selected, conversation security information is required to start the TP. Incoming allocation requests for this TP without the conversation security information will be rejected. Do not check this box.

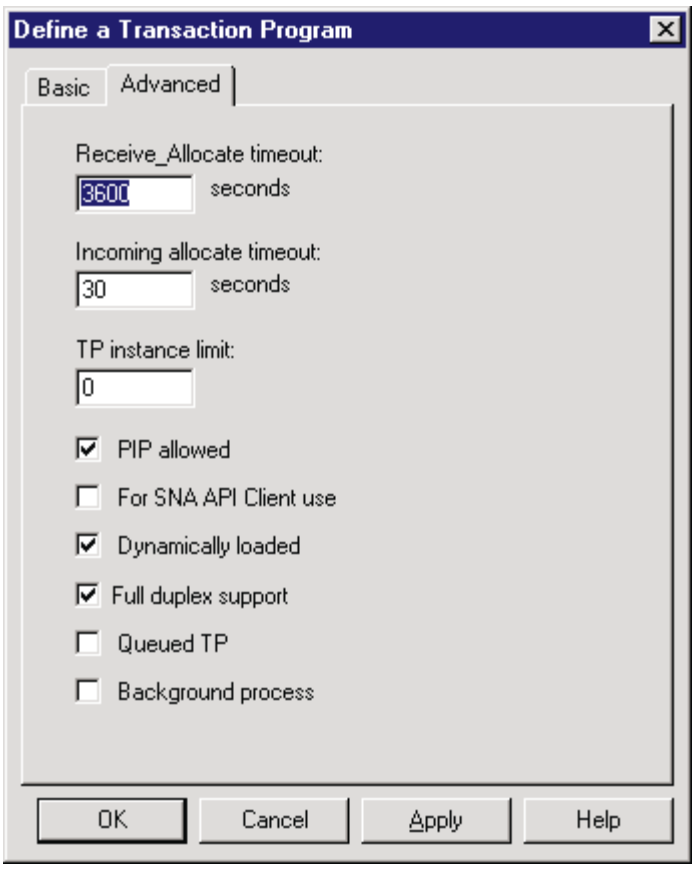

Figure 50. Define a Transaction Program Notebook: Advanced Tab

On the **Advanced** tab (Figure 50), supply the following values:

Receive_Allocate timeout
Specifies a value between 0 and 65535 seconds that identifies the time that a **Receive_Allocate** verb will be queued while waiting for an **Attach**. Specify `3600`.

Incoming allocate timeout
Specifies a value between 0 and 65535 seconds that identifies the time that an incoming **Attach** will be queued waiting for a **Receive_Allocate**. Specify `30`.

TP instance limit
Specifies a value between 0 and 65535 seconds that identifies the maximum number of concurrently active TP instances. Specify `0` (no limit).

PIP allowed
Specifies whether the allocating program can supply program initialization parameters to the transaction program. Select this check box.

Dynamically loaded
Specifies whether the transaction program (TP) can be dynamically started by an allocation request received on a conversation. Select the check box to dynamically load the TP.

Full duplex support
Specifies whether data can be sent and received at the same time. Select this check box.

Note: Ensure that **PIP allowed**, **Dynamically loaded**, and **Full duplex support** (the items checked in Figure 50 on page 55) are the only items checked. If you specify other options, this transaction program will not work.

Click **OK** to save these specifications to the *xxx*.acg file.

LU 6.2 Security Configuration for iSeries

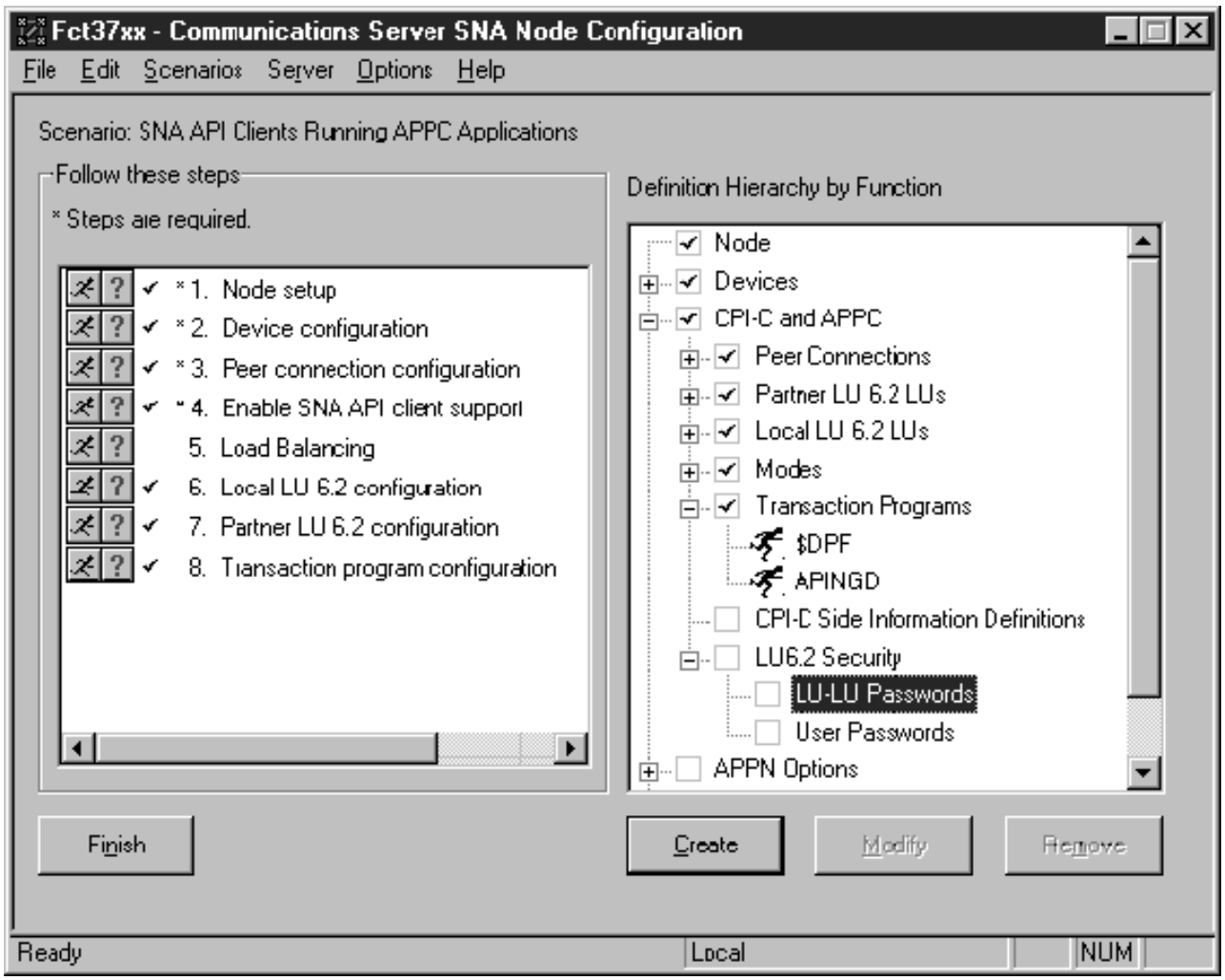

Figure 51. Communications Server SNA Node Configuration Window: LU 6.2 Security. This illustration looks different from the other views of the Communications Server SNA Node Configuration window because it shows a later release. The function in both releases is similar.

Communications Server allows you to define passwords to secure communication between LUs and to restrict user requests to run transaction programs. If you do

not need this level of security, go to "Chapter 5. Starting an IBM SecureWay Communications Server for Windows NT Configuration" on page 61.

In the Communications Server SNA Node Configuration window (Figure 51 on page 56), right-click the **CPI-C and APPC** box, then the **LU 6.2 Security** box, then the **LU-LU Passwords** box. Select the **Create** option. The Define an LU-LU Password notebook opens.

Figure 52. Define an LU-LU Password Notebook

In this notebook (Figure 52), supply the following values:

Local LU name
Select the name of your local LU from the dropdown list.

Partner LU name
Select the name of your partner LU from the dropdown list.

Password
Enter a 16-character hexadecimal string.

Confirm password
Reenter the password.

Click **OK** to save these specifications to the *xxx*.acg file.

In the Communications Server SNA Node Configuration window (Figure 51 on page 56), right-click the **CPI-C and APPC** box, then the **LU 6.2 Security** box, then the **User Passwords** box. Select the **Create** option. The Define a User ID Password notebook opens.

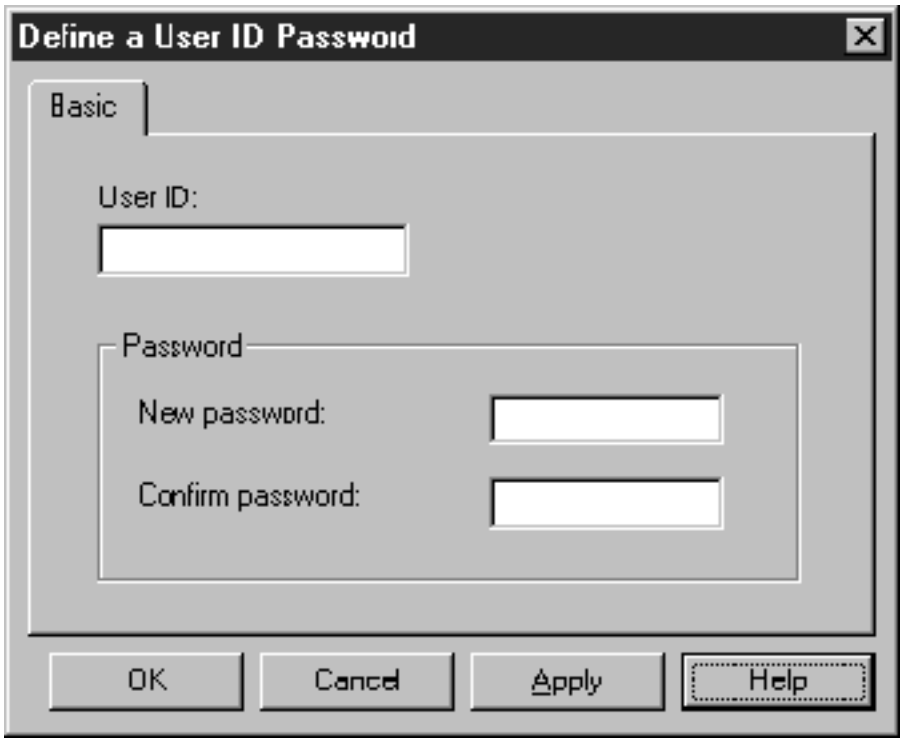

Figure 53. Define a User ID Password Notebook

In this notebook (Figure 53), supply the following values:

User ID
Enter the user ID for which you want to define a password.

Password
Enter a string of 1 to 10 characters (A–Z, a–z, 0–9, @, #, $, .).

Confirm password
Reenter the password.

Click **OK** to save these specifications to the *xxx*.acg file.

Once you have completed creating this configuration, go to "Chapter 5. Starting an IBM SecureWay Communications Server for Windows NT Configuration" on page 61.

Local or Remote iSeries Configuration Work Sheets

Use the following work sheets to configure PSF Direct on both the host PSF and Infoprint Manager for NT:

- Use Table 2 to see how Communications Server for NT configuration settings relate to other configuration settings.
- Use Table 3 on page 60 to record your own Communications Server for NT values.

iSeries Configuration Work Sheet Example

Table 2. iSeries Configuration Work Sheet Example

Communication Server	Value	Line Description	APPC Controller Description	APPC Device Description	Printer Device Description
	TRLANAS44	LIND	SWTLINLST		
	NTTEST		CTLD	CTL	
Define the Node: Fully-qualified CP name	**USIBMBQ.NT2**		RMTNETID RMTCPNAME	RMTNETID	
Define the Node: CP alias	**NT2**		RMTCPNAME		
Define the Node: Local Node ID	**05DC021C**		EXCHID		
Define a LAN Device: Maximum PIU size	**16388**	MAXFRAME	MAXFRAME		
Define a LAN Connection: Destination address	**08005A0D5E42**	ADPTADR			
Define a LAN Connection: APPN support	Not selected		APPN	APPN	
Define a Partner LU 6.2: Partner LU name	**APPC.BLDAS44**			LCLLOCNAME	
Define a Partner LU 6.2: Partner LU alias	**BLDAS44**			LCLLOCNAME	
Define a Local LU 6.2: Local LU name	**AS4TEST**			RMTLOCNAME	RMTLOCNAME
Define a Local LU 6.2: Local LU alias	**AS4TEST**			RMTLOCNAME	RMTLOCNAME
Define a Local LU 6.2: Dependent LU	Not selected (address **00**)			LOCADR	
Define a Mode: Mode name	**QSPWTR**			MODE	MODE

iSeries Configuration Blank Work Sheet

Table 3. iSeries Configuration Blank Work Sheet

Communication Server	Value	Line Description	APPC Controller Description	APPC Device Description	Printer Device Description
		LIND	SWTLINLST		
			CTLD	CTL	
Define the Node: Fully-qualified CP name			RMTNETID RMTCPNAME	RMTNETID	
Define the Node: CP alias			RMTCPNAME		
Define the Node: Local Node ID			EXCHID		
Define a LAN Device: Maximum PIU size		MAXFRAME	MAXFRAME		
Define a LAN Connection: Destination address		ADPTADR			
Define a LAN Connection: APPN support			APPN	APPN	
Define a Partner LU 6.2: Partner LU name				LCLLOCNAME	
Define a Partner LU 6.2: Partner LU alias				LCLLOCNAME	
Define a Local LU 6.2: Local LU name				RMTLOCNAME	RMTLOCNAME
Define a Local LU 6.2: Local LU alias				RMTLOCNAME	RMTLOCNAME
Define a Local LU 6.2: Dependent LU				LOCADR	
Define a Mode: Mode name				MODE	MODE

Chapter 5. Starting an IBM SecureWay Communications Server for Windows NT Configuration

Use the following procedure to start all IBM SecureWay Communications Server for Windows NT configurations:

1. From your NT desktop view, double-click the **SNA Node Operations** icon that resides on your desktop:

2. From the Communications Server Node Operations window, click the plus (+) sign next to **Connections**.
3. If your configuration is an independent LU, highlight **Peer Connections**. If it is a dependent LU, highlight **Host Connections**.
4. From the window's main menu, select **Operations-->Start Node**.
5. From the **Open** pop-up window, select the *xxx*.acg file that represents the configuration you wish to start and click **Open**.

   From the right pane of the Communications Server Node Operations window, a lightning bolt icon labeled **Link***xxxx* appears. (*xxxx* represents the number of links on your system.) When the lightning bolt icon turns completely yellow, the link is active. PSF Direct is ready to receive jobs from the host PSF system. If the lightning bolt turns completely red, the link has failed. You need to review your configuration on both the Infoprint Manager Windows NT server and the PSF host program.

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Chapter 6. Configuring PSF Direct

PSF Direct acts as a communication protocol converter. It exchanges data with a host PSF program using an SNA LU 6.2 session and relays the data to an Infoprint actual destination.

From an application perspective, the entire SNA network can be viewed as a black box with two access points that are called **logical units** (LUs). An LU 6.2 session runs through the network and connects the two logical units (Figure 54).

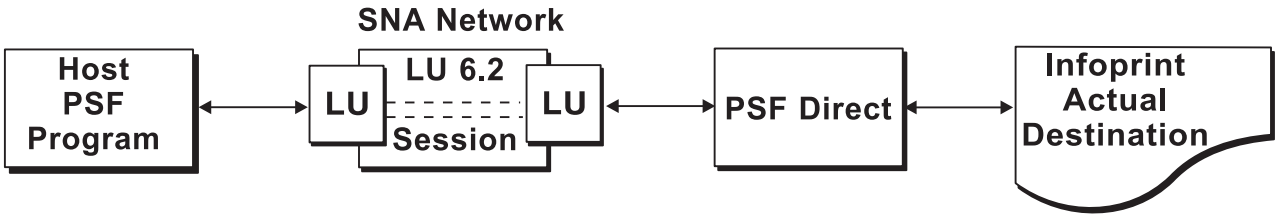

Figure 54. SNA LU 6.2 Session in a PSF Direct Configuration

When you configure a PSF Direct Receiver, you associate a logical unit with an Infoprint actual destination (Figure 55).

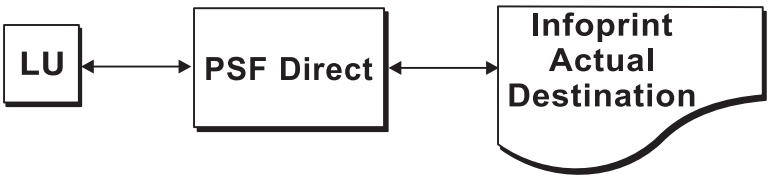

Figure 55. PSF Direct Host Receiver

This chapter contains the following topics:

- "Creating and Configuring an Infoprint PSF Direct Destination (Printer)" on page 64
- "Defining the PSF Direct Host Receiver" on page 64
- "Starting a PSF Direct Host Receiver" on page 65
- "Stopping a PSF Direct Host Receiver" on page 66
- "Displaying the Status of a PSF Direct Destination on the Windows NT System" on page 66
- "Displaying the Status of a PSF Direct Destination on the Host System" on page 68
- "Using One Infoprint Actual Destination to Print Data from Multiple Sources" on page 68

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Creating and Configuring an Infoprint PSF Direct Destination (Printer)

Before creating an actual destination (printer) to send jobs from PSF Direct, you should determine the type of configuration. Refer to *Infoprint Manager for Windows NT and Windows 2000: Getting Started*, G544–5717. When you create an Infoprint actual destination, Infoprint adds the functions that allow Infoprint to communicate with the printer. These include a subdirectory and files in the \var\psf directory.

You can create and configure the Infoprint PSF Direct destination in two ways:

- "Using the Infoprint Manager Administration GUI"
- "Using the Infoprint Manager Management Console"

Using the Infoprint Manager Administration GUI

If you will be using the PSF Direct destination to print data from a PC, you must use the Infoprint Manager Administration GUI to create an actual destination. Use the **Printer-->Create-->PSF** menu to access the Create Printer wizard. Refer to the online help in the Infoprint Manager Administration GUI.

To configure the PSF Direct destination after you create it, you can use the Infoprint Manager Administration GUI. Select the actual destination (printer) you want to configure, then use the **Printer-->Properties** menu to open the Printer Properties notebook. Refer to the online help in the Infoprint Manager Administration GUI.

Using the Infoprint Manager Management Console

If you will be using the PSF Direct destination to print data from PSF host systems only, you can use the Infoprint Manager Management Console to create an actual destination. First, ensure that the Infoprint Windows NT server is running. Then use the **Edit-->New-->Destination** path and select from the range of potential PSF Direct destinations provided. For more information on configuring this destination, see the related Infoprint Manager Management Console help.

To communicate with an Infoprint actual destination, PSF Direct uses the functions that Infoprint created when you added the printer. However, PSF Direct does not accept data from the Infoprint queue that was created for the printer. Instead, PSF Direct uses an SNA LU 6.2 session that you created through IBM SecureWay Communications Server for NT to obtain print data from a host PSF program.

When you add a PSF Direct receiver, you must indicate which Infoprint actual destination the host receiver should use. This procedure is described in "Defining the PSF Direct Host Receiver".

Defining the PSF Direct Host Receiver

IBM recommends setting up the PSF Direct Receiver and managing your PSF Direct operations from the Management Console for Infoprint Manager Server... window. You can then use this window to track server events.

To set up a PSF Direct Receiver, use the following procedure:

1. Open the Management Console for Infoprint Manager Server... window. Then use the **Edit-->PSF Direct Receiver Management...** menu to access the PSF Direct Receiver Manager window.
2. Click on the **Add** button.

3. From the **Add PSF Direct Receiver** pop-up menu, specify a value in the **SNA LUNAME** field. This value must match the SNA Logical Unit name defined through the Secure Way Communication Server configuration.
4. Click on the drop-down menu next to the **Target Destination** field. Highlight the Infoprint logical or actual destination to which you want to default for this PSF Direct Receiver.

   This list consists of all the logical and actual destinations that have been defined in the Infoprint Manager Administration GUI.
5. Allow both numeric values in the **SNA System Services Control Point ID** field and the **NMVT Subsystem name** field to default.
6. Specify a numeric value from 0 to 9999 (in seconds) for the **Inactivity limit** field.

   Setting this value to the system default of 9999 causes the PSF Direct receivers to wait indefinitely if the printer is not available. For more information about the **Inactivity limit** field, see "Automatically Stopping a PSF Direct Host Receiver" on page 69.
7. Specify a numeric value from 0 to 9999 (in seconds) for the **Printer busy limit** field.

   Setting this value to the system default of 9999 causes the PSF Direct receivers to wait indefinitely if the printer is not available. For more information on setting this field, see "Controlling the Wait Period for a PSF Direct Host Receiver" on page 69.
8. Once you are satisfied with the fields on the **Add PSF Direct Receiver** pop-up menu, click on the **OK** button.
9. Infoprint adds a PSF Direct Receiver to the main pane, with a red marker. `STOPPED` displays in the **Status** column.
10. Within a minute or two, the marker for the PSF Direct Receiver that you just created will change from red to green. `RUNNING` will display in the **Status** column. At this point, you can submit jobs from the OS/390 host system for printing directly on Infoprint Manager printers.

Table 4 shows an example of configuration values for a PSF Direct host receiver.

Table 4. PSF Direct Host Receiver Values Example

SNA Logical Unit Name	`MVS1`
Target Destination (actual destination)	`4000wb`
Inactivity limit (seconds)	`9999`
Device busy limit (seconds)	`9999`
SNA System Services Control Point ID	`050000000000`
NMVT Subsystem Name	`NMVT`

Starting a PSF Direct Host Receiver

IBM SecureWay Communications Server for NT starts a PSF Direct receiver automatically when a host PSF program causes an SNA LU 6.2 session to be established and allocates an SNA conversation on that session. As a result, a host system operator indirectly causes a PSF Direct host receiver to be run by starting a host PSF program that establishes a SNA LU 6.2 session.

The operator on the Infoprint Manager Windows NT server does not need to do anything to start a PSF Direct host receiver, as long as IBM SecureWay Communications Server for NT is active on the Windows NT server.

Stopping a PSF Direct Host Receiver

A PSF Direct host receiver can be stopped in several ways:

- The host system operator can end the host PSF program that communicates with the PSF Direct host receiver. When the host PSF program ends the SNA conversation with the PSF Direct host receiver, the PSF Direct host receiver automatically ends.
- The host PSF program's **Disconnect Interval** parameter can be exceeded.

  If the host PSF program is waiting for new print files and none become available within the period specified by the **Disconnect Interval** parameter, the host PSF program ends the SNA session with the PSF Direct host receiver. The PSF Direct host receiver then ends.
- The PSF Direct host receiver **Inactivity Limit** can be exceeded.

  If the PSF Direct host receiver is waiting for data from the host PSF program and no data arrives within the period specified by the **Inactivity Limit** value, the PSF Direct host receiver UNBINDs the SNA session with the host system.

  The **Inactivity Limit** defaults to infinite (9999 seconds). It should only be used in some configurations where a printer is shared.
- If an operator at the Windows NT system stops IBM SecureWay Communications Server for NT, all SNA sessions end, causing all PSF Direct host receivers to end. An operator can also use IBM SecureWay Communications Server for NT to stop an individual SNA session. If a PSF Direct host receiver is using the session, that PSF Direct host receiver ends.

For information about stopping a PSF Direct host receiver that is working with a shared Infoprint actual destination, see "Manually Stopping a PSF Direct Host Receiver" on page 68 and "Automatically Stopping a PSF Direct Host Receiver" on page 69.

Displaying the Status of a PSF Direct Destination on the Windows NT System

Infoprint provides two methods for users to display the status of a PSF Direct host receiver:

- "Using the Infoprint Manager Management Console"
- "Using the psfstat Command" on page 67

Using the Infoprint Manager Management Console

The Infoprint Manager Management Console allows you to view the status of Infoprint actual destinations and PSF Direct Receivers. If you click on **PSF Direct Host Receivers** in the left pane, the PSF Direct Host Receivers view shows up in the right pane. If you are not using the Management Console for Infoprint Manager Server... window to track server events, this is the easiest method to display PSF Direct status. However, if you are using the Management Console for Infoprint Manager Server... window to track server events, you should use the **psfstat** command to display status.

Note that if you click **destinations** in the left pane of the Management Console for Infoprint Manager Server... window, Infoprint displays the status of all your actual destinations.

Using the psfstat Command

The **psfstat** command displays information about the status of Infoprint actual destinations and PSF Direct receivers. It tells you whether each Infoprint printer is receiving data from either the Infoprint Manager Windows NT server or from a PSF Direct receiver. The **psfstat** command provides the source of the display provided by the Infoprint Manager Management Console.

If you specify **psfstat** from a command prompt window, the results are similar to Figure 56.

```
Printer   Attachment   Data   Printer status   Active   Waiting
-------   ----------   ----   --------------   ------   -------
3287      channel      IPDS   --               --       --
4000wa    TCP/IP       IPDS   intervention     [Queue]  --
4000wb    TCP/IP       IPDS   ok               PSFOS41  [Queue],PSFMVS
ps14      direct       PS     ok               [Queue]  --

LU name   Printer   Attachment   Data   Printer status   Receiver status
-------   -------   ----------   ----   --------------   ---------------
PSFMVS    4000wb    TCP/IP       IPDS   ok               sess/prtr_busy
PSFOS41   4000wb    TCP/IP       IPDS   ok               sess/prtr_conn
PSFVSE1   4000wb    TCP/IP       IPDS   ok               idle
```

Figure 56. Printer and Receiver Status Example

Figure 56 indicates that:

- Printer 3827 is not active.
- Printer 4000wa is printing data from Infoprint Manager ([Queue]). The printer requires operator intervention.
- Printer 4000wb is printing data from a PSF Direct receiver that uses the SNA logical unit name (**LUNAME**) PSFOS41. Additional data is also available on the Infoprint actual destination and from a PSF Direct receiver that uses the SNA **LUNAME** PSFMVS. The order of the waiting data sources does not indicate which source will access the printer next.
- Printer ps14 is printing data from Infoprint Manager.
- Receiver PSFMVS is in session with the host system and is waiting for printer 4000wb.
- Receiver PSFOS41 is in session with the host system and is connected to printer 4000wb.
- Receiver PSFVSE1 is in session with the host system and is idle, but connected to printer 4000wb.

Note that you can use the **psfstat** command to display information about any Infoprint actual destination, not just those are used by PSF Direct host receivers. For the syntax of the **psfstat** command, refer to the *Infoprint Manager: Reference*, S544–5475.

Displaying the Status of a PSF Direct Destination on the Host System

A host system operator can display the status of any printer managed by the host PSF program, including printers that are attached by PSF Direct. An OS/400 operator can use the Work with Printers display of the iSeries Assistant to display printer status.

Using One Infoprint Actual Destination to Print Data from Multiple Sources

One Infoprint actual destination can print data from more than one host PSF program and from the IBM Infoprint Windows NT server. At any time, however, the Infoprint actual destination can only be dedicated to printing data from a single source: one host PSF program or the IBM Infoprint Windows NT server.

This section describes how to configure and manage the switching of an Infoprint actual destination between data sources. It contains the following topics:

- "Switching between Data Sources"
- "Sharing an Infoprint Actual Destination: An Example" on page 70
- "Displaying the Status of a Shared Infoprint Actual Destination" on page 72

Switching between Data Sources

Switching an Infoprint actual destination between data sources requires two steps:

1. The process using the Infoprint actual destination must end, whether that process is a PSF Direct host receiver or a print process from the IBM Infoprint Windows NT server. When this process ends, the Infoprint actual destination becomes available to another program. See the following topics:
   - "Manually Stopping a PSF Direct Host Receiver"
   - "Automatically Stopping a PSF Direct Host Receiver" on page 69
   - "Automatically Stopping Printing from the IBM Infoprint Windows NT Server" on page 69
2. A PSF Direct host receiver or Infoprint process that prints from the IBM Infoprint Windows NT server must wait for other programs to stop using the Infoprint actual destination. See the following topics:
   - "Controlling the Wait Period for a PSF Direct Host Receiver" on page 69
   - "Controlling the Wait Period for Printing from an IBM Infoprint Windows NT Server" on page 69

Manually Stopping a PSF Direct Host Receiver

A host system operator can end a PSF Direct host receiver by ending the host PSF program that communicates with the host receiver.

To end the IBM Infoprint Windows NT server process manually from Infoprint, refer to the **pdshutdown** command as described in the *Infoprint Manager: Reference*, S544–5475. If you merely disable the printer through the **pddisable** command, the Infoprint processes are not stopped, and the PSF Direct host receiver cannot establish a session.

For more detail about shutting down a PSF Direct host receiver, see "Stopping a PSF Direct Host Receiver" on page 66.

Automatically Stopping a PSF Direct Host Receiver

Most host PSF programs have a Disconnect Interval configuration parameter, such as the **DISCINTV** parameter of the **PRINTDEV** statement in PSF for OS/390. This parameter causes the host PSF program to end the SNA session with a PSF Direct host receiver if there is no data to print for the specified period. Ending the SNA session with the host receiver causes the host receiver to end.

Some host PSF programs, such as PSF for iSeries, do not offer a Disconnect Interval configuration parameter. To enable PSF Direct host receivers to be automatically ended when they communicate with these host PSF programs, the PSF Direct host receiver configuration panel includes an **Inactivity limit** parameter. The PSF Direct host receiver **Inactivity limit** parameter causes a host receiver to end if it waits for data from the host system for the specified period.

Using the host PSF program's Disconnect Interval, if it is available, is preferable to using the PSF Direct host receiver **Inactivity limit** parameter.

Automatically Stopping Printing from the IBM Infoprint Windows NT Server

Each Infoprint actual destination has an actual destination attribute called the **printer-release-timer** attribute. This attribute causes Infoprint to stop printing from the IBM Infoprint Windows NT Server if it has completed the Infoprint spool data and the specified interval elapses with no new Infoprint data.

Controlling the Wait Period for a PSF Direct Host Receiver

The PSF Direct host receiver **Device busy limit** parameter controls how long a host receiver waits for an Infoprint actual destination to become available. The **Device busy limit** parameter has a default value of `120` seconds. If an Infoprint actual destination is used to print from several sources, increase the **Device busy limit** parameter to `9999`. This value means that the host receiver should wait indefinitely.

While a PSF Direct host receiver is waiting for an Infoprint actual destination to become available, the SNA session with the host system is maintained but no application data is exchanged.

Controlling the Wait Period for Printing from an IBM Infoprint Windows NT Server

By default, the Infoprint program that prints from the IBM Infoprint Windows NT Server waits indefinitely for an Infoprint actual destination to become available. There is no configuration attribute that controls how long the program waits.

Table 5 on page 70 summarizes the time limits for Infoprint printing.

Table 5. Time Limit Parameters

For Device	Function	Option	User Interface	Default Value
PSF Direct Host Receiver	Wait for printer	**Device Busy Limit** field.	PSF Direct Receiver Manager window of Infoprint Manager Management Console	120 seconds
PSF Direct Host Receiver	End program, making printer available	**DISCINTV**	Host PSF configuration program	0 seconds (infinite)
Note: DISCINTV is not available in PSF for iSeries.				
PSF Direct Host Receiver	End program, making printer available	**Inactivity limit** field	PSF Direct Receiver Manager window of Infoprint Manager Management Console	9999 seconds (infinite)
IBM Infoprint Windows NT Server	Wait for printer	none	none	infinite
IBM Infoprint Windows NT Server	End program, making printer available	**printer-release-timer** attribute	On the Infoprint Manager Administration GUI, the **PSF Configuration** tab of the Printer Properties notebook	9999 seconds (infinite)

Sharing an Infoprint Actual Destination: An Example

The example in this section illustrates how to share an Infoprint actual destination between two or more host PSF programs using PSF Direct. The actual destination can also print data from the IBM Infoprint Windows NT Server. The configuration parameters cause the printer to be switched automatically.

This section consists of the following topics:

- "Configuring the Host PSF Programs"
- "Infoprint Actual Destination: PSF Tuning Options" on page 71

Configuring the Host PSF Programs

For two or more host PSF programs to share an Infoprint actual destination, they must be configured in similar ways, like the examples in Figure 57, Figure 58 on page 71, and Figure 59 on page 71. Note that the complete configurations would contain more parameters.

```
//PRT833 PRINTDEV
   ⋮

//               DISCINTV=60,      /* DISCONNECT INTERVAL -- SECS */
   ⋮

//               LUNAME=PSFDC4LU   /* LOGICAL UNIT NAME           */
// PRT833   ENDCNTL
```

Figure 57. PRINTDEV Statement for PSF for OS/390 Example

```
PRT1000  PRINTDEV
   .
   .
   .
         DISCINTV=60,       DISCONNECT INTERVAL -- SECONDS
   .
   .
   .
         LUNAME=PSFDC5LU    LOGICAL UNIT NAME
PRT1000  ENDCNTL
```

Figure 58. PRINTDEV Statement for PSF/VSE Example

APPC device description:

```
5769SS1 V4R4M0 990521
Device description . . . . . . . . . :   DEVD         PRTNT3
   .
   .
   .
Local location . . . . . . . . . . . :   LCLLOCNAME   BLDOS44
   .
   .
   .
```

PSF Direct Receiver Manager window:

```
Inactivity limit: 60
```

Figure 59. Configuration for PSF for iSeries Example

Although all three host PSF programs use different LUs, they must have the same disconnect interval. Setting **DISCINTV** to 60 seconds for both PSF for OS/390 and PSF/VSE causes each host PSF program to end if all spool data from the printer is completed and no additional data becomes available for 60 seconds. When the host PSF program ends, the PSF Direct host receiver ends, and the Infoprint actual destination becomes available to other programs. If additional host data becomes available for the Infoprint actual destination, the host PSF program starts again and waits, if necessary, for the printer to become available.

Because the **DISCINTV** is not valid for PSF for iSeries, you must set the **Inactivity limit** in the PSF Direct Receiver Manager window of Infoprint Manager Management Console to 60 seconds instead.

Infoprint Actual Destination: PSF Tuning Options

To allow Infoprint to share the printer with two or more host PSFs, you must adjust the Infoprint actual destination's PSF tuning options. Use the **Printer Properties** notebook in the Infoprint Manager Administration GUI.

Select the actual destination (printer) you want to configure. Then use the **Printer-->Properties** menu to open the Printer Properties notebook. Select the **Tuning** tab and tune the options described in this section.

- The **Release time (sec)** field specifies the number of seconds that Infoprint waits between jobs before giving up control of an actual destination. (This field is equivalent to the **destination-release-timer** attribute.) Setting this value to 60 seconds causes the Infoprint program that prints from the IBM Infoprint Windows NT server to end if it has printed the files in the printer's queue. No additional files become available for 60 seconds. When the program ends, the Infoprint actual destination becomes available to other programs, such as PSF Direct receivers.

If additional files are added to the printer's queue on the IBM Infoprint Windows NT server, the Infoprint program that prints from the server starts again. It waits, if necessary, for the printer to become available.

- Accepting the default **intervention-timer** attribute value of `9999` causes the PSF Direct host receivers that use this printer to issue printer intervention messages on the Windows NT system. It does not cause the host receivers to report intervention conditions to the host PSF program.

  If you use an **intervention-timer** value of `3600` instead, the PSF Direct receivers notify the host PSF program if an intervention condition is not addressed within an hour. The host PSF program issues an operator message and ends the SNA session with the PSF Direct receiver. The **intervention-timer** also causes the PSF program that prints from the IBM Infoprint Windows NT server to end if an intervention condition is not addressed within an hour.
- For continuous-forms printers, set the **Non-process-runout timer** field at a lower value than the **Release-time (sec)** attribute. For example, if the **destination-release-timer** attribute value is `60` seconds, reduce the **non-process-runout-timer** attribute value to `30` seconds.

Finally, you must configure the PSF Direct host receivers for each host that will share the printer. This process is described in "Defining the PSF Direct Host Receiver" on page 64.

Displaying the Status of a Shared Infoprint Actual Destination

The **psfstat** command displays information about the status of Infoprint actual destinations and PSF Direct receivers. The information that **psfstat** displays about an Infoprint actual destination includes:

- The program that currently controls the printer
- A list of the programs waiting to gain control of the printer

For example, **psfstat** might display information like Figure 60.

```
Printer   Attachment   Data   Printer status   Active   Waiting
-------   ----------   ----   --------------   ------   -------
4000wb    TCP/IP       IPDS   intervention     MVS1     [Queue],OS4001

LU name   Printer   Attachment   Data   Printer status   Receiver status
-------   -------   ----------   ----   --------------   ---------------
MVS1      4000wb    TCP/IP       IPDS   intervention     sess/prtr_conn
OS4001    4000wb    TCP/IP       IPDS   intervention     sess/prtr_busy
```

Figure 60. Shared Printer Status

Figure 60 shows that the printer is currently dedicated to printing data from the OS/390 spool. The IBM Infoprint Windows NT server (`[Queue]`) and the OS/400 spool also contain data that is waiting to print.

When the OS/390 host system releases the printer, the printer will print data either from the IBM Infoprint Windows NT server or the OS/400 spool. The order in which the two waiting sources are listed does not imply that the IBM Infoprint Windows NT server has been waiting longer or that it will acquire the printer next.

Figure 60 also indicates that the printer requires intervention.

For more information about the **psfstat** command, see "Displaying the Status of a PSF Direct Destination on the Windows NT System" on page 66 and the *Infoprint Manager: Reference*, S544–5475.

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